

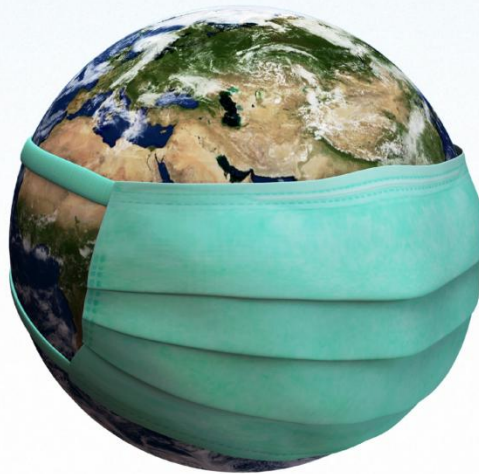


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Arts, Commerce and Science College, Ond
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Proceeding of
Multidisciplinary International E-Conference on
An Impact of Covid-19 Pandemic on
Economy, Sustainable Development &
Health of Global Society
(ICPESH - 2022)

ISBN: 978-93-91768-75-1



Editors

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Prof. A. K. Pathade

Prof. S. M. Ingole

Dr. Y. K. Patil

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President Message



Hon'ble Shri. V. G. Patil

President, S.G.V & S.S.P. Onde, Tal - Vikramagad, Dist. Palghar

The Multidisciplinary International e-Conference on “An Impact of Covid-19 Pandemic on Economy, Sustainable Development and Health of Global Society” is yet another feather in the cap of Arts, Commerce and Science College. This e- conference reflects the honest endeavors of the college. The subject of the conference is extremely relevant to the present times and I am glad and proud that such a conference has been organized on a virtual platform for the first time in college which is in the remote and inaccessible tribal area of Vikramgad in Palghardistrict where academicians, scholars, and students can share their ideas and knowledge of this subject. One thing that I have noticed is that how college continues to work hard in order to bring academic excellence in the college.

It is to be observed that theCovis-19 pandemic has created a very horrible and fearful situation not only in India but also all over the world. It has impacted all the sectors where human being works such as economy, sustainable development and health and so on. And hence, this conference will definitely educate people about an impact of Covid- 19 on various sections of the society in a broader sense.

I am extremely happy to be part of the book of the conference and eager to see academicians and scholars take the benefit of this gathering. I congratulate Commerce and Science Associations and Teaching and Non- teaching staff of the college for making painstaking efforts for the success of the conference. I wish them all the success for the conference.

V. G. Patil

Principal Message



Dr. Vinod Sambhaji Sonawane

I/C Principal

Arts, Commerce and Science College, Onde, Tal. Vikramgad, Dist. Palghar.

It is a matter of great pleasure for me to host this Multidisciplinary International e- Conference on “An Impact of Covid-19 Pandemic on Economy, Sustainable Development and Health of Global Society” that brings us back to where we focus on research activities. This is the first International e-conference that Commerce and Science Associations of Arts, Commerce and Science College, Onde are organizing. First I would like to express my gratitude towards the president of the institution i.e. Sanjivan Gramin and Vaidyakya Samajik Sahayata Pratishthan Hon’ble Shri. V. G. Patil, Acting president Shri. Suresh Kanoja, Secretary Shri. Milind Patil and director Dr. Chetna Patil for supporting and always have confidence in us. Also, I would like to congratulate Commerce and Science Associations for organizing this event. I would like to extend a warm welcome to the resource persons, Dr. Pankaj Girase, Dr. Kinjal Ahir, Mr. Kishor Hirde, researchers and delegates.

Covid- 19 pandemic has impacted on the entire world. It is the reason why there is an obstacle in the growth of the society in terms of economy, sustainable development and education. So, this conference is very important for it highlights on various sectors impacted by Covid-19. Many writers have contributed to this conference. In a way this conference is an attempt to have more constructive discussions and find out how this Covid -19 pandemic impacted several sectors.

I congratulate and thank all the concerned persons who have made this conference possible. I wish it all the best and I sincerely hope that this conference will be beneficial to everyone.

Dr. Vinod Sambhaji Sonawane

Vice - Principal Message



Dr. Chetna Patil

Vice - Principal

Arts, Commerce and Science College, Onde Tal Vikramagad Dist. Palghar

At very outset, I would like to express that the organization of the Multidisciplinary International e-Conference on “An Impact of Covid-19 Pandemic on Economy, Sustainable Development and Health of Global Society” makes me proud and confirms my belief that our college is working hard. This e-conference is an honest endeavor of the college. I would like to congratulate the principal Dr. Vinod Sonavane and the organizing team for making painstaking efforts to succeed this conference. We all know it very well that Covid -19 pandemic has shaken almost all the sectors. And therefore, this subject is very seminal in the present time to explore impact of covid - 19 pandemic through this conference.

It is my great pleasure to be associated with this conference and witness it where many academicians, scholars and students as well share their thoughts on this platform. I extend my all possible support and best wishes to the conference.

Dr. Chetna Patil

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TO STUDY THE IMPACT OF COVID-19 PANDEMIC ON INDIAN AGRICULTURE

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Abstract:

COVID-19 has affected all walks of life now a day. Save the life of the people is the priority of our nation. Its impact on Indian economy is very worst. It has affected near about all sectors such as, Trade, Transport, Commerce, Agriculture, Tourism, Banking sector, Industry, Market, and Services etc. Not only our country but whole of the World is suffering from the COVID-19. This man to man spreading disease has taken away life of the most people of the world. Lacs of the people died due to it. Yet no country in the world get success to stop this horrible disaster. Agriculture sector has most affected by this pandemic. Covid-19 has not only affect the physically and mentally to the life of the farmers but it has affected economically most to the farmers. It has broken the backbone of the Farmers.

Keywords: COVID-19, sectors, disaster, Commerce, Agriculture, Banking sector, Spreading disease

Research Methodology:

Primary data has been collected through the personal interview by the various types of respondents (Specially Farmers). The secondary data has been collected through the information available from Journals, books, Study reports, Government reports, various websites, Publications related to the agriculture. Information is collected through the related agricultural organizations too.

Introduction:

Agriculture sector provides employment more than half workforce to the Indian people. Majority of the farmers in India are peripheral and poor farmers. The COVID-19 crisis disturbs the life of the farmer of India. Winter season crop stood ready for harvest in many agricultural lands. After the lockdown (25th March) harvest of the winter season crop has been delayed.

It is because of non-availability of labour, machinery, transport facilities. Farm workers are not able to go to the field (agricultural land) due to lack of transport facility and

labour work under MNREGS (MANAREGA Scheme) has stopped. While the Indian government has announced several measures like the exemption of agriculture from lockdown limitations in the month of March. But there is a gap in distribution and fulfilment at the basic level.

Ministry of Home Affairs issued the guidelines, Government of India on 15th April 2020. It extended lockdown till 3rd May 2020, exempted Agriculture, Horticulture, Animal Husbandry, Fishery and Poultry, Allied activities from Lockdown restrictions; labourers can go to work, markets are to open, procurement is to happen and agri-input shops and agro-processing centres are to function. MANAREGA work will also commence. Effective spread of the guidelines and implementation on the ground will be very urgent, as farmers harvest the rabi crop and start preparations for the kharif crops.

After the overall lockdown in India was announced, the Finance Minister of our country has declared 1.7 trillion packages, for protecting the vulnerable sections from any adverse impacts of the corona pandemic. Especially the agriculture sector is included in this package.

Immediately 2000 Rupees advance amount is deposited in the accounts of farmers as income support by the Government. The Government also raised the wage rate for the workers engaged under the MANAREGA, which is the world's largest wage guarantee scheme. Pradhan Mantri Garib Kalyan Yojana has been announced for the affected people. For the next three months additional grain allotments to registered beneficiaries were announced. Separate PM-CARES (Prime Minister Citizen Assistance and Relief in Emergency Situations) fund has been created for Cash and food assistance to persons engaged in the informal sector, mostly migrant labourers, have also been announced.

The Indian Council of Agricultural Research (ICAR) has issued state-wise guidelines for farmers to be followed during the lockdown period. The advisory mentions correct practices during harvest and threshing of various winter season crops as well as post-harvest, storage and marketing of the farm produce.

Reserve Bank of India has announced some measures for the farmers, "Burden of Debt Servicing" due to Covid-19 Pandemic. Agricultural and crops loans have been granted a moratorium of three months by banking institutions with three per cent concession on the interest rate of crop loans up to 300,000 Rs. loans for loan takers.

Immediate Challenges:

Restrictions on movements of people and vehicular traffic, concerns have been raised regarding negative implications of Covid-19 pandemic on the farming. This is the peak of winter season crops in India and crops like wheat, gram, lentil, mustard, rice, etc. are at harvestable stage. The disruption to the supply of perishable fruits and vegetables, dairy products, fish, etc. having aggregative to meet the increasing demand from a middle class and urban and rural consumers, may create severe damage to all sectors in the supply chain.

Workers were migrated from few areas to their native places has affected for harvesting operations and post-harvest operations of produce in storage and marketing centres. There is a very important move from the home minister, has notified to erased the movement of farmers, farm labourers and harvesting and sowing related machines from the incident of lockdown.

The most important challenge for the government is to avail the food grains, fruits, vegetables and other essential items available to the people from the village and city areas during the lockdown period.

Main importance should be given to the easy and clear working of the supply chain, with moderate safety measures for the people involved. Transportation of public distribution system items to last mile delivery agents, by both rail and road, has to be ensured by the concern Government agencies. Distribution of the commodities to respected population, while maintaining prescribed guidelines and protocol, particularly of social distancing, must be safely observed.

As the on-going lockdown coincides with the *rabi* harvesting season, farmers of our country look up to the Government to ensure uninterrupted harvesting of the crops as well as smooth marketing operations.

Some important measures given by R. Ramakumar, Professor in Tata Institute of Social Sciences are as follows.

- 1) PM KisanYojana is providing only 6000 Rs. To the farmers annually. It should be 12000 Rs. Per month. 6000 Rs. Payment should be given immediately and remaining 6000 Rs. should pay after six months.
- 2) Pradhanmantri Fasal BimaYojana should be expanding to ensure compensation payments to the farmers affected by the Covid-19 pandemic.
- 3) MANAREGA workers should be provided with job cards. Some allowance should be given to them. At least 100 days work salary should be paid to them.

- 4) Food grain should be distributed among the poor people free of cost. Remaining needy people, job lost people, unemployed people the priority of feel their stomach should be held by the government. And to the other people food grain should be provided in the subsidized rate. (i.e. 5 Rs. per KG.)
- 5) Efforts should be made to arrange food, shelter and clothing to all workers in villages. Cooked food should be providing migrant workers by the government agencies.
- 6) Loans should be provided to the small and marginal farmers. There previous loan interest should not be taken.
- 7) Government should provide the food to the needed people. In emergencies the government should prepare itself for the take-over of large parts of the procurement and supply of essential food items from the private sector, including trucks, warehouses, go-downs and establishments.

Conclusion:

- 1) Agriculture is mostly suffered due the Covid-19 Pandemic.
- 2) The Economic condition of the Indian farmer becomes worse due to the covid-19 pandemic.
- 3) Government tries its level best but could not stop the adverse effects of the covid-19 pandemic.
- 4) Farmers got some benefits from the government schemes but it found very scarce to the Indian farmers.
- 5) Government of India as well as state government must check whether the schemes from them run properly or not. Every needy farmer must get the benefit of the government scheme, but it should not run faultily.
- 6) When government starts any of the financial scheme it must be think about the economy of our country.
- 7) Government should run many of the schemes for not only the uplift of the farmer but it should uplift the agricultural sector and finally the economy of our country.

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A STUDY ON THE ROLE OF AGRICULTURE SECTOR IN THE DEVELOPMENT PROCESS OF INDIAN ECONOMY

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Abstract:

India is an agriculturally dependent country. The majority of the population in India lives in rural areas and that population are totally dependent on agriculture for their livelihood. Agricultural development is the best solution for rapid development of rural areas. Therefore, since independence, various programs, plans and policies have been implemented with the aim of accelerating agricultural development by implementing five annual plans. Agriculture plays an important role in the country's national income, industrial development, foreign trade and job creation. This study looks at the contribution of agriculture sector in the development process of Indian economy.

Keywords: Agriculture, Economy, National Income, Growth Rate, Industrial, Sector Employment, Development, Five Year Plan

Introduction:

Agricultural development plays an important role in the economic development of any country. Agriculture plays an important role in providing food to the people of the country. Agriculture in India is the backbone of the rural economy. Agriculture is the livelihood of the people in the rural areas of our country. India is the second most populous country in the world. As a result, huge amount of population is involved in agriculture in the country. Therefore, there is a complementary relationship between the Indian economy and agriculture sector in the development of India. Apart from this the important work of supplying raw material to the industrial sector is done by the agriculture sector. Agriculture is an important sector of Indian economy as it contributes about 17% to the total GDP and provides employment to over 60% of the population. Indian agriculture has registered impressive growth over last few decades. The rapid growth has helped Indian agriculture mark its presence at global level. Therefore, it is important to study the contribution of agriculture to the development process in the Indian economy. This study analyzes the important factors related to agriculture in the economic development of the country.

Objectives of Study:

1. To study of the contribution of agriculture in national income
2. To study of the contribution of agriculture in employment creation
3. To study of the contribution of agriculture in industrial development

Research Methodology:

The study presented is based on a secondary source of information and is based on analytical, descriptive and comparative methods of obtaining information. Books, journals, newspapers, internet have been used for this study.

Limitations of Study:

- The present study is based entirely on agriculture sector in India.
- The present study is only the role of ni erutlucirga development process in Indian economy.
- The findings of the present study reflect only this period.

You can see that the development of Indian agriculture is less than that of the developed countries of the world. In the early days of independence, Indian agriculture was backward. The method of farming was traditional. The growing population of the country, stress on agriculture, lack of mechanization, lack of capital, illiteracy, joint family system, norms, customs, and traditions were some of the reasons that hindered the development of agriculture. However, the importance of agriculture in Indian development does not diminish. Because most of the people in the country depend on agriculture for their livelihood. Even today, agriculture is the main source of income and livelihood for more people in the country. Other components of the economy cannot develop without the contribution of agriculture. Attempts have been made to study the role of agriculture in the development process of the Indian economy at present.

Five Year Plan: Agriculture progress

The planning period can be calculated on the basis of the following factors of agriculture sector in the India.

.1Technical strategy:

In the meantime, an important principle has been adopted to meet the food needs of the growing population. For this, emphasis was laid on increasing the area under agriculture, intensive farming, and development of irrigation facilities.

Emphasis was placed on the use of high yielding seeds, supplementation of fertilizers and pesticides to increase food production. As a result, food grain production increased from 5crore 8lakh tonnes in 51-1950to 26crore 48lakh tonnes in .14-2013

.2Institutional loan supply:

Farmers need loans for building agricultural infrastructure, purchasing fertilizers, seeds, etc. The expanded institutional loan repayment facilities to provide loans for farmers. The government provided financial assistance to co-operative financial institutions. Regional Rural Banks were set up for agricultural credit expansion. The established national bank for agriculture and rural development (NABARD) on 12th July 1982. The availability of institutional credit facilities has reduced the dependence of farmers on lenders.

.3Food security arrangements:

During the plan period, the government expanded the public distribution system across the country to provide food and other necessities to the people.

Emphasis was placed on stockpiling along with distribution of food grains through public distribution system. This has helped in achieving the goal of food security.

.4Rural Employment Program:

A large part of the country's population lives in villages. People in rural areas needed financial security to buy food from the public distribution system. For this, emphasis was laid on creating rural employment during the plan period. Various employment generating schemes were implemented.

.5Green Revolution:

Green revolution is an important factor in the phase of food grain production. A number of special schemes were launched in the Seventh Five Year Plan to spread green revolution in the north-eastern and arid regions of the country.

Growth rate of agriculture sector during Five Year Plan (%)

Sr. No.	Five Year Plan	Growth rate in agriculture	Sr. No.	Five Year Plan	Growth rate in agriculture
1	First Five Year Plan	2.71	7	Seven Five Year Plan	3.47
2	Second Five Year Plan	3.17	8	Eight Five Year Plan	4.68
3	Third Five Year Plan	-0.73	9	Nine Five Year Plan	2.02
4	Fourth Five Year Plan	2.57	10	Ten Five Year Plan	2.30
5	Fifth Five Year Plan	3.28	11	Eleven Five Year Plan	4.10
6	Six Five Year Plan	2.52	12	Twelve Five Year Plan	NA

Economic Survey of India 2019-20

The growth rate of agricultural production was negative in the third plan. In the 11th Five Year Plan, the growth rate of the agricultural sector was above 4%. 2. In the 11th Five Year Plan, the agricultural sector contributed more than 25% in the overall GDP of the India.

Contribution of Agriculture in National Income:

In any economy, the share of agriculture in GDP varies from economy to economy. It is extremely low in developed economies and high in developing underdeveloped economies. After World War I, the share of agriculture in GDP was 2/3. This is because India's industrial side was weak. At the time of independence, the share of agriculture in GDP was 56. While in 2018-19, the share of agriculture and agro-based sector in GDP stood at 16.1%.

Contribution of Agriculture in GDP (%)

Sr. No.	Year	The share of agriculture in GDP (%)	Sr. No.	Year	The share of agriculture in GDP (%)
1	1950 _s	56.1	15	2009 – 2010	17.74
2	1960 _s	47.8	16	2010 -2011	18.21
3	1970 _s	42.8	14	2008 – 2009	17.78
4	1980 _s	36.4	17	2011-2012	17.86
5	1990 _s	29.1	18	2012 - 2013	17.52
6	2000 – 2001	23.09	19	2013 – 2014	18.20
7	2001- 2002	24.0	20	2014 – 2015	18.20
8	2002 – 2003	21.05	21	2015 - 2016	17.05
9	2003 – 2004	21.07	22	2016 -2017	15.26
10	2004 – 2005	20.7	23	2017 - 2018	17.95
11	2005 -2006	19.7	24	2018 - 2019	17.6
12	2006 – 2007	18.29	25	2019 - 2020	18.4
13	2007-2008	18.26	26	2020-2021	20.2
14	2008 – 2009	17.78	-	-	-

Source: Computed from National Accounts Statistics and Agricultural Statistics at a Glance, Ministry of Agriculture, and Government of India.

This table shows that although the share of agriculture in GDP has been steadily declining, agriculture is still an important sector contributing to the national product. The declining share of agriculture in GDP indicates that the least developed economy is entering the developed economy.

Contribution of Agriculture in Industrial Development:

The development of Indian industry is largely dependent on agriculture sector. The raw material required for all types of industries in India is derived from agriculture sector. The textile, jute, sugar, etc. industries are directly dependent on agriculture sector. There is also a close link between agricultural development and industrial development. According to

thinkers, while agricultural production grew by 1.0%, industrial output grew by 0.5% and national income by 0.7%. The role of agriculture in economic development and stimulates industrial expansion: expansion in the agriculture sector also led to the expansion of the industrial sector. When agriculturalists have savings, they can buy consumer goods, invest in industries too. This result in an indirect expansion of the industrial sector.

As a result of agricultural progress, there will be extension of market for industrial products. Increase in agricultural productivity leads to increase in the income of rural population which is turn leads to more demand for industrial products, thus development of industrial sector.

Contribution of Agriculture to Foreign Trade:

India is one of the major exporters of agricultural products. Agriculture is very important in terms of foreign trade. Agriculture accounted for 19.4 per cent of India's total exports in 1991. In 2011-12, it was 12.8 per cent and in 2018-19, it declined to 11.1 per cent. India's agricultural exports grew by 17.5 per cent to 41.8 billion In 2020-21, although total merchandise exports fell 7.2 per cent to 290.8 billion in 2019-20. India has done well on the agro-export.

Role of agriculture in economic development:

- Providing employment
- Resources for Capital Formation
- Stimulates industrial expansion
- Supply of Foreign Exchange
- The Shift of Manpower
- Supply of Food and Raw Materials
- Helpful to Reduce Inequality
- Create Effective Demand
- Source of Foreign Exchange for the Country

Place of agriculture in the Indian economy:

- The major source of livelihood
- Increase in foreign trade
- More capital investment
- Poor inputs and techniques
- Inadequate irrigation facilities
- Indebtedness of the farmers
- Low adoption of improved technology
- Absence of Innovation in Agriculture

- Rural transport and communication network
- Government Measures
- Expanding Government's Role
- Laudable objectives
- Appropriate measures
- Considerable resources

Conclusion:

Agriculture is the Indian economy's most important sector. India's farm sector is the largest industry. Approximately 70 per cent of people in India are either farmer as a vocation or as workers. The share of GDP is just 18 per cent. But it provides employment for around 50 per cent of the workforce in the country. It provides food in India for about 135 crore people. India has become the world's largest producer of pulses, rice, wheat spices, etc. Approximately 12 per cent of export earnings come from the agricultural sector. The Indian trade surplus of 14.6 billion dollars from agriculture generated in 2018. These stats show how big and important part of the country's functioning is the agriculture sector. With constant changes and developments happening, policies being introduced, it is only going to go upwards from here and will always remain as an important factor in the economic development of the nation.

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कोरोना महामारीचे भारतीय अर्थव्यवस्थेवरील परिणाम

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प्रास्ताविक:

चीन या देशातून सुरू झालेला कोरोना महामारीचा आजार संपूर्ण जगभर पसरत चालला आहे. भारतच नाही तर जगभरातले 190 हून अधिक देश हे कोरोना महामारीमुळे प्रभावित झालेले आहेत. यावर नियंत्रण करण्यासाठी इतर उपायांबरोबरच लॉकडाऊन हा उपाय करण्यात आला. याचा परिणाम अर्थव्यवस्थेवर दिसून आला. रायटर्स वृत्तसंस्थेने केलेल्या पाहणीनुसार कोरोना महामारीत रूग्णांची संख्या झपाट्याने वाढत असल्याने उत्पादनाच्या विक्रीत वाढ झाली नाही आणि उद्योग व्यवहारात हा अजूनही मर्यादित पातळीवर होत आहे. जागतिक पातळीवरील अनेक संस्थांनी भारताचा विकास दर 0 टक्के राहण्याचे संकेत दिलेले.

अर्थव्यवस्थेला चालना देण्यासाठी भारत सरकारने 20 लाख कोटीचे आर्थिक पॅकेज जाहीर केले होते. लॉकडाऊनमुळे छोटे मोठे उद्योग बंद झालेत, पुरवठा साखळी तुटली, कंपन्या, दुकाने, मॉल बंद झालेत. या सर्वांचा परिणाम कोट्यावधी लोकांना घरी बसावे लागले तर लाखोंचे रोजगार गेले आहे. या सर्वांचा परिणाम देशाच्या विकास दरावर झाला आहे.

कोरोना महामारीचा प्रसार रोखण्यासाठी करण्यात आलेल्या उपाययोजनांमुळे देशाच्या अर्थव्यवस्थेवर विविध परिणाम झाल्याचे आपणास दिसून येतात.

संशोधनाची उद्दिष्टे:

प्रस्तुत संशोधनासाठी काही उद्दिष्टे निश्चित करण्यात आली आहेत.

1. कोरोना महामारीचा आर्थिक वृद्धीवर झालेल्या परिणामांचा अभ्यास करणे.
2. कोरोना महामारीचा उद्योगावर झालेल्या परिणामांचा अभ्यास करणे.
3. कोरोना महामारीचा शेतकऱ्यांवर झालेल्या परिणामांचा अभ्यास करणे.
4. कोरोना महामारीचा कामगारांवर झालेल्या परिणामांचा अभ्यास करणे.

संशोधनाची गृहितके:

प्रस्तुत संशोधनासाठी पुढील प्रमाणे गृहितके मांडण्यात आली आहेत.

1. कोरोना महामारीचा देशाच्या आर्थिक वृद्धीवर परिणाम झाला आहे.
2. कोरोना महामारीचा उद्योगावर परिणाम झाला आहे.
3. कोरोना महामारीचा शेतकऱ्यांवर परिणाम झाला आहे.
4. कोरोना महामारीचा कामगारांवर परिणाम झाला आहे.

संशोधन पद्धत:

प्रस्तुत संशोधनासाठी द्वितीय साधन सामग्रीचा वापर करण्यात आला आहे. यामध्ये दैनिक, मासिक, विविध वेबसाईटचा समावेश करण्यात आला आहे.

कोरोना महामारीचा आर्थिक वृद्धीवरील परिणाम:

जागतिक बँकेच्या एका अहवालानुसार, ज्या विकसनशिल देशांच्या अर्थव्यवस्थांना कोरोना महामारीचा फटका बसला आहे त्यामध्ये भारत दुसऱ्या स्थानी आहे. ऑक्सफोर्ड इकॉनॉमीनुसार कोरोना महामारीचा सगळ्यात मोठा परिणाम भारतीय अर्थव्यवस्थेवर झाला आहे. भारतीय अर्थव्यवस्थेचा वेग कोरोना संकटाच्या आधीपासूनच संथ होऊ लागला होता.

कोरोना महामारी रोखण्यासाठी लागू करण्यात आलेल्या लॉकडाऊनमुळे देशातील सर्वच आर्थिक व्यवहार थांबले. त्यामुळे देशातील उत्पादनात घट झाली. 2019-20 या आर्थिक वर्षात सकल राष्ट्रीय उत्पन्न अर्थात GDP घसरून 4.3% आला होता. गेल्या अकरा वर्षातली ही सर्वात मोठी घसरण होती. भारतातील स्थूल देशांतर्गत उत्पादन (GDP) जुलै 2019 मधील 5.2% वरून मार्च 2020 मध्ये तो 3.1% नी घटलेला दिसून आला. 2020-21 या संपूर्ण आर्थिक वर्षासाठी GDP 7.3% ने घटला आहे जो 9.5% राहण्याचा सरकारचा अंदाज होता.

कोरोना महामारीचा उद्योगावरील परिणाम:

कोरोना महामारीमुळे संपूर्ण जग अडचणीत सापडले आहे. कोरोना महामारीचा संसर्ग रोखण्यासाठी लॉकडाऊन सारख्या उपायांचा वापर करण्यात येत आहे. यामुळे देशांतर्गत आणि देशाबाहेरील उत्पादन, सेवा आणि उद्योग बंद करण्यात आलेले आहेत. देशातील लॉकडाऊनमुळे बांधकाम व्यवसाय, पर्यटन उद्योग, वाहन उद्योग, वाहतूक उद्योग, माहिती आणि तंत्रज्ञान क्षेत्र या सर्व व्यवसायावर अवलंबून असणारे इतर लहान मोठे उद्योग व सेवा क्षेत्र मोठ्या प्रमाणात बाधित झाले. संबंधित उद्योगांसाठी आवश्यक असणारा कामगार वर्ग मोठ्या प्रमाणात गावी निघून गेला असल्याने विविध उद्योगांना कामगार मिळविण्यासाठी प्रयत्न करावे लागत आहेत.

कोणत्याही उद्योगासाठी भांडवल हा घटक महत्वाचा असतो. परंतु अगोदरच वित्तीय संस्था थकित कर्जांमुळे अडचणीत आल्या आहेत. त्यामुळे उद्योगांना नव्याने भांडवल उपलब्ध करण्यासाठी अडचणीचा सामना करावा लागत आहे.

कोरोना महामारीमुळे सरकारने केलेल्या लॉकडाऊनमुळे कच्चा मालासाठी देशांतर्गत उपलब्ध मालावरच अवलंबून राहावे लागत आहे. यामुळे उत्पादन क्षमतेवर परिणाम झाला. देशातील बहुतांश उद्योग हे निर्यातक्षम झालेले आहेत. त्यांची उत्पादनेही जगभर विक्री केली जातात तर काही उद्योग परदेशातून आयात केल्या जाणाऱ्या सुट्या भागावर अवलंबून आहेत. अशा सुमारे 50% उद्योगांवर कोरोना महामारीचा परिणाम झाला आहे. आज परिस्थिती सामान्य दिसत असली तरी येणाऱ्या काळात हा प्रश्न गंभीर होणार आहे.

कोरोना महामारीचा शेतकऱ्यांवरील परिणाम:

भारतीय अर्थव्यवस्थेत सर्वाधिक रोजगार देणारे क्षेत्र म्हणून शेतीकडे पाहिले जाते. भारताची जवळपास 56% लोकसंख्या शेतीवर अवलंबून आहे. कोरोना महामारीत शेती क्षेत्र विकास दरात भरीव योगदान देत असतांना लॉकडाऊनच्या काळात मात्र बहुतेक शेतकरी आपला माल विकू शकले नाहीत किंवा त्यांना अत्यंत कमी भावाने आपला माल विकावा लागला. भारतातील 85% शेतकऱ्यांकडे 2.5 हेक्टरपेक्षा कमी जमीन आहे. या जमीनीत कष्ट करून ते आपल्या कुटुंबाचा उदरनिर्वाह करतात. कोरोना महामारीच्या संकटात भाजीपाला, दुग्धव्यवसाय, फळशेती करणाऱ्या शेतकऱ्यांचे नुकसान झाले. लॉकडाऊनमुळे मजुरी, वाहतूक आणि लागवडीचा खर्च वाढला त्यामुळे शेतकरी अडचणीत सापडला.

शेतकरी वर्षभराचे नियोजन करून पीक लागवड करत असतो. खरीप पीकांसाठी लागणारे बी-बियाणे, जंतुनाशकाचा तुटवडा, खताचा तुटवडा असल्यामुळे खरीप हंगामावर परिणाम झाला. ह्यातच बोगस बियाणेवाल्या माफियांनी या परिस्थितीचा फायदा घेऊन शेतकऱ्यांना अडचणीत आणले. खरीपात झालेला अतिपाऊस, पीकांवर आलेले रोग यामुळे उत्पादन घटले आणि पडलेल्या बाजारभावामुळे शेतकरी कर्जबाजारी झाला आहे. बऱ्याचदा कोरडवाहू शेती करणारे शेतकरी शेतीचा हंगाम संपल्यावर शहरात जाऊन काम करून आपल्या संसाराला आर्थिक बळ देत असतात पण कोरोना महामारीमुळे हे रोजगार बंद झाल्यामुळे सुद्धा शेतकऱ्यांची आर्थिक घडी विस्कटली आहे.

कोरोना महामारीचा कामगारांवरील परिणामः

अमेरिका-युरोप यांच्याप्रमाणे भारतात कोरोनाचा कहर झाला नसला तरी भारतीय अर्थव्यवस्था या कोरोनाच्या महामारीने बाधित झाली आहे. 2018-19 या वर्षात करण्यात आलेल्या आर्थिक सर्वेक्षणानुसार भारतातील एकूण कामगारांपैकी 93% कामगार हे असंघटित क्षेत्रात काम करतात. सध्याची परिस्थिती पाहता अपुरी सामाजिक सुरक्षा, अनियमित आणि अनिश्चित उत्पन्न या कारणामुळे अर्थव्यवस्थेतला सर्वात मोठा असलेला हा घटक संकटाचा सामना करतांना दिसत आहे.

रोजंदारीवर काम करणारे मजुर, नाका कामगार आणि किरकोळ व्यवसाय करून स्वतःचा उदरनिर्वाह करणाऱ्या कामगारांची या संकटकाळात काय हालत झाली असेल याची कल्पनाही करवत नाही. लॉकडाऊनमुळे अन्न आणि निवारा यांची भ्रांत निर्माण झाल्याने देशातील लाखो स्थलांतरीत मजुरांनी आपल्या गावाकडची वाट धरली. संघटीत क्षेत्रात काम करणाऱ्या कर्मचाऱ्यां समोरही रोजगाराचा प्रश्न आ वासून उभा आहे. तसेच नोकरी हातातून जाण्याचे संकट त्यांच्यावरही घोंघावत आहे.

भारतीय अर्थव्यवस्थेच्या वाटचालीवर बारकाईने लक्ष्य ठेवणाऱ्या 'सेंटर फॉर मॉनिटरिंग इंडियन इकॉनॉमी' (सीएमआयई) या संस्थेने 5 एप्रिल 2020 रोजी संपलेल्या आठवड्यापर्यंत भारतातील बेरोजगारीचा दर तब्बल 23.4% नी वाढल्याचा अंदाज व्यक्त केला. फेब्रुवारीत 7.8 % असलेला हा दर मार्चमध्ये 8.7% पर्यंत वाढला होता. यावरून कोरोना महामारीमुळे कमी कालावधीत बेरोजगारी कित्येक पटींनी वाढली हे लक्षात येते.

कोरोना महामारी आणि बेरोजगारीः

कोरोना महामारीमुळे कंपन्या उद्योग, बांधकाम व्यवसाय, कारखान्यात काम करणाऱ्या लोकांचे विविध मार्गाने रोजगार गेले आहेत. एक म्हणजे कामाचे तास कमी करण्यात आले. दुसरे म्हणजे रोजंदारीवर असलेल्यांचा रोजगार गेला व तिसरे म्हणजे स्वयंरोजगार नष्ट झाला आहे. 'सेंटर फॉर मॉनिटरिंग इंडियन इकॉनॉमी' (सीएमआयई) या संस्थेने ऑगस्टमध्ये या संदर्भातील आकडेवारी जाहीर केली असून एप्रिल ते जुलै 2020 या काळात संघटीत क्षेत्रातील बेरोजगारीचा आकडा 1 कोटी 90 लाख असल्याचे म्हटले आहे. देशात सध्या बेरोजगारीचे प्रमाण 27.1% पर्यंत वाढलेले आहे. यापेक्षा जास्त प्रमाणात वाढू शकते असे या संस्थेचे मत आहे.

सीएमआयई च्या अहवालानुसार देशातील सुमारे 13 कोटी लोकांना आपला रोजगार गमवावा लागला असून यात छोट्या मोठ्या उद्योगात काम करणारे श्रमीक, फेरीवाले, रस्त्यावर विक्री करणारे, रिक्षा चालक, खाद्य पदार्थ विकणाऱ्यांचा समावेश आहे.

सारांश:

कोरोना महामारीचा परिणाम इतर देशाप्रमाणेच भारतासारख्या विकसनशिल देशावर सुद्धा झाल्याचे आपणास दिसून येतो. कोरोना महामारीचा परिणाम देशाच्या उद्योग क्षेत्रावर, कृषी क्षेत्रावर झाल्यामुळे उद्योग, व्यवसाय, कारखाने व शेतीमध्ये काम करणारे शेतमजूर, कामगार यांना सर्वात जास्त लॉकडाऊनचा फटका बसला आहे. त्यामुळे बेरोजगारीत वाढ झालेली आपणास दिसून येते. या सर्वांचा परिणाम म्हणून देशाच्या आर्थिक वृद्धी दरात घट झाली.

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IMPACT OF COVID – 19 PANDEMIC ON FINANCIAL STABILITY

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Abstract:

During the Covid-19 pandemic, the Indian Banking System faced the problem of sound credit supply and so the gap between the demand and supply of credit has increased. Because of the impact of Covid-19 pandemic, other structural issues and different existing problems, the aim of the RBI to overcome financial instability, at present, has not materialized. There is a need to strengthen the capacity in order to attain financial inclusion and live a strong and healthy life without of poverty. Due to the issue of Covid -19 pandemic, disequilibrium of financial markets and the real economy has increased in recent times, in India. Stretched valuations of financial assets pose risks to financial stability in the country. There is a need for cooperation between the financial intermediaries and common citizens of the nation.

Keywords: Financial Stability, Financial Inclusion, Covid 19 Pandemic, RBI, Monetary Policy, Monetary Reforms, Sound Banking, Debt and Credit, Demand Side, Supply Side, Financial Market.

Introduction:

The analysis of the present status of financial stability in India is essentially dependent on the Reserve Bank of India. Financial stability report issue number 22, dated January 2021, and also relies on the Reserve Bank of India. Both the reports show the following details regarding the present status of the financial stability in India. Governor of The Reserve Bank of India, Mr Shakti Kanta Das says that Covid- 19 pandemic has changed the world completely. There has been a greater impact on human and economic conditions including financial stability and financial inclusion. Due to the impact of Covid-19 pandemic, many people lost their jobs and employment opportunities. Because Corona has badly impacted the entire economy, financial exclusion will increase. The gap between total demand for credit and total supply of credit for attaining financial stability and financial inclusion has increased during covid-19. The construction of the Indian banking system is very much institutional and strong because of their control, measures and security.

During the Covid-19 pandemic, the Indian Banking System faced the problem of sound credit supply and so the gap between the demand and supply of credit has increased. Because of the impact of Covid-19 pandemic, other structural issues and different existing problems, the aim

of the RBI to overcome financial instability, at present, has not materialized. There is a need to strengthen the capacity in order to attain financial inclusion and live a strong and healthy life devoid of poverty. Due to the issue of Covid -19 pandemic, disequilibrium of financial markets and the real economy has increased in recent times, in India. Stretched valuations of financial assets pose risks to financial stability in the country. There is a need for cooperation between the financial intermediaries and common citizens of the nation.

ICT Technology played an important role during Covid-19 pandemic in attaining financial inclusion and financial stability. ICT introduced a digital payment system for smooth functioning during the pandemic. Nowadays, digital banking has increased and it has proved to be important especially for attaining the aims and objectives of financial stability. Covid-19 pandemic is one natural aspect that badly impacted the economy and the business cycle. Now whatever it is, there is a need to employ best policy initiatives and to look forward to restoring economic growth and equitable development. For all these aspects, financial stability is like a precondition for building a strong nation.

According to the RBI, in the financial stability report of July 2021, the following points have been discussed on the present status of financial stability in India.

- 1) After the disastrous impact of Covid -19 pandemic and many more lockdowns , domestic as well as global economic activities have increased. For example, the U-shape growth anticipated in future..
- 2) The status of export and import and several other trades have increased gradually.
- 3) The status of daily need products' prices have increased. Due to the impact of covid-19 pandemic and lack of production and disequilibrium in the LS and LM markets , prices have increased.
- 4) At international level, there has been a rise in crude oil prices. Inflationary pressures on oil seeds and petrol and petrol products including LPG have hiked up.
- 5) At the same time, due to the impact of lockdowns and economic issues, prices and inflationary pressures on the products pertaining to basic needs have increased.
- 6) During the Covid-19 pandemic, financial markets have gained profit with the help of credit facilities.
- 7) Insurance sector claims and awareness about the insurance market have increased.
- 8) Credit supply of all the commercial banks has increased and at the same time, banks are ready to provide credit supply at a minimum rate of interest. Interest rates on credit supply have decreased.
- 9) During the Covid -19 pandemic, especially during the first and second wave of Covid -19 and during the lockdown, demand and supply chain faced major difficulties in both the commodity and financial markets.

- 10) During the Covid-19 pandemic, RBI introduced better policy measures to correct market disequilibrium. RBI announced systemic and targeted measures.
- 11) Due to the lack of economic activity and Covid impact, the financial market suffered from weak demand for credit. For attaining the objective of financial stability, the banking system faced stiff conditions to provide credit supply to all the weaker sections of the society.
- 12) During the Covid -19 pandemic, there has been a price rise of the products pertaining to basic needs because of which common people and unemployed people suffered.
- 13) In the year 2020-21, poverty and unemployment increased. Financial Exclusion was at its peak during the Covid -19 periods.
- 14) Institutional banking improved their performance and even profit.
- 15) Domestic macro financial development strategy did not work efficiently for attaining financial stability in the country.
- 16) In SCBs' banking stability indicator, all five dimensions like credit, soundness, profitability, liquidity, risk and profit and efficiency are seen.
- 17) As per SCB, sectorial sector share in credit, in the year 2020-21, for agriculture is 12% and for industry is 28.9%.
- 18) In the second wave of Covid -19 there has been a slowdown in the wholesale credit as compared to the retail credit.
- 19) In February 2021, the bank credited 2.46 lakh crores to MSME.
- 20) Bank credit to NBFCs and HFCs showed contrasting movements during the year 2020-21. NBFCs credit declined whereas CFCs credit increased. Bank credit to housing during 2020-21 increased.
- 21) The Government of India now wants to focus on healthcare infrastructural facilities.
- 22) This RBI's financial report of January 2021 and July 2021 focuses more on Covid -19 pandemic.
- 23) Risks regarding financial stability have increased in the period of Covid -19 pandemic. At the same time, financial exclusion has increased. Attaining financial stability during this time has become a serious issue.
- 24) Aggregate deposits of SCBs have increased.
- 25) The report shows that SCBs credit has increased by 54% in the year 2020-21 which is lowest as compared to the last four financial years.
- 26) Agriculture credit has decreased during Covid -19 pandemic.
- 27) Central bank (RBI) and other regulatory authorities are now taking serious initiatives to overcome financial instability and financial exclusion in the country.

- 28) RBI has increased more financial products and monetary innovations for attaining quick financial stability.
- 29) Reserve Bank of India has now announced some important regulatory measures for attaining financial stability, since January 2021, it has introduced the following important regulatory measures for attaining financial stability.
 - 1) PIDF scheme(Payment Infrastructure Development Fund)
 - 2) LEI for large value transactions in centralised payment system
 - 3) Grievance redress mechanism in banks
 - 4) Maintenance of cash reserve ratio(CRR)
 - 5) Investment in NBFCs from FATF for non-compliant jurisdictions
 - 6) Remittances to IFSCs under LRS
 - 7) Priority sector lending PSL banks to NBFCs
 - 8) Parking of unutilised ECB proceeds intern deposits
 - 9) Maximum balance per customer at the end of the day for bank payments
 - 10) Credit to MSME entrepreneurs
 - 11) Resolution of Covid-19 related stress of MSMEs
 - 12) Resolution of Covid -19 related stress of individuals and small businesses
 - 13) Mandating interoperability of full KYC prepaid payment instruments
 - 14) Investment in entities from FATF non-compliant jurisdictions
 - 15) SEBI has also now become more effective in their regulations
 - 16) RBI,IRDA,PFRDA have become more regulative and efficient
 - 17) More focus is on the Bankruptcy Board of India and their regulations and controls.
 - 18) Now RBI also has introduced international financial service centres authority and their different regulations.

All the above points and their explanations show the present status of financial stability in India. Overall, we can say that during the entire year of 2020-21, The Indian Economy and banking system of the country were unable to achieve financial stability. Now the economy is slowly improving with different financial variables and thus there is hope for a better future of financial stability and financial inclusion in the coming years.

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कोविड-१९ दरम्यानभारतातील स्थलांतरित कामगारांची स्थिती

प्रा. डॉ. नागेश मोहनराव सूर्यवंशी

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प्रास्ताविक:

जागतिक आरोग्य संघटनेच्या (WHO) अहवालानुसार, डिसेंबर २०१९ मध्ये पहिल्यांदा कोविड - चा १९ संसर्ग लोकांमध्ये होत असल्याचे नोंदवले गेले. संपूर्ण जग एका अभूतपूर्व संकटात सापडले या . साथीच्या रोगाचा सामना करण्यासाठी प्रतिबंधात्मक उपाय म्हणून लॉकडाऊन जागतिक स्तरावर लादण्यात आले लॉकडाऊनच्या . स्थलांतरित मजूर हा घटक सर्वात असुरक्षित असल्याचे आढळून आले . तसेच त्यांचे जीवनमान पूर्णपणे ठप्प झाल्याचे आढळून आले . भारतात लॉकडाऊन दरम्यान स्थलांतरित कामगारांना तोंड द्याव्या लागलेल्या संकटांच्या विविध पैलूंचा तपशीलवार अभ्यास करणे हा या शोध निबंधाचा मूळ उद्देश आहे.

कोविड१९' विषाणू विरुद्ध लढणाऱ्या जगातील तमाम गरीब देशांमध्ये समान धागा काय असेल, तर तो स्थलांतरित मजुरांच्या हालाखीचा, दुर्लक्षित, संतप्त आणि उपासमार होत असलेल्या स्थलांतरित मजुराची दयनीय स्थिती हा आहे. कोरोना व्हायरसचा प्रादुर्भाव रोखण्यासाठी अनेक देश जोमाने लढताना दिसताहेत. परंतु गाव-खेड्यांतून शहरांमध्ये येऊन स्वतःसाठी व कुटुंबासाठी चांगले आयुष्य उभे करण्याच्या प्रयत्नात असलेल्या गोरगरिबांच्या वाट्याला दुःखाशिवाय आज तरी काही नाही . भारतातील असंख्य स्थलांतरित कामगार हे सामान्यतः छोट्या कंपन्यांमध्ये काम करणारे किंवा स्वयंरोजगार करणारे, घरकाम, बांधकाम, ड्रायव्हर, माळी, रोजंदारी आणि छोट्या-मोठ्या वस्तूंच्या विक्रीसाठी गावातून शहराकडे स्थलांतर करणारे असतात . काही कामगार बांधकामांच्या ठिकाणी रोजंदारीवर उदरनिर्वाह करतात. कोरोनाच्या संकटकाळात सरकारने या स्थलांतरित कामगाराकडे दुर्लक्ष केल्याचे भयानक परिणाम झाले आहेत . भारतामध्ये मा. पंतप्रधान नरेंद्र मोदी यांनी २१ दिवसांचा देशव्यापी लॉकडाऊन जाहीर केल्यानंतर अनेक मोठ्या शहरांतील बसस्थानके, रेल्वेस्थानके हजारो स्थलांतरित मजुरांच्या गर्दीने ओसंडून गेली . लॉकडाऊनमुळे या मजुरांची एका दिवसात 'ना काम ना दाम' अशी अवस्था निर्माण झाली व ते घरापासून दूर उघड्यावर टाकले गेले. सार्वजनिक आणि खासगी वाहतूक बंद असल्याने अनेकांनी शेकडो किलोमीटर पायी चालतच आपल्या

गावाकडच्या घराची वाट धरली .त्यातील अनेकांना घरी पोहोचण्यासाठी कित्येक दिवस लागले . काही जणांचा तर वाटेतच मृत्यू झाला.

कोविड-१९ चे स्थलांतरित कामगारांची स्थिती पुढीलप्रमाणे-

१. अन्नधान्याचा तुटवडा:

सरकारी अहवालानुसार, भारतीय अन्न महामंडळाच्या गोदामामध्ये गरिबांना किमान दीड वर्षे पुरेल एवढे अन्नधान्य साठलेले असताना, गरिबांना लॉकडाऊनच्या काळात अतिरिक्त अन्नधान्य पुरवठा करता येईल अशीशासकीय यंत्रणेला खात्रीअसतानाव स्थलांतरित कामगारांना देशभरात कुठेही मोफत अन्नधान्य मिळवण्याची परवानगी शासनाने दिली असताना देखील कामगारांना पर्याप्त प्रमाणात रेशन मिळाले नाही.रेशनधान्य दुकाने मोठ्या प्रमाणात उपलब्ध नसल्यामुळे सार्वजनिक वितरण व्यवस्था प्रभावी ठरली नाही. 'द हिंदू' ने प्रकाशित केलेल्या सर्वेक्षणात असे म्हटले आहे की ९६%स्थलांतरित कामगारांना सरकारकडून रेशन मिळाले नाही आणि त्यापैकी ९०%लोकांना लॉकडाऊन दरम्यान वेतन मिळाले नाही.

२. मोठ्या प्रमाणावरील निर्गमन (शहरातून गावाकडे स्थलांतर) :

कामगार आणि रोजगार मंत्री संतोष कुमार गंगवार यांनी १४ सप्टेंबर २०२० रोजी संसदेमध्ये अशी माहिती दिली की, राज्य शासनाकडून संकलित करण्यात आलेल्या माहितीवरून असे स्पष्ट होते की, कोविड संसर्ग नियंत्रणात आणण्यासाठी शासनाने लागू केलेल्या लॉकडाऊन मुळे अंदाजे १० मिलियन स्थलांतरित कामगारांनी घरी पोहोचण्यासाठी प्रयत्न केले. थेजस जी. एन. (सामाजिक कार्यकर्ता) आणि कणिका शर्मा (सहाय्यक प्राध्यापक, जिंदाल स्कूल ऑफ लॉ) या संशोधकांनी विविध मिडिया रिपोर्ट्स च्या माध्यमातून गोळा केलेल्या माहितीच्या आधारे असे सांगितले की, १९ मार्च ते ४ जुलै २०२० दरम्यान लॉकडाऊनशी संबंधित (उपासमार-२१६, रोड व रेल्वे दुर्घटना-२०९, वैद्यकीय सुविधा न मिळणे -७७, आत्महत्या-१३३, विलगीकरण कक्षातील मृत्यू -४९, लॉकडाऊन शी संबंधित गुन्हे-१८, श्रमिक रेल्वेतील मृत्यू-९६, पोलिसांची क्रूरता-११,अल्कोहोल विद्रोव संबंधित मृत्यू -४९, जास्त चालाण्यामुळे झालेली दमछाक-४८आणि अवर्गीकृत-६५) निर्माण झालेल्या समस्यांमुळे एकूण९७१ कामगारांचा मृत्यू झाला.

३. उलट निर्गमन (गावाकडून शहराकडे स्थलांतर):

शासनाने देशव्यापी लॉकडाऊन जाहीर केल्यानंतर अनेक छोट्या-मोठ्या शहरांतील स्थलांतरित मजुरांनी आपल्या गावी जाणे पसंत केले पण जेव्हा शासनाने जून २०२० मध्ये लॉकडाऊन शिथिल केले, रेल्वेची नियमित सेवा सुरु केली त्यामुळे कामगारांनी गावाकडे रोजगार नसल्यामुळे पुन्हा शहराकडे स्थलांतर सुरु केले. मोठ्या प्रमाणात कामगारांचे लोंढे मुंबईत परतले. शहरामध्ये प्रामुख्याने बांधकाम उद्योगात स्थलांतरित मजुरांची कमतरता भासत होती. एप्रिल -मे करण्यात आलेल्या एका अभ्यासानुसार जवळजवळ ७७% स्थलांतरित मजुरांनी शहराकडे स्थलांतरित होण्याची तयारी दर्शविली

होती. अशा शहरामध्ये स्थलांतरित झालेल्या कामगारामुळे अर्थव्यवस्थेला पुनरुज्जीवित होण्यास मदत झाली.

४. शासकीय प्रतिसाद:

२७ मार्च २०२० रोजी गृह मंत्रालयाने राज्य शासनांना लॉकडाऊन दरम्यान कामगार स्थलांतरित होणार नाही याची खात्री करण्याचे आदेश दिले तसेच २८ मार्च रोजी स्थलांतरित कामगारांना अन्न आणि निवारा देण्यासाठी राज्यांना राष्ट्रीय आपत्ती प्रतिसाद निधी वापरण्याची परवानगी दिली. लॉकडाऊनच्या काळात घरमालकांनी भाड्याची मागणी करू नये आणि मालकांनी कपात न करता वेतन द्यावे, असे निर्देश देणारे आदेश सरकारने २९ मार्च रोजी जारी केले. लॉकडाऊनचे उल्लंघन करणाऱ्यांना १४ दिवसांसाठी सरकारी क्वारंटाईन सेंटरमध्ये पाठवावे व त्यांच्या मूळ राज्यात परतणाऱ्या स्थलांतरित कामगारांसाठी तत्काळ मदत शिबिरे सुरू करावेत असे केंद्र शासनाने निर्देश जारी केले. १६ मे रोजी, सरकारने नॅशनल डिझास्टर मॅनेजमेंट ऑथॉरिटी (NDMA)द्वारे तयार केलेला ऑनलाइन डेटाबेस, राष्ट्रीय स्थलांतरित माहिती प्रणाली (NMIS) ची स्थापना केली. यामुळे राज्य शासनाला विविध ठिकाणी अडकलेल्या स्थलांतरित कामगारांची सध्याची संख्या आणि त्यांचे स्थान शोधण्यात मदत झाली. त्याचबरोबर १४ जुलै २०२० रोजी, मनुष्यबळ विकास मंत्रालयाने राज्य सरकारांना ग्रामीण भागातील ज्या मुलांनी स्थलांतर केले आहे अशा मुलांची माहित संकलित करण्याची विनंती केली.

५. मदत शिबिरांची गुणवत्ता:

सर्व स्थलांतरितांना लॉकडाऊनपूर्वी त्यांच्या गावी प्रवास करता आला नाही. अशा असंख्य मजुरांना शासनाकडून भोजन आणि निवासाची व्यवस्था करण्यात आली. असंख्य मजुरांना एका छोट्याशा खोलीत सात ते आठ जणांना राहावे लागले. बहुसंख्य मदत द्यावण्यांमध्ये अन्न शिजवण्यासाठी योग्य जागा, वीज, प्रकाश, पंखा, शौचालये आणि पाणी अशा अत्यावश्यक सुविधा उपलब्ध नव्हत्या. मदत शिबिरामध्ये राहणारे जुने कामगार नवीन कामगारांना शिबिरामध्ये येण्यास मज्जाव करत होते. परिणामी, काही स्थलांतरित गटांमध्ये मारामारी, गैरवर्तन असे प्रकारही घडून आले. सरकारने स्थलांतरीत मजुरांसाठी अन्न व निवारा याची सोय केली असली तरी बहुतेक निवारागृहे आणि मदत शिबिरांमध्ये लोकांना पुरेशा प्रमाणात आणि दर्जेदार अन्न वेळेवर मिळत नव्हते असे आढळून आले. जेवणासाठी मजुरांना तासंतास रांगेत थांबावे लागले. या मदत शिबिरातून अन्नाच्या टंचाईशी संबंधित हजारो कॉल्स पोलिसांना दररोज येत होते.

६. वाटप केलेल्या रेशनचा तुटवडा:

१५ एप्रिल २०२० रोजीच्या SWAN च्या अहवालानुसार, ज्यांचे सर्वेक्षण केले अशाकेवळ ५१% मजुरांकडे एक दिवसही पुरणार नाही एवढे कमी रेशन शिल्लक होते. तसेच लॉकडाऊन दरम्यानच्या

दोन आठवड्यात सरकारकडून फक्त १ % कामगारांना रेशन मिळाले होते तर लॉकडाऊन दरम्यानच्या तीन आठवड्यात ९६% स्थलांतरितांना सरकारकडून शिधा अजिबात मिळाला नव्हता, ७० % लोकांना कोणतेही शिजवलेले अन्न मिळाले नव्हते , ७८% मजुरांना त्यांच्या मालकाकडून सर्व लॉकडाऊन दरम्यान देण्यात आलेली रक्कम रु.३००पेक्षा कमी होतीतर ८९ % मजुरांना त्यांच्या मालकाने अजिबात वेतन दिले नाही. रेशनशिधापत्रिकेच्या आधारावर मिळत असते परंतु बहुतेक स्थलांतरिताचे कायमस्वरूपी निवासस्थान नसल्याने व आवश्यक कायदेशीर कागदपत्रे नसल्याने त्यांना रेशनचा लाभ मिळाला नाही. सर्व राज्यांमध्ये स्वीकार्य अशा आंतरराज्यीय पोर्टेबल शिधापत्रिकेच्या अभावामुळे वितरण व्यवस्था सदोष झाली, या वितरण व्यवस्थेचा लाभ सर्व स्थलांतरित मजुरांना घेता आला नाही.

‘द न्यू इंडियन एक्सप्रेस’ २९ मार्च २०२० रोजी प्रकाशित लेखानुसार, कोडागु जिल्ह्यातील(कर्नाटक) एका गावात कॉफीच्या मळ्यात सुमारे २०० सोलिगा जमातीचे स्थलांतरित कामगार अडकून पडली होती. कर्नाटक सरकारने त्यांच्यापर्यंत पोहोचून तांदूळ, डाळी,अंडी, तूप आणि खाद्यतेल आणि इतर आवश्यक अन्नधान्य त्या आदिवासी कुटुंबांना दिले. स्थलांतरितांसाठी दिल्ली सरकारने शेल्टर होम , क्वारंटाइन होम व रिलीफ कॅम्प स्थापित केले होते त्यामाध्यमातून सुमारे ६००,००० लोकांची व्यवस्था करण्यात आली होती तसेच मोफत रेशन योजनेतर्गत २ .२ दशलक्षाहून अधिक स्थलांतरिताना ‘वन नेशन वन रेशन कार्ड’ योजनेद्वारे रेशनसुविधा प्रदान करण्यात आली. असे असले तरी लाखो स्थलांतरित आहेत ज्यांना या योजनांमधून वगळण्यात आल्यामुळे त्यांना शासनाकडून कोणतीही मदत मिळालेली नाही.

७.अपुर्या आरोग्य सुविधा:

स्थलांतरित लोकांमध्ये माता , मुले आणि गरोदर महिलांचाही समावेश होता त्यामुळे निवारागृहांमध्ये त्यांच्या आहार व त्यांच्या आरोग्याबद्दल गंभीर प्रश्न होता. पोषण आहाराच्या अभावामुळे अगोदरच मोठ्या प्रमाणावर कुपोषण झाल्यामुळे संसर्गजन्य रोगाची लागण होण्याची शक्यता अधिक होती. कोविड १९ पासून संरक्षण करण्यासाठी निवारा केंद्रामध्ये सामाजिक अंतर , नियमित व्यायाम , नियमित हात धुणे, सॅनिटायझर आणि मास्कचा वापर यासारख्या मूलभूत बाबीची खबरदारी घेणे आवश्यक होते. परंतु दुर्दैवाने, हे सर्व निवारा केंद्रातील गर्दीमुळे अशक्य होते. कोविड १९ व इतर रोगाचा संसर्ग होण्याचा मोठा धोका निर्माण झाला होता . सामान्य सर्दीची लक्षणे जसे की, ताप , खोकला, घसा दुखणे इ. एखाद्या मजुरामध्ये दिसून आल्यामुळे बाकी लोकांमध्ये कोविड संसर्गाच्या भीती निर्माण होवून त्या व्यक्तीबद्दल इतरांच्या मनामध्ये द्वेषाची भावना निर्माण झाली.

८. मदतशिविरात महिलांना होणारा त्रास

स्थलांतरित महिला कामगारांना निवारागृहातील अनोळखी पुरुषांसोबत राहताना अनेक कठीण आव्हानांना तोंड द्यावे लागले. महिलांसाठी स्वतंत्र शौचालयाची सोय नव्हती. जी होती तीही अस्वच्छ होती ज्यामुळे साथीच्या रोगांचा संसर्ग होण्याचा धोका अधिक होता . अशा काँ मन शौचालयाचा वापर करणे ही एक मोठी समस्या महिलांसाठी होती. तसेच रात्रीच्या वेळा महिलांसाठी कसल्याही प्रकारची प्रायव्हसी किंवा संरक्षण उपलब्ध नव्हते. यामध्ये विशेषतः गरोदर महिलांची निवारा शिविरात गैरसोय होत असल्याने मोठ्या प्रमाणात हाल झाले. निवारागृहात त्यांची डॉक्टरांद्वारे नियमित वैद्यकीय तपासणी, स्कॅन आणि आवश्यक तपासणी करण्यासाठी कोणत्याही सुविधा नव्हत्या. एका सर्वेक्षणात असे आढळून आले की, लॉकडाऊन दरम्यान जवळजवळ ४२% गरोदर स्थलांतरीत महिलांची कोणतीही वैद्यकीय तपासणी झाली नाही. हे सर्व शेल्टर कॅम्पमध्ये राहण्यास भाग पाडलेल्या महिलांसाठी मानसिक स्वास्थ्य बिघडवणारे होते.

९. व्यसनी कामगारावरील परिणाम

बहुसंख्य स्थलांतरित कामगार तंबाखू किंवा अल्कोहोल अशा विवध व्यसनाच्या आहारी गेलेले असतात. लॉकडाऊन दरम्यान बिडी, तंबाखू किंवा अल्कोहोल मिळत नसल्याने त्यांच्यापैकी अनेकांमध्ये विड्यालची गंभीर लक्षणे दिसून आली. ज्यामुळे बऱ्याच कामगारांना नैराश्याने ग्रासले. परिणामी घरगुती हिंसा आणि मानसिक आजार, लैंगिक गैरवर्तनाच्या घटना घडून आल्या.

१०. मानसशास्त्रीय समस्या

स्थलांतरित मजुरांची निवारा केंद्रात राहण्याची स्थिती दयनीय होती, आवश्यक मुलभूत सुविधांच्या टंचाईमुळे लोकांना गंभीर मानसिक त्रास सहन करावा लागला. त्यांच्यापैकी अनेक जन तणाव, नातेसंबंधातील समस्या, मादक पदार्थांचे सेवन, मद्यपान, लैंगिक शोषण, घरगुती हिंसाचार आणि मानसिक आजार इत्यादींना बळी पडले. स्थलांतरितांमध्ये, मानसिक त्रास आणि अस्वस्थता, आर्थिक चिंता, एकटेपणा, भीती आणि निराशेच्या भावना निर्माण होवून आत्महत्येच्या प्रवृत्तींना चिथावणी मिळाली. अशा खडतर परिस्थितीत जगण्याची भीती, यातना आणि भविष्याविषयीच्या अनिश्चिततेने त्यांच्यामध्ये अनेक मानसिक समस्यांना जन्म दिला

११. आर्थिक त्रास:

प्रमाणित रोजगार मूल्यांकनानुसार, भारतीय उद्योगांमध्ये लाखो अंतर्गत स्थलांतरीत कामगार आहेत जे देशाच्या अर्थव्यवस्थेत महत्त्वपूर्ण योगदान देतात. आर्थिक वाढ बर्याच प्रमाणात अशा स्थलांतरीत कामगारावर अवलंबून आहे जे किमान वेतनापेक्षाही कमी वेतनावर काम करतात. आंतरराष्ट्रीय कामगार

संघटनेने केलेल्या (२०२०) निरीक्षणानुसार, लॉकडाऊनचा सर्वात जास्त आर्थिक फटका स्थलांतरित मजुरांना बसला आहे. कोविड १९ या संकटाचा सामना करण्यासाठी आवश्यक मूलभूत उत्पादनांच्या किंमती महामारी दरम्यान (डिटर्जंट्स, साबण, सॅनिटायझर, मास्क इ.) प्रतिबंधात्मक वस्तुमहाग झाल्या, कामगारांच्या नोकऱ्या गेल्याव त्यांच्याकडे उत्पन्नाचे इतर कोणतेही स्रोत नव्हते त्यामुळे त्यांना वाढीव किंमतीने वस्तू खरेदी करणे परवडणारे नव्हते. बर्खास्त मालकांनी स्थलांतरित कामगारांना कोणतीही पूर्वसूचना न देता कामावरून काढून टाकले तसेच त्यांना पगार देणे थांबवले होते. त्यामुळे कामगारांवर मोठे आर्थिक संकट ओढवले.

१२. ईशान्येकडील स्थलांतरितांचा वांशिक भेदभाव

राइट्स अँड रिस्क अँनालिसिस ग्रुप (RRAG) ने २६ मार्च २०२० रोजीच्या अहवालानुसार ७ फेब्रुवारी २०२० ते २५ मार्च २०२० दरम्यान वांशिक भेदभाव आणि त्यातून झालेल्या हल्ल्यांच्या एकूण बावीस घटना (देशाच्या विविध भागात) घडून आल्या. ईशान्येकडील व्यक्तींना कोरोना, चायनीज, चिंकी या नावानी हाक मारणे व अपशब्दांचा वापर करण्यात आला. भारताच्या मंगोलॉइड दिसणाऱ्या नागरिकांचा रस्त्यावर फेरफटका मारताना, खरेदी करताना किंवा ट्रेन-बसमध्ये प्रवास करताना अपमान करण्यात आला. जरी त्यांच्याकडे कोविड १९ निगेटिव्हचे प्रमाणपत्र असले तरी त्यांना "कोविड" असे संबोधले जायचे व जबरदस्तीने वेगळे केले जायचे, सार्वजनिक ठिकाणी प्रवेश नाकारला गेला आणि भोजनालयातून हाकलण्यात आले, शेअरींग वाहतूक नाकारण्यात आली. अशा पद्धतीने स्थलांतरित कामगारांना वांशिक भेदभावाचा त्रास सहन करावा लागला.

निष्कर्ष:

या शोधनिबंधात कोविड संकटादरम्यान स्थलांतरित कामगारांची झालेली दुर्दशा व त्यांच्या आर्थिक, सामाजिक आणि आरोग्यविषयक स्थितीचे मुल्यांकन करण्याचा प्रयत्न आले आहे. भारतामध्ये बहुतांश स्थलांतरितांना रेशन सुविधा, आरोग्य सुविधा मिळाल्या नाहीत. स्थलांतरिताना प्रतिकूलता, असुरक्षा, शारीरिक व मानसिक त्रास आणि वांशिक भेदभाव व हल्ल्यांसारख्या सामाजिक समस्यांना तोंड द्यावे लागले. लॉकडाऊनमुळे स्थलांतरित झालेले कामगार मदत छावण्यांमध्ये अडकल्यामुळे नोकरी, कामधंदा नाही म्हणून उत्पन्न नाही, गाववाकडे जाण्यासाठी कोणतेही साधन नाही त्यामुळे त्यांच्यापुढे असुरक्षितता, भीती आरोग्यविषयक व आर्थिक विवंचना यासारख्या अनेक समस्या निर्माण झाल्या. यावरून असे लक्षात येते की, कोविड १९ ने शासनाच्या आपत्ती व्यवस्थापन धोरणातील त्रुटी अधोरेखित केल्या आहेत.

भारत सरकारने स्थलांतरित लोकांच्या कल्याणासाठी अनेक उपक्रम सुरू केले त्यापैकी एक म्हणजे “आत्म निर्भर भारत अभियान”, ज्याद्वारे स्थलांतरितांना २ महिन्यांच्या कालावधीसाठी रेशनकार्ड नसले तरी मोफत अन्नधान्य वाटप केले. आणखी एक सरकारी कार्यक्रम म्हणजे “स्थलांतरित कामगार आणि शहरी गरीबांसाठी परवडणारे घरभाडे गृहनिर्माण संकुल”, प्रधानमंत्री आवास योजना अंतर्गत परवडणारी घरे भाड्याने उपलब्ध करून दिली गेली. सरकारने असे अनेक उपक्रम राबवले, परंतु त्यांची अंमलबजावणी मात्र प्रभावीपणे झाली नाही. म्हणूनते उपक्रमसंपूर्ण स्थलांतरित लोकसंख्येपर्यंत पोहोचण्यात अयशस्वी झाले.

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IMPACT OF COVID-19 PANDEMIC ON ORPHANS

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Abstract:

Children and adolescents are also significantly affected by the Covid-19 whose deceased parents or covid have been affected by social and economic considerations. The child who lost his or her parents was permanently abandoned, some of them being expelled from school, social welfare and other external factors. There are many cases where some of the children are abused at home. The stress they experience directly affects their mental health due to increased anxiety, changes in their diet and school ability, fear or inability to measure the problem. Our aim is to bring about dialogue under different conditions and to raise awareness of public health and government agencies on the need for the care and care of these orphaned children. Apart from the direct health effects of the epidemic, such as death and illness, the epidemic may leave orphans and children without caregivers. These children often have side effects.

Introduction:

The world has been changing at an alarming rate since Severe Acute Respiratory Syndrome 2 (SARS-CoV-2), a virus that causes corona virus 2019 (COVID-19), has encouraged dramatic and sudden changes in the way we organize ourselves as human beings in society. In March 2020, the WHO announced that COVID-19 had reached epidemic proportions, placing the world in a state of extreme awareness and growing into an unprecedented scale today. Older people are at greater risk of developing COVID-19, and those with serious illnesses such as diabetes, high blood pressure and obesity may be more susceptible and more likely to be at risk of illness and death. Although children obviously have a lower risk of developing a serious form of the disease and less hospitalized and mechanical ventilation, they can develop inflammation of many systems. Depression is usually managed under medical or biological factors. It causes physical or mental damage to an organism and is produced by negative external or internal stimuli [1,2].

In step with 2020 Orphan file by INSAMER, IHH Humanitarian and Social studies middle, there have been 31 million orphans in India in 2020. The real numbers are expected to be much better as many orphaned kids are never blanketed in the official data for several

reasons. because the virus engulfed India, the variety of orphaned youngsters has skyrocketed in the last few months. For the future of the society, it is vital that orphans, who may also go through irreparable losses if left at the mercy of the incorrect humans, are taken care of and cared for. COVID-19 crisis is specifically threatening for the orphans who represent a distinctly prone organization in India. there is an intense scarcity of resources, inclusive of food, smooth water, clothes, college resources, face masks, and different primary requirements [3,4].

Although the challenges faced by orphans in Hindu Anathashram are many and life-threatening, these children can still have a bright future if we come together to protect their present and future. In the aftermath of a global catastrophe, the Orphan Life Foundation is taking necessary steps and safety measures to ensure that the most vulnerable people remain safe and healthy. We are committed to preventing and responding to the global epidemic affecting orphans in India. However, we cannot do it without your help [5 - 7].

We want to highlight that a healthy eating environment during neurodevelopment is essential for the proper development of children and adolescents. It is also important to have a balanced diet and to develop an immune system to provide effective protection against potential diseases, including COVID-19, and to ensure a speedy recovery from this disease. As social isolation can change our relationships with food, the importance of social relationships through adequate nutrition becomes more apparent during this period of incarceration.

Comments:

Table 1: Orphans Estimation

Orphanhood Estimation 3rd January 2022	
Country	Death of One or Two Parents
India	2,013,771
American	739,455
African	246,671
Brazil	173,592
European	139,120
Pakistan	44,643
Afghanistan	13,877
Bangladesh	5214
France	4861
Germany	2154
China	514

From the World Without Orphan website every 12 seconds a child loses a parent or grandparent to COVID-19 worldwide. Orphan immigration statistics are listed in Table 1 for all data dated 3 January 2022 [8].

Conclusion:

Humanism supports children's projects around the world. Our paper aims to end child rights violations. They are designed and used in collaboration with local partners. Our priority is to ensure the protection of children and their well-being. We strive to do the best we can and commit ourselves to our Code of Conduct. Our child support projects are often overseen by our teams and their funding is subject to independent and transparent testing.

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कोविड - १९ चे भारतीय अर्थव्यवस्थेवरील परिणाम- एक दृष्टिक्षेप

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प्रस्तावना:

भारतासाठी आर्थिक वर्ष २०१९- २० हे खूपच त्रासदायक ठरले. विशेष म्हणजे विकसनशील अर्थव्यवस्था असणाऱ्या भारतीय अर्थव्यवस्थेसाठी अत्यंत जाचक ठरत आहे. २०१७ नंतर आर्थिक घसरणीस झालेली सुरुवात वाढत जाऊन तिची तीव्रता आणि व्याप्ती सातत्याने वाढतच गेलेली दिसते. तिचे वाईट असे सामाजिक आणि आर्थिक परिणाम संपूर्ण समाजाला सहन करावे लागत आहेत. तिच्या नियंत्रणासाठी धोरणे आणि उपाययोजना राबवणे सुरु असतानाच अतिवृष्टी आणि महापुराचा फटका महाराष्ट्र व इतर राज्यांना सहन करावा लागला. ज्यामुळे देशाचा विकास दर आणखी खालावला. या नैसर्गिक संकटातून बाहेर पडण्यापूर्वीच कोरोना महामारीचे जागतिक संकट येऊन धडकले आहे. देशातील कोणत्याही प्रकारच्या नैसर्गिक, राजकीय, आर्थिक आणि आरोग्य विषयक संकटांचे विकासावर परिणाम घातकच होतात असे दिसून येते. कोविड - १९ चा प्रादुर्भाव रोखण्यासाठी केलेल्या टाळेबंदीचे अत्यंत प्रतिकूल परिणाम भारतीय अर्थव्यवस्थेवर आजही होताना दिसत आहेत. संबंधित शोधनिबंधात या परिणामाचा अंशतः आढावा घेण्याचा प्रयत्न मी केलेला आहे.

संशोधनाचे उद्दिष्ट्ये:

१. भारतातील कोरोना महामारीचे स्वरूप आणि व्याप्ती अभ्यासणे
२. कोविड १९ चे भारताच्या आर्थिक विकासावरील परिणाम पाहणे.

भारतातील कोरोना महामारीचे स्वरूप आणि व्याप्ती अभ्यासणे:

कोरोना महामारी हे जागतिक स्वरूपाचे संकट आज जगातील २२१ देशांपैकी १७५ देशात अस्तित्वात आहे. भारतात सर्वात पहिली कोरोना बाधित व्यक्ती केरळ राज्यातील थ्रिसूरमध्ये ३० जानेवारी २०२० रोजी सापडली जिचा संबंध चीन मधील वुहान शहराशी होता. केंद्रीय आरोग्य आणि कुटुंब कल्याण मंत्रालयाच्या मते २ एप्रिल २०२० रोजी देशभरात एकूण २००० केसेस आढळल्या असून त्यातील १५१ केसेस ठिक झाल्या तर एकूण ५० जणांचे मृत्यू झाले. कोरोना बाधित पेसेंटचा सर्वाधिक आकडा १५ सप्टेंबर २०२० मध्ये आढळून आला तो ९०,१२३ इतका होता. आजमितीला भारतात एकूण १०,७०२,०३१ कोरोना च्या केसेस आढळून आल्या त्यापैकी १५३८८५ रुग्णांचा मृत्यू झाला तर उर्वरित १०,३७३,६०६ रुग्ण बरे झाले. सध्या चालू असणाऱ्या केसेस १७४५४० आहेत तर गंभीर म्हणून ८९४४ रुग्णांचा समावेश आहे. याचाच अर्थ दर एक लाख लोकांमागे ७७१२ कोरोनाचे रुग्ण आढळून येत आहेत तर मृत्यू दर एक लाख

व्यक्तीमागे १११ इतका राहिला आहे.भारतात कोरोनाला आला घालण्यासाठी विविध प्रकारच्या टेस्ट करण्याचे प्रमाण वाढवण्यात आले हे प्रमाण १,९४,३३८,७७३ इतके होते.

कोरोनाचा आर्थिक विकासावरील परिणाम:

कोरोनाचा प्रादुर्भाव कमी करण्यासाठी आपण इतर कांही उपायाबरोबरच टाळेबंदी वर फार मोठ्या प्रमाणावर अवलंबून राहून सर्व आर्थिक उपक्रम आणि व्यवहार बंद केल्याचा सखोल आणि व्यापक परिणाम देशाच्या आर्थिक विकासावर होत आहे. मार्च २०२० मध्ये केंद्रीय आरोग्य मंत्रालयाने कोरोनाच्या केसेस भारतात असल्याचे जाहीर केले त्याचा परिणाम शेअर बाजार कोसळण्यावर झाला. संयुक्त राष्ट्रसंघाच्या अहवालाप्रमाणे, भारताचा व्यापार ३४८ दशलक्ष डॉलर ने घटेल आणि भारत हा जगातील प्रतिकूल परिणाम झालेला १५ वा देश असेल असे सांगितले तसेच आशियाई विकास बँकेच्या अभ्यासाप्रमाणे २९.९ अब्ज अमेरिकन डॉलर इतके नुकसान होईल. भारत सरकारच्या वित्त मंत्रालयाच्या मते भारताचे स्थूल देशान्तर्गत उत्पादन (GDP) जुलै २०१९ मधील ५.२ % वरून जानेवारी २०२० मध्ये ४.२ % आणि टाळेबंदी नंतरच्या काळात ३.१% घटले आणि आजही ते तसेच घटत आहे.आंतरराष्ट्रीय नाणेनिधीच्या मुख्य अर्थशास्त्रज्ञ गीता गोपीनाथ यांच्या अभ्यासाप्रमाणे वर्ष २०२० मध्ये देशाचा वृद्धीदर १.९ % राहिल. जो चीनचा १.२% अमेरिका ६.१% तर जगाचा ३ % असेल जागतिक बँकेच्या ९ जून २०२० च्या अंदाजाप्रमाणे २०२० या वर्षात आपला वृद्धीदर ३.२% राहिल तर चीनचा १ % अमेरिका ७% आणि जगाचा ५% असेल. २५ जून २०२० रोजीच्या नाणेनिधीच्या सुधारित अंदाजाप्रमाणे वर्ष २०२१ मध्ये जगाचा वृद्धीदर ४.९% तर भारताचा GDP दर ४.५% ने कमी होईल. INDIA Rating and Research च्या मते - २०२०-२१ मध्ये आपला GDP वृद्धीदर ५.३% असेल. आणि तो गेल्या चाळीस वर्षातील सर्वात कमी असेल. भारतीय स्टेट बँकेच्या मते एप्रिल - जून २०२० या तिमाहीत भारताच्या GDP चे ४०% नुकसान झाले आहे.रिझर्व्ह बँकेच्या अभ्यासाप्रमाणे २०२०-२१ आर्थिक वर्षात आपला वृद्धीदर शून्य आणि येत्या वर्षात तो उणे असेल. २३ जुलै २०२० च्या ICR च्या अंदाजाप्रमाणे भारताचा वृद्धीदर २०२१ मध्ये ९.५% ने घटेल तो पूर्वी ५% ने घटण्याचे भाकीत केले होते.तर CARE तो ६.३% ने घटेल जो १.३% अंदाजित होता.तसेच HDFC बँकेच्या मते वृद्धीदर २०२१ मध्ये ६.५% ते ७% राहिल जो ५% राहिल असे भाकीत केले होते. हे सर्व विश्लेषण सिद्ध करते कि कोविड- १९ प्रसार नियंत्रित करण्यासाठी खात्रीचा उपाय म्हणून लागू केलेल्या ताळेबंदीचा भारताच्या आर्थिक वृद्धीवर अत्यंत व्यापक,सखोल आणि दूरगामी परिणाम होत आहे. आपल्या देशाची वाटचाल आर्थिक घसरणीकडून आर्थिक मंदीकडे वेगाने होत आहे.

कोविड १९ चा उदयोग क्षेत्रावरील परिणाम:

कोरोना संकटाचा सर्वात वाईट परिणाम भारताच्या उद्योग क्षेत्रावर अधिक सखोल आणि व्यापक झाला आहे. देशाच्या उदयोग क्षेत्राचा वृद्धीदर ताळेबंदीपूर्वी जानेवारी २०२० मध्ये २.१ % होता. तो जुलै

मध्ये - १८.३% राहिला आहे. एप्रिल २०२० मध्ये भारतातील उद्योगक्षेत्राचे ३८% ने नुकसान झाले आहे. देशातील प्रमुख आठ उद्योगांचे उत्पादन फार मोठ्या प्रमाणात आणि वेगाने घटले आहे.कोळसा उत्पादन एप्रिल २०१९ मधील ३.२% वरून एप्रिल २०२० मध्ये - १५.५% ने घटले आहे. याच कालावधीत कच्च्या तेलाचे उत्पादन - ६.७% वरून - ६.४% राहिले आहे. तर नैसर्गिक वायू उत्पादन - ०% वरून - १९.९% वेगाने घटले आहे.तसेच रिफायनरी वस्तू उत्पादन ४.३% वरून - २४.२% एवढे अत्यल्प राहिले आहे. प्रमुख आठ उद्योगांचे उत्पादन याच कालावधीत ८.२% वरून - ३८.१% ने अत्यंत जलदगतीने कमी झाले. एप्रिल २०२० मध्ये अत्यंत महत्वाच्या उद्योगाचे उत्पादन ३८% घटले आहे. सिमेंट उत्पादन ८६% ने, वीज उत्पादन २२.७% ने, खते उत्पादन ४.५% ने कच्चे तेल ६.८% ने घटले आहे. यावरून हे सहज सिद्ध होते कि, उद्योगक्षेत्रावर कोविड १९ मधील ताळेबंदीचा अत्यंत वाईट परिणाम झाला आहे.

समारोप:

१८ व्या शतकात इंग्लंड मध्ये झालेली औद्योगिक क्रांती तिने जगातील अनेक विकसित व विकसनशील देशात सकारात्मक बदल निर्माण केले त्याची फळे आज सर्व जगाला मिळत आहेत. अगदी त्याचप्रमाणे चीनमधील वुहान या शहरातून निर्माण झालेला कोविड १९ या विषाणूने संपूर्ण जगाला वेठीस धरून वाईट परिणामाला सामोरे जावे लागत आहे. यातून बाहेर पडून अनेक देशांच्या अर्थव्यवस्था विकासाच्या वाटेवर मार्गक्रमण करण्याची वाट पाहत आहेत.

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विक्रमगड तालुक्यातील आदिवासी समाज व कोविड-१९ परिस्थिती: एक अभ्यास

अनिल कुंडलिक पठाडे आणि राहुल प्रकाश बनसोडे*

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प्रस्तावना:

मुंबईपासून हाकेच्या अंतरावर असलेला पालघर जिल्हा १ ऑगस्ट २०१४ रोजी ठाणे जिल्ह्याचे विभाजन होऊन नव्याने या जिल्ह्याची निर्मिती करण्यात आली. आदिवासीबहुल जिल्हा म्हणून ओळख पावलेला आणि पर्यटनाच्या बाबतीत देखील तितकाच महत्त्वपूर्ण असलेला जिल्हा विकासाच्या दृष्टिकोनातून मात्र मागास म्हणून ओळखला जातो. जिल्ह्यातील बहुतांश लोकसंख्या ही आदिवासी अनुसूचित जमाती या प्रवर्गामध्ये येते. आणि शिक्षणाचे प्रमाणदेखील खूप कमी आहे. निरक्षरतेचा दर देखील खूप जास्त आहे. साधारणतः कमी शिकलेले लोक, स्थलांतराचे प्रमाण, जास्त अंधश्रद्धा, व्यसनाधीनता अनेक समस्यांनी येथील आदिवासी समाज कुंठित अवस्थेत जीवन जगताना दिसून येतो. त्यातच मार्च २०१९ पासून कोविड प्रादुर्भावामुळे या समाजाच्या समस्या वाढत गेल्या आणि हा समाज आणखीन संकटात सापडल्याची परिस्थिती निर्माण झाल्याचे आढळून आले.

कोविड १९ मुळे जगातील अनेक राष्ट्रांच्या अर्थव्यवस्था उद्ध्वस्त झाल्या असल्या तरी आमचा पालघर जिल्ह्यातील आदिवासी हा देखील मोठ्या पद्धतीने उद्ध्वस्त झाल्याचे दिसते. विशेषतः आदिवासी समाजावरती त्यांच्या जीवनावरती उदरनिर्वाहाच्या अनुषंगाने रोजगाराच्या अनुषंगाने अत्यंत विपरीत परिणाम झाल्याचे दिसून येते. ज्या समाजाचे पोट हे रोजंदारीच्या कामावर अवलंबून आहे रोज कामधंदा केल्याशिवाय संध्याकाळी चूल पेटत नाही, अशा माणसाच्या जीवनात कोविड मुळे प्रचंड मोठी उलथापालथ झाली हे निश्चितपणे मला पाहण्यात आले.

संशोधन मर्यादा:

१. सदरचे संशोधन करण्यासाठी विक्रमगड तालुक्यातील काही निवडक गावांची निवड केली आहे.
२. सदर माहिती संकलन २०१९ ते २०२१ दरम्यानच्या काळातील आहे.
३. सदर संशोधनासाठी प्रश्नावलीच्या माध्यमातून माहिती गोळा करण्याचा प्रयत्न केला आहे.

संशोधनाचेउद्देश:

१. आदिवासींच्या आर्थिक समस्यांचा अभ्यास करणे.
२. महामारीच्या दरम्यान आदिवासींच्याउत्पन्नाची व त्यांच्या राहणीमानाचा दर्जा यांची माहिती घेणे .
३. महामारीच्या दरम्यान रोजगाराची माहिती घेणे .
४. आदिवासी समाजाची एकूण आर्थिक व सामाजिक माहिती प्राप्त करून घेणे .

विक्रमगड तालुक्याची भौगोलिक आणि लोकसंख्याची परिस्थिती:

विक्रमगडची माहिती घेत असताना २०११ च्या जनगणनाप्रमाणे विक्रमगडची लोकसंख्या १,३७,६२५ इतकी असून ६८४८९ पुरुष तर ६९१३६ इतक्या महिला असलेल्या आढळून आल्या. सदरच्या तालुक्यात पुरुषांपेक्षा स्त्रियांची असलेली संख्याही अधिक आहे. आणि केवळ ४.४ टक्के लोकसंख्याही शहरात राहते तर उर्वरित ९५.६% लोकसंख्याही पाड्यात गावात डोंगरात कडेकपाऱ्यात रहात आहे. साक्षरतेच्यासंदर्भात माहिती घेत असताना शहरातील साक्षरतेचे प्रमाण हे ८२.८% तर ग्रामीण भागातील प्रमाण ६२.९% इतके आढळून आले.

विक्रमगडची रोजगाराची परिस्थिती:

सदरच्या तालुक्यातील लोकांचा उदरनिर्वाह हा बहुतांश शेती व रोजंदारी आणि छोटे-मोठे व्यवसाय यांच्यात गुंतलेला दिसतो. म्हणजेच दररोज काम केल्याशिवाय बऱ्याच लोकांना पर्याय उरत नाही किंबहुना उपासमारीची वेळ त्याच्यावर येऊ शकते. तालुक्यातील कामाची परिस्थितीचा आढावा घेतला असता असे आढळून आले की बरेच लोक वीटभट्टी, शेजारी असलेली मुंबई ठाणे शहरात रोजंदारीचे काम, गवताच्या गंजीवर काम, आणि जंगलातील पान गोळा करणे, रोजगार हमी योजनेअंतर्गत कामाला जाणे, मध गोळा करणे, भाताच्या मिलवर काम करणे अशा प्रकारची काम येथील लोक करत असतात.

विक्रमगडची आरोग्यविषयक परिस्थिती:

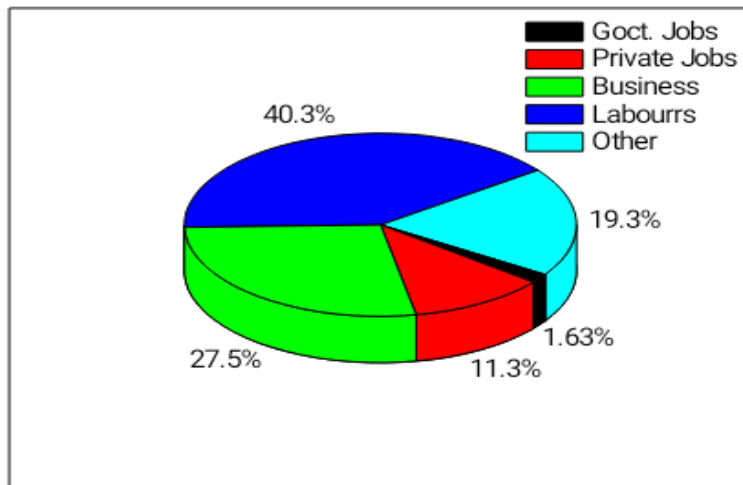
विक्रमगडमधील सामान्य जनतेच्यासाठी शासकीय ग्रामीण रुग्णालय व अनेक प्राथमिक आरोग्य केंद्र आहेत.म्हणजेच आधीक प्रमाणामध्ये शासकीय रुग्णालयची उपलब्धता तालुक्यामध्ये आढळून येत नाही. केवळ एकच ग्रामीण रुग्णालय याठिकाणी कार्यरत आहे. बाकी अनेक सामाजिक संस्था व खाजगी दवाखाने उपलब्ध आहेत परंतु ते दवाखाने प्राथमिक उपचारासाठी प्रसूतीसाठी आणि तत्सम आजारासाठी उपचार देतात .

थोडक्यात संशोधकाला याठिकाणी हे सांगायचे आहे की साथीच्या आजारासारखे जे आजार आहेत अशा रोगांच्या संदर्भात उपचार करणारी यंत्रणा हव्या त्या प्रमाणात उपलब्ध नव्हती. कोविड १९ सारख्या

साथीचे आजाराला सामोरे जाणारी सक्षमपणे कार्यरत असणारी यंत्रणा नव्हती. अशा सगळ्या परिस्थितीमध्ये कोविड १९ च्या महामारीच्या कालावधीमध्ये लोकांची खूप मोठी परवड झाल्याची संशोधकांना आढळून आले आहे.

कोविड १९ चारोजगारावर झालेला परिणाम

साधारणतः विक्रमगड तालुक्यातील रोजगाराची परिस्थिती ही शेतीसंबंधित आणि रोजदारीचे काम वीटभट्टीची कामांशी संबंधित आहे. अनेक लोक शहरात कामाच्यासंदर्भात दररोज ये-जा करत असतात.परंतु कोविड १९ च्या महामारीच्या कालखंडामध्ये सर्व वीटभट्ट्या, हॉटेल्स व इतर रोजंदारीचे काम पूर्ण ठप्प असल्याकारणामुळे अनेक लोकांचे रोजगार गेले. त्यांच्या हाताला काम मिळत नव्हते पर्यायाने त्यांच्या कुटुंबावरती उपासमारीची वेळ आल्याची परिस्थिती निर्माण झाली. ही माहिती अनेक लोकांना प्रश्न विचारले असतात त्यांच्याशी हितगुज केले असता प्राप्त झालेली आहे . अनेक कुटुंबावरती उपासमारीची वेळ आले ली आढळून आली . अनेक लोकांची व्यवसाय बंद झाले . अनेक लोकांच्या नोकऱ्या ज्या कि खाजगी स्वरूपाच्या होत्या , त्या पूर्ण पणे बंद झाल्या . जंगलामधून आणलेले पाने असतील मध असेल अन्य वनस्पती असतील यांना कोणत्या प्रकारची मागणी नसल्या कारणामुळे त्यांना ही उपासमारीची वेळ आली . आणि हा आजार साथीचा असल्या कारणामुळे काम असताना देखील लोकांनी घरात प्रवेश करण्यासाठी आपल्या दुकानात प्रवेश करण्यासाठी मज्जावकेल्याचे आढळून आले . कारण बरेच आदिवासी तरुण मुलंमुली हे शहरातील दुकानांमध्ये, कार्यालयांमध्ये आणि कौटुंबिक काम करताना दिसून येतात . हेसगळं आपण जेव्हा पाहतो तेव्हा नक्कीच त्यांच्यावर उपासमारीची वेळ आल्याची दिसून येते .



सदरील आले खात विक्रमगड तालुक्यातील व्यवसाय नोकरीव काम धंदा करणाऱ्याची माहिती दिलेली आहे. ४०.३ टक्के लोक हे रोजंदारीचे काम करणारी आढळून आले यासर्व कुटुंबाचे पोट रोज काम

केल्याशिवाय भरू शकत नाही अशी माहिती प्राप्त झाली. आणि पोपटी रंगामधीलचे २७.५ टक्के प्रमाण आहे हे छोटेमोठे व्यवसाय करणाऱ्यांचे प्रमाण विक्रमगड तालुक्यातील आहे ही माहिती प्रश्नावलीच्या आणि संवादाच्या माध्यमातून प्राप्त झाली आहे. ब्लॅक कलरचा जो रंग आहे त्यात १.६३% इतकेच लोक शासकीय नोकरी करताना दिसून येतात. लालरंगाचा जोभाग आहे ११.३% हे प्रमाण खाजगी नोकरी करणाऱ्यांची आहे. वरील ग्राफवरून हे लक्षात येते की विक्रमगड तालुक्यातील लोकसंख्या ही रोजंदारीचे दररोजचे काम करणाऱ्या लोकांचे प्रमाण खूप जास्त आहे थोडक्यात मजुरांचा तालुका म्हटलं तरी याठिकाणी वावगे ठरणार नाही.

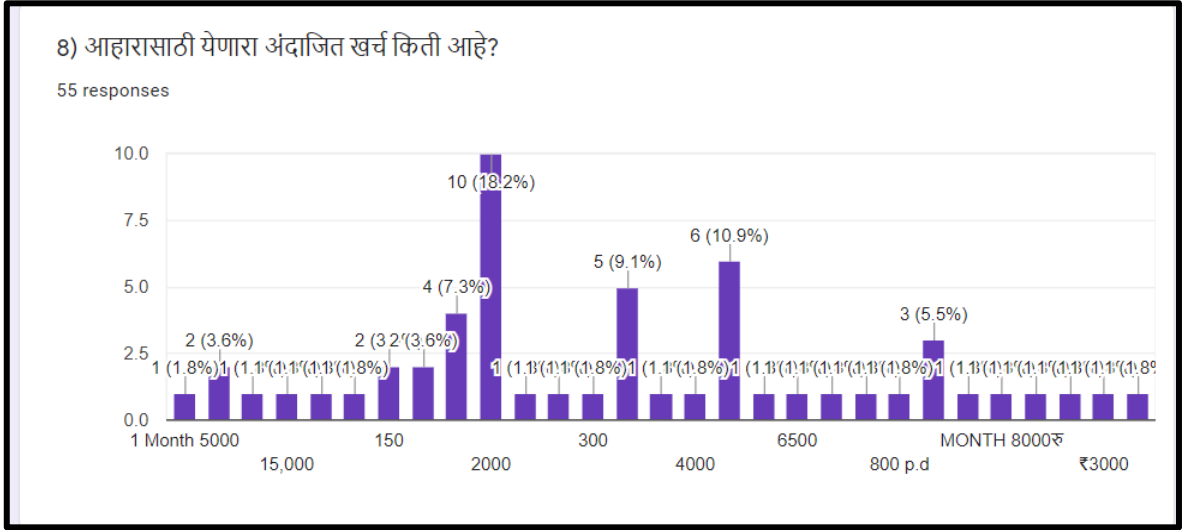
शेतीवर झालेला परिणाम:

विक्रमगड तालुक्यांमध्ये अनेक शेतकरी हे मोगरा, चाफा, झेंडू अशा अनेक फुलांचे उत्पादन घेतात आणि हे फुलंवाशी, दादर ठाणे मार्केट असेल त्याठिकाणी विक्री करत असतात. तर भाजीपाला हा नाशिक, कल्याण, भिवंडी अशा बाजारपेठेमध्ये ते विकत असतात. त्याचबरोबर विक्रमगड तालुक्यातील शेतकऱ्यांचं महत्त्व पूर्ण असे आंबा, काजू, चिकू या फळांचे उत्पादन मोठ्या प्रमाणात घेतलं जातं. कोविड १९ च्या महामारी मूळ या उत्पादनाला मोठ्या प्रमाणांमध्ये किंवा कोणत्या प्रकारची बाजारपेठ सहज उपलब्ध झाली नाही, अनेक प्रकारचा शेतमाल, काजू असतील फळ असतील, भाजीपाला असेल याचा अतोनात नुकसान येथील शेतकरी वर्ग झाल्याचे दिसते. अलीकडच्या कालखंडामध्ये साधारणतः २०१५ च्या नंतर कलिंगड उत्पादनाचे प्रमाण देखील या विक्रमगड तालुक्यामध्ये वाढले आहे, परंतु कोविड १९ मूळे देखील कलिंगडाची शेती देखील उध्वस्त झाली, कलिंगड उत्पादन झाले परंतु त्याला मागणी नाही, त्याला ग्राहक नाही, वाहतुकीच्याअभावी आणि लॉकडाऊनच्या या परिस्थितीमुळे सदरील फळांचे मोठ्या प्रमाणात नुकसान झाले आहे. या परिस्थितीत येथील सीमांत शेतकरी हा मोठ्या पद्धतीने उध्वस्त झालेला दिसतो.

विक्रमगड तालुक्यातील आदिवासी कुटुंबाचीआर्थिक परिस्थिती:

मुळामध्ये विक्रमगड तालुका हा मध्यमवर्गीय आणि गरीब आदिवासींचा तालुका असल्याचे दिसते. प्रश्नावलीच्यामाध्यमातून जेव्हा निवडक गावातील लोकांशी संवाद साधला गेला, तेव्हा अशी माहिती मिळाली की बहुतांश लोक हे रोजंदारी, आणि छोटे-मोठे विक्रेते यांच्या माध्यमातून आपल्या कुटुंबाचा उदरनिर्वाह करतात. यासगळ्यावर एकत्रित कोविड १९ अत्यंत दूरगामी परिणाम झाल्याचे आढळून आले. संपूर्ण बाजार व्यवस्था दुकान आठवडी बाजार हे सगळे बंद असल्याकारणामुळे त्यांच्याकडे असलेला कच्चा माल शेतमाल जंगलातील वनस्पती औषधी वनस्पती मध अशा कोणत्याच वस्तूला ग्राहक उपलब्ध नव्हता म्हणून त्यांच्या आर्थिक नुकसानबरोबरच त्यांना उपासमारीची वेळ आल्याची दिसून आले.

थोडक्यात येथील आदिवासी लोकांचे पोट हे हातावरचे आहे , आणि दररोज काम केल्याशिवाय संध्याकाळची चूल पेटत नाही, ही अशी अवस्था असल्याचे आढळून आले.



कोविड १९ च्या दरम्यान आपला उदरनिर्वाहाचा, आहारासाठीचा खर्च कशा स्वरूपाचा होता, असा प्रश्न विचारला गेला, तेव्हा वरील माहिती आलेखामध्ये दिली आहे ती प्राप्त झाली. अनेक कुटुंब आहे आपल्या महिन्याचा घरखर्च हा पाच हजाराच्या आत देखील भागवत असतात. आणि अत्यंत थोड्या कुटुंबाचे घरखर्च आहारावर होणारा खर्च हा दहा हजाराच्यावर आहे, म्हणजेच दारिद्रेरेषेखालील जीवन जगणारयांचे जास्त प्रमाण या तालुक्यांमध्ये हे दिसून येते . सर्वसाधारणपणे पाच ते सात हजार रुपये इतका खर्च बहुतांश कुटुंब आपल्या आहारासाठी खर्च करतात, असे या ठिकाणी आढळून आले आहे.

तालुक्यातील आदिवासींचा राहणीमानाचा दर्जा:

कोविड १९ च्या कालावधीमध्ये लोकांच्या राहणीमानाचा दर्जामध्ये घट झाल्याचे दिसते, लोकांना मिळत असलेले उत्पन्न दरम्यानच्या काळात बंद झाले, काहींचे कमी प्रमाणामध्ये झाले, आणि काहींचे काम धंदा नसल्या कारणामुळे काम धंदा बंद झाल्या मुळे उत्पन्न मिळणे बंद झाले. अशा परिस्थितीमध्ये सार्वजनिक वितरण व्यवस्थेच्यामाध्यमातून प्राप्त झालेल्या अन्नधान्यावर त्यांना गुजराण करावी लागली. आणि येथील लोकांचे सवयी पाहिल्या तर त्यांना त्यांच्या अपेक्षेप्रमाणं सवयीप्रमाणे आहार प्राप्त होत नव्हता अशीही माहिती समोर आली. थोडक्यात कोविड १९ मुळे तालुक्यातील आदिवासी लोकांच्या राहणीमानाचा दर्जा प्रचंड खालावल्याचे दिसून आले.

कोविड १९ च्या दरम्यान आरोग्यवर प्रतिबंधात्मक कामासाठी केलेला खर्च:

कोविड १९ हा साथीचा रोग असल्याकारणामुळे खूप मोठ्या पद्धतीने प्रतिबंधात्मक उपाययोजना करणे गरजेचे असते. त्याच्या अनुषंगाने जेव्हा लोकांशी संवाद साधला गेला, तेव्हा त्यांना मिळत असलेल्या उत्पन्नापैकी त्यांना प्राप्त होत असलेल्या रोजगार पैकी काही रक्कमही प्रतिबंधात्मक उपाययोजना

करण्यासाठी खर्च केल्याचे दिसून आले. आणि त्याचा परिणाम हा सगळ्याच लोकांना कोविड १९ ची लागण झाले ली आढळून येत नाही. म्हणजेच थोडक्यात ज्या लोकांच्या उदरनिर्वाहाचा प्रश्न आहे जीवनाचा प्रश्न आहे , अशा लोकांनी देखील कोविड १९ होऊ नये म्हणून प्रतिबंधात्मक उपाययोजना केल्या त्याच्यावर खर्च केला. लोक आरोग्याच्याप्रती अत्यंत जागरूक आहेत , आणि उत्तरोत्तर या जागरूकतेनेमध्ये वाढ होत आहे, हे संशोधकाला आढळून आले.

एकूण जीवनावर झाले लापरिणामः

कोविड १९ चा एकूण जीवनावर काय परिणाम झाला असा प्रश्न विचारला असता अनेक वेगवेगळे उत्तर प्राप्त झाली. कुणाचा रोजगार गेला कोणाच शेतमालाचे नुकसान झाले बऱ्याच लोकांचे रोजंदारीचे काम बंद झाली घरकामाबद्दल झाली छोट्याछोट्या विक्रेत्यांचे दुकान बंद झाले. यासगळ्यांचा एकत्रित परिणाम लोकांच्या जीवनमनावर झाला असे संशोधकाला आढळून आले. सर्वांगीण जीवनावर विपरीत परिणाम झाल्याचे मला आढळून आले.

अशाप्रकारे कोविड १९ विक्रमगड तालुक्यातील आदिवासी समाज आदिवासी जीवन आणि त्यांच्या अर्थव्यवस्था त्यांची बाजारव्यवस्था यासगळ्यांवर विपरीत आणि दूरगामी परिणाम झाल्याची दिसते. आधीच पीचून गेलेला आदिवासी बांधव हा आणखीन दरिद्र्याच्या गर्तेत जाताना दिसून येतो हे अत्यंत वेदना देणारे आहे. याच्यातून लवकरात लवकर बाहेर पडण्यासाठी खूप मोठ्या हिमतीने आणि जिद्दीने काम करण्याची गरज आहे असे या ठिकाणी जाणवते.

संदर्भः

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कोरोना संकट नविन भविष्याची संधी आणि भारत

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ता. विक्रमगड, जि. पालघर

प्रस्तावना:

कोरोना व्हायरस मुळे मृत्युचे प्रमाण देखील वाढत गेले . यामुळे जागतिक आरोग्य संघटनेने कोरोना महामारी म्हणून घोषित केले . या महामारी मध्ये लाखो लोकांचे जीव गेले . कोरोना संकटाकडे सकारात्मक दृष्टीने एक संधी म्हणून पाहिल्यास निःसंशय या वर्षभरात नवनवीन संकल्पना उदयास आल्यात .

प्रस्तुत संशोधनाची व्याप्ती मध्ये कोरोना व्हायरस आणि भारताच्या दृष्टीकोनातून कोरोनासंकट ही नव्या भविष्याची संधी वर प्रकाश टाकण्यात आला आहे . तसेच प्रस्तुत संशोधनाच्या गुहीतके मध्ये भारताने कोरोनाविरोधातील लढाई जिंकल्यास , जगाला येत्या दशकात नवी दिशा देण्याचे सामर्थ्य भारतीय नेतृत्वाला प्राप्त होईल . प्रस्तुत शोधनिबंधात सामाजिक संशोधन पद्धतीचा वापर करण्यात आला आहे . तसेच प्रस्तुत संशोधनासाठी प्राथमिक व दुय्यम संदर्भ साधनांचा वापर करण्यात आलेला आहे .

कोवीड-१९:

कोरोना व्हायरस हा एक विषाणू आहे . या विषाणूचा प्रसार मानवांमध्ये श्वसन संसर्गाने होतो . हे संसर्ग बऱ्याचदा सौम्य , परंतु संभाव्य प्राणघातक असतात . २०२० साली जगात कोरोना विषाणूचा उद्रेक झाला . वर्ल्ड हेल्थ ऑर्गनायझेशनच्या म्हणण्यानुसार कोरोना विषाणू सीफूडशी संबंधित आहे आणि असा समजलं जातंय आहे की ते चीनच्या हुआवेई प्रांताच्या वुहान शहरातील सीफूड मार्केटमधून आले आहे . लोक कोरोना विषाणूंपासून आजारी पडत आहेत कारण तेथे व्हायरसचा एक समूह आहे ज्याचा थेट शरीरावर परिणाम होऊ शकतो . उंट, मांजरी आणि वटवाघूळ अश्या अनेक प्राण्यांमध्येही हा विषाणू पसरत होता .

यापूर्वी कोरोनाव्हायरस प्रथम १९६० च्या दशकात सापडले . २००३ मध्ये सार्स-सीओव्ही हे देखील कोरोना व्हायरस चे प्रकार आहे . असे बरेच आजार आहेत , जे प्राण्यांमध्ये होते आणि आता माणसांमध्ये आले आहेत . याची लागण सर्वप्रथम चीनमध्ये झाली . कोरोना व्हायरस हा कंद आकाराच्या

पृष्ठभागाचा अंदाजानुसार मोठा प्लीओफॉर्मिक गोलाकार कण आहेत . २०१९ मध्ये कोरोना व्हायरसचा एक उपप्रकार चीनमधील वूहान शहरात आढळून आला . याला कोव्हिड-१९ असे नाव देण्यात आले .

कोवीड-१९ (COVID-19) या शब्दात CO ही अक्षरे कोरोना या शब्दाचे लघुरूप आहेत , VI म्हणजे व्हायरस किंवा विषाणू D म्हणजे डिसीज किंवा आजार आणि 19 हा आकडा २०१९ या वर्षाचा निर्देश करतो .

भारत आणि कोरोनासंकट ही नव्या भविष्याची संधी

जागतिक समस्यांपैकी दोन समस्या सध्याच्या जागतिक महामारीच्या पेचप्रसंगांशी संबंधित आहेत . त्यातील एक म्हणजे आंतरराष्ट्रीय संस्थांची विश्वासाहता . जागतिक आरोग्य संघटनेने कोरोनाला जागतिक महामारी जाहीर करायला खूपच उशीर लावला . त्यातही त्यांनी चीनच्या अधिकृत दाव्याचा आधार घेतला . यातच खरी मेख आहे . आपल्या अनेक जागतिक संस्था आणि त्यांच्या प्रतिनिधी संस्थांची गोची झालेली आहे . या संस्थांमधील राजकारण , तिथे होत असणारे गैरव्यवहार , सुयोग्य प्रतिनिधित्वाची वानवा , स्वतंत्र नेतृत्वाचा अभाव आणि उद्दिष्टांबद्दल अस्पष्टता यामुळे या संस्था अडचणीमध्ये असतात . दुसरी समस्या म्हणजे , सध्या समस्त जगाला भेडसावणा -या राष्ट्रवादाचा अतिरेक . सर्वच देशात 'फक्त माझा देश ' ही भावना वाढीस लागली असून , त्यातून अनेक प्रश्न जन्माला येणार आहेत .

सध्याच्या स्थितीत संपूर्ण जगातील वृत्तपत्रांचे ठळक मथळे या दोन्हीही समस्यांच्या विविध दाखल्यांनी झळकत आहेत . तरीही 'अमेरिका प्रथम' असा नारा देत सत्तेवर आलेल्या ट्रम्प प्रशासनाने आपले खरे दात दाखवलेच . कोरोनावर गुणकारी लस फक्त अमेरिकी लोकांनाच मिळावी , यासाठी ट्रम्प प्रशासनाने जर्मनीला गळ घातली . चीनकडून औषधनिर्माणाची उत्पादने आयात करण्याचा मनसुबा त्यांनी रद्द केला . तसेच जी-७ परिषदेत कोरोनाला 'वूहान विषाणू' असे हेतूपुरस्सररित्या संबोधत आंतरराष्ट्रीय समुदायात फूट पाडण्याचा प्रयत्न केला . कोरोनाशी सामना करण्याच्या जागतिक प्रयत्नांत खोडा घालण्याचा हा प्रयत्न ट्रम्प प्रशासनाकडून झाला . संयुक्त राष्ट्रांच्या आमसभेतही अमेरिकेचे हे असे खोडसाळ प्रयत्न सुरूच आहेत .

जागतिक शासनपद्धती परिणामकारकरित्या काम करत असती तर , कोरोना विषाणू या भूतलावर अवतरल्यानंतर लगेचच त्याचा जगाला असलेला धोका समजला असता . साऱ्या जगाला या धोक्याचा इशारा केव्हाच दिला गेला असता . तसेच कोरोनाच्या प्रादुर्भावापासून वाचण्यासाठी किंवा त्याचा संसर्ग रोखण्यासाठी उत्तमोत्तम उपाययोजना जगाने आखल्या असत्या . परंतु यातले काहीही होऊ शकले नाही यातच आपल्या नव्या जागतिक समस्येचे मूळ दडले आहे .

येत्या दशकांमध्ये या शक्यता काय असतील , याची झलक कोरोना विषाणूच्या प्रादुर्भावाच्या निमित्ताने दाखवून दिली आहे . पहिली प्राथमिकता म्हणजे लोकांना समान संधी उपलब्ध करून देणे . भारतात नोंदणी नसलेल्या मजुरांची , कामगारांची संख्या मोठ्या प्रमाणात आहे . याच गरीबवर्गाला कोरोनाची सर्वाधिक झळ सोसावी लागत आहे . त्याचा अंतिम परिणाम सार्वत्रिक अर्थव्यवस्थेवर होत आहे . ज्या व्यवसायांना सुरक्षाकवच नाही , ज्यात पैसे कमी मिळतात , अशांना सुरक्षेची हमी हवी . आम्हाला आशा आहे की , या संकटाच्या काळातही या कैक वर्षे जुनाट असलेल्या सामाजिक -आर्थिक असमानता नष्ट करण्याची संधी भारत सरकार आणि जनतेला कळेल .

यातून आम्हाला आणखी एक अनिवार्यता समजली . ती अशी की , भारताच्या आंतरराष्ट्रीय गुंतवणुकीला देशांतर्गत अनुभव आणि धोरणात्मक धड्यांवरून आकार दिला गेला पाहिजे . जागतिक महामारीने विकसनशील अर्थव्यवस्थांपुढे मोठ्या प्रमाणात आव्हाने निर्माण केली आहेत . त्यांना प्रतिसाद देऊन आपले महत्त्व वाढवून घेण्याची सुवर्णसंधी भारताला प्राप्त झाली आहे . अमेरिकेकडे असलेल्या सामर्थ्याचे गुपित तिच्या लष्करी तसेच राजनैतिक युत्या आणि आर्थिक संस्था यांच्या भूराजकीय जाळ्यात दडलेले आहे . त्याचवेळी चीनचा उदय मात्र त्याच्या भू -आर्थिक शक्तीमुळे आणि पुरवठा साखळ्या आणि व्यापार यांच्यावरील नियंत्रण यामुळे झाला आहे .

या संकटाला तोंड देऊन भारत जगातिक विकसित अर्थव्यवस्था म्हणून उदयाला येऊ शकतो . कारण आशिया आणि आफ्रिकेतील लक्षावधी लोकांना सुशासनाचा रस्ता दाखविण्याची क्षमता भारतामध्ये आहे . जागतिक सहकार्याच्या नैतिक पुनर्निर्माणाची जबाबदारीही भारतावर आहे . जग हे एका विशेष व्यवस्थेच्या प्रभावामध्ये घसरत चाललेले आहे . त्यामुळे या जागतिक आव्हानांना परिणामकारकरित्या तोंड देण्याच्या आपल्या क्षमतांवरही आज मर्यादा आहेत .

कोरोनाचे सावट भारतासह आशियावर येताच , भारताने तातडीने सार्क देशांशी संपर्क साधत या संकटसमयी एकत्र येऊन काम करण्याचे आवाहन केले . त्याचवेळी जी - २० देशांनाही भारताने साद घातली यातून आदर्शवादी आणि राजकीय वैविध्यतेला दिशा देण्यात भारत वाकबगार असल्याचे सिद्ध झाले . याच समर्थ्याची देशांतर्गत धोरणातही गरज आहे .

कोरोनाचे संकट भविष्यातील संहारकतेचा अंदाज देणारे आहे . तसेच राष्ट्रवादाचा अतिरेक करणाऱ्या राष्ट्रांसाठी ही वाजलेली धोक्याची घंटाही आहे . देशांच्या सार्वभौमत्वाचा गजर हा त्यांच्या जागतिक जबाबदा -यांना सोडून असता कामा नये , याकडे या साथीने लक्ष वेधले आहे . जेव्हा हे जागतिक संकट संपेल , तेव्हा त्यातून जगाने धडा घेत आंतरराष्ट्रीय यंत्रणा आणि संस्था यांचे मजबुतीकरणाला महत्त्व द्यावे . या संस्थांच्या माध्यमातून पुढील भविष्यात असे संकट पुन्हा जगावर

येणार नाही, याची खात्री त्यांनी जगाला द्यावी लागेल . काहीं देशांना ही साथ म्हणजे पुन्हा आपल्या स्वार्थी आत्मकोषात जाण्यासाठीची सुवर्णसंधी वाटेल . पण, भारताने अशा आत्मकेंद्री शक्तींना आळा घालायला हवा . जगाला नव्या दशकात दिशा देण्याचे ऐतिहासिक काम भारताकडून झाले तर, भारतीय नेतृत्व जगात झळाळून निघेल यात शंका नाही .

भारताने कोरोनाविरोधातील लढाई जिंकल्यास , जगाला येत्या दशकात नवी दिशा देण्याचे सामर्थ्य भारतीय नेतृत्वाला प्राप्त होईल .

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ONLINE EDUCATION DURING COVID-19: RESOURCES, ADVANTAGES AND CHALLENGES

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Abstract:

With the lockdown circumstance because of COVID-19 in the educational system each instructive establishment stop and the unfavorable impact of the equivalent is generally apparent among the students. Luckily, the innovation progression of 2020 gave the degree to making the virtual education by making a platform between the teachers with students from their home. It is a major test now towards the instructing end to make web based showing more valuable.

Introduction:

The web based education in India has a long history with broadcasting space given by the All India Radio and the Doordarshan for broadcasting recorded instructive projects for advanced education as well as for school-going kids [1]. Despite the fact that numerous instructive establishments including UGC, IGNOU and NCERT utilizing the administrations given by All India Radio Doordarshan still there was a requirement for association from the students to be satisfied since all these telecom was in recorded structure [2-4].

In 1994 there was a change in outlook as the ISROU gave the video chatting office at IGNOU settle in New Delhi interestingly. It was a single direction video and two-way sound correspondence through telephone line giving extent of live communication to the students [5-7]. The remotely coordinating office was a sponsor for an enormous number of online courses like administration considers, software engineering and particularly for educators preparing in India [8-9]. For quite a while an enormous number of instructive foundations and different government and private associations using the assistance of remotely coordinating given by ISROU at IGNOU settle. In the year 2000, the video chatting got the acknowledgment as an authority schooling channel under the Gyandarshan stage. Alongside different channels of Gyandarshan it was then made accessible in the DTH as GD-intuitive channel [10].

There was as yet the requirement for two way video correspondences to be satisfied. In 2005 an exertion was made by ISROU as a team with MHRD and IGNOU in such manner with the starting of EDUSAT satellite planned by late "APJ Abdul Kalam" during his residency as President of India [11].

In spite of all endeavors, EDUSAT couldn't satisfy the need true to form as the correspondence innovation still to be created to help a particularly drive. In 2020 one may think that it's exceptionally simple today. In any case, even 15 years back from today it was a major test to build up a two-way video correspondence between one to many [12].

Resources of online education:

The country has witnessed the terrible impact of pandemic and the education sector is one of the most suffered during lockdown. Schools, colleges and universities remained closed from last year to check the spread of the infection. It causes significant disaster for understudies and educators who relied heavily on conventional instruction methodologies. [13].

To negate this emergency, MoE under national government with the help of UGC has undertaken ICT drive to dispatch free electronic learning or E-learning stages for understudies [14]. These educational platforms are accessible online for understudies, students, analysts, and teachers on which they can interface one another in a virtual classroom. These courses are accessible for graduation level as well as postgraduation level. The inclusion of visuals along with audio using live online talks, course substance, tests, online quizzes, etc. makes them more intriguing for understudies [15-16].

Source I: SWAYAM

It is established on July, 9th, 2017 from an attempted crusade, "Computerized India" in 2015 and taken forward by education ministry. The stage has been intended to bestow standard instruction to class understudies, undergrad at par with post graduate understudies in the country. The entry offers variety of free investigation materials for downloading from more than 1620 courses comprising addresses, conversation gatherings, videos and online tests. After completing a course effectively, understudies get an authentication in return for the symbolic expense [17].

Learners can visit the website adaptation <https://swayam.gov.in> or alternatively Google Play Store or AppStore to download. Enrolling in Swayam is very straightforward and requires an email ID or Facebook account or Google account. The Swayam entry is licensed by: AICTE, IGNOU, NCERT, UGC, NIOS, CEC, NITTTR, IIB and so on [18].

Source II: DIKSHA

A drive taken to work with cutting edge advanced taking in for instructors from classes Ist to XIIth by the MoE. The advanced gateway has been principally intended for educator instruction but at the same time is accessible for understudies who need to associate with the instructor's local area. DIKSHA offers instructional classes, worksheets, exercise recordings, educational program, and evaluation tests for instructors [19].

QR code is highlight of this stage which can be scanned to read eBooks and access huge learning material. Nearly one lac eBooks are accessible for higher secondary understudies in numerous dialects. An application is available on Google Play Store for Android users whereas iOS clients can download from iOS app gallery. Enrolling is also possible by visiting the website <https://diksha.gov.in>

Source III: SWAYAMPRAKASH

A broadcasting instrument conceptualized by the Education Ministry comprises more than 30 direct to home stations. The instructive material available 24x7 for understudies across India. The stations broadcast substance of 4-hours length daily. The substance is repeated 5 times every day so that understudies can watch the projects at suitable time [20].

Study materials are accessible for twelfth, UG, and PG learners. SWAYAM offers a number of courses just like MOOCs. Students can visit www.swayamprakash.gov.in for understanding free establishment of a set-top box and other data.

Source IV: SHODHSINDHU

A computerized library mutually arranged by the Education Ministry and the Indian government. It gives admittance to e-assets like diaries, e-Books, genuine, book indices, references, and so forth for advanced education [21]. All scholarly organizations like floral and state colleges and universities can profit from the administrations. Learners can enroll by signing on to <https://ess.inflibnet.ac.in/oes> or by writing an email to eshodhsindhu@inflibnet.ac.in.

Source V: VIDWAN

Vidwan is a data set of specialists which gives data about specialists to peers, imminent associates, financing organizations, policymakers and exploration researchers in the country. Employees are mentioned to enlist on the Vidwan gateway to help extend the information base of specialists.

Advantages of online education:

The web and innovation have made the world so little that simply a tick makes all that could be within reach. Indeed, even our schooling framework isn't immaculate by this turn of events. The schooling framework is encountering neglected domains. Throughout the long term mechanical headways have set internet learning before school understudies and caused the world to understand that it's an aid with an end number of benefits. The e-instruction framework has extended so quick that the school understudies of any age are profited by its benefits [22]

Multiple courses at one time:

In the online education system students have a better opportunity to do multiple courses at one time and from one place without wasting time. This helps students to enhance knowledge in a very short period of time by performing multiple courses at one time. It also helps to improvisation technical skill, communication skill self-confidence and smartness of learners [23-24].

App development:

Utilization of different e-application is a need for use of large number of resources and study material. The e-application plays a vital role in the education system with the help of it any group of learner educates easily. The development of android app can use in a smartphone for online teaching learning process during the covid-19 pandemic [25].

Easy administration:

Web based teaching learning process make administration role easy in the pandemic situation which also help to reduce crowd due to online submission process. The work of administration is easier to maintain all things in online mode due to this we people easily follow all necessary rules. Regarding Covid 19 but still we got chance to complete our work and continue our education without any disturbances [26].

Admission process:

Online teaching learning way survive student education during pandemic situation so many question arises about continuity of education but for the web based education it make easy and smart. It gives a smart solution i.e. online admission process for continuous education and all categories students take a benefit for educational purposes [27].

Efficiency:

Internet learning offers instructors a productive method to convey exercises to understudies. Web based learning has various apparatuses like recordings. PDFs, webcasts,

and educators can utilize every one of these devices as a component of their exercise plans. To expand the exercise plan past conventional course books to incorporate online assets. Instructors can turn out to be more proficient teachers [28].

Easy to afford:

Low monetary expenses are an important benefit of internet learning. Online schooling is more affordable than actual learning. The obvious reasons for reduced expenses of understudies are minimal requirements of transportation, dinners, and land. Also, majority of the courses and study materials are available online aids in establishing a paperless learning ecosystem which is beneficial not only for learners but also mother earth [29].

Availability of e- attendance:

Online classes offer flexibility in terms of place and hence, there are very little chances of understudies bypasses exercises.

Challenges in online education:

Online education having major disadvantages in which the lot of study material collected from different sources but its complete implementation is quite difficult [30-31]. Web based learning can't offer human collaboration. Another weakness alludes to the way that online courses can't adapt to a great many understudies that attempt to join conversations. Additionally, internet learning can be troublesome, on the off chance that it is intended for disciplines that include practice [31].

Managing screen time:

The main challenge in online education system is to learn in front of screen for a long time. But there is some possibilities that time student may attracted towards other social media or entertainments sides so this is very challenging task to teachers to engage students in different kind of interactive teaching learning methods [32].

Unavailability of technology

Online education completely depends on technology in which most important thing is availability of technical source and network connection. We observed that till now small villages and cities facing many challenges regarding internet speed and network connections. Due to low network and internet speed students can't attend lectures effectively [33].

Effect of screen

The most serious disadvantage of online teaching learning system students take education in front of screen and it required long time. It affect the eyes, and health of the students sometime to seat long time in one posture it affect physical damage also. Most of the

parents concerned about this issue. For smooth conduction of this type online teaching learning need to take much time short break during teaching learning [34].

Limitation on student's feedback

It seems to observe that in traditional teaching learning system teachers takes students feedback immediately after class or it may experience by reading of students faces but in virtual classrooms teaching it quite difficult to judge students understanding about teaching and learning therefore this is difficult to manage to improve individual performance of students [35].

Difficult to manage malpractices:

During online education the main challenge overcome is to take examination without malpractices. Students give examination on its environment and by using its own devices it may possible to be cheat by using various methods. Assessment of students takes on video mode it difficult due to unavailability of e sources. To manage malpractices during online examination from home it affects merits of sincere students and quality of students [36].

Effect on hands on training:

The main drawbacks observe in e- education it more focus on theory course and knowledge. It is not possible to take the courses completely depends on practice or practical's conducted in online mode. For online education only demonstration of practical courses possible but it directly affects on students hands on training. Due to lack of practices students unable to perform industrial work. To overcome this problem it required to arrange industrial training programme to give hands on practices for students [37-38].

Conclusion:

Today's education is unimaginable without some digital resources and online available scholastic literature. No one is sure about how long COVID-19 will be with us. Therefore, the situation has accelerated our use of digital technology and can promote transformation of our education system. Media spaces can promise democratic possibilities but simultaneously can reinforce a risk of power and inequality.

Few questions are yet to be answered about future incorporation of online education and a detailed discussion with learners about their online learning experiences and subsequent data can help especially for public educational institutions. The active participation of private sectors needs to enhance reachability. Allocation of funds for digitization and to raise digital learning platforms should be priorities. New technologies and tools can be used to experiment

with meaningful education to learners whether from rural or urban areas and ensure education for all.

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A STUDENTS SURVEY ABOUT EFFECTIVENESS OF ONLINE TEACHING-LEARNING FOLLOWING COVID-19 PANDEMIC

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Abstract:

The Education System in India also experienced a change, specifically by changing face-to-face learning activities directly at colleges or schools with online teaching and learning going on from their homes during COVID-19 pandemic. A survey was conducted from students by distributing an online questionnaire through Google form. One hundred seventy-one (n= 171) students answered the questionnaire. This online teaching and learning certainly has an impact on students' attention and learning motivation. It was observed that the 37.4% students respond online teaching is very effective and 8.8% students respond online teaching is not at all effective. Many students use smartphones for online teaching. Due to network issue some students not attending the online sessions. Study of this survey aims to find out what are the influences of online teaching and learning during the Covid-19 pandemic on interest and learning motivation in colleges students and to be able to find out the right teaching methods in online.

Keyword: COVID-19, Education system, Online Teaching and e-learning

Introduction:

State wise lockdown in our country from March month because of COVID-19 pandemic situation has caused disturbance of face-to-face education of all students from all colleges transversely the nation. Overall colleges from all states were noticed that colleges remain closed and students send returned to their hometowns for safety motive. All universities are also declared that to begin online teaching for all college students [1].

During COVID-19 pandemic the respiratory infection is dangerous for human life, for social distance and health purpose several states have postponed entirely face-to-face education. This pandemic has enforced several adjustments in education system. In some nations schools and institutions have accepted the policy of online teaching and learning in this pandemic. Consequently, teachers and students have led to change of their education methods, no matter whether they have been skilled and prepared for this

virtual education system. Due to these circumstances, an appropriate technique has seemed in the education field: immediately online teaching and learning [2]. All institutions faced a several task in online teaching – learning process, for instance shifting the conventional system “face-to-face” education to carrying out online teachings and growing effective systems for confirming learning through specific reference with the concert of written assessments [3].

Online education has substituted the old-style teaching- learning technique and it is a key technique of education system in COVID-19 pandemic. Online education is a strategic education method is carried out by individual teachers from various spaces such as interact and connect with students via many high-techtools [4].In some instance and in spite of difficulties obtaining services and goods, so that drastically shifting tutoring methods to usage and digital platforms besides IT tools [5].

Accordingly, in this present article we studied student feedback on online teaching and learning system by taking survey from students on online teaching and was to evaluate how students experienced the move to digital teaching and learning following institutions lockdown. The consequence of a review on the usefulness of online teaching and e-learning is considered.

Data collection:

This became a survey based totally look at the use of questionnaire. Questionnaire were designed by using web about online learning and formed the Google form [6]. The link of the Google form was posted through social media to the students. Students were assured that confidentiality of their names can be kept at every level. The statistics accrued were amassed and analysed by both quantitatively and qualitatively.

Outcome of the survey:

An entire 171 students are responded to the surveys. The student’s respond for the surveyis shownin below figures, it is observed that from above fig.1 there are 61.4% of students feels the online teaching is good and 4.1% students feels the online teaching is poor. Although, there are 76.6 % of students have access to device and 16.4 % of students have access but it doesn’t work well for learning online. Only a few students utilise desktops and tablets, whereas 96.5 percent of students use smartphones. It was shown that 53.2 percent of students devote 1-3 hours and 35.1 percent devote 3-5 hours to online learning.

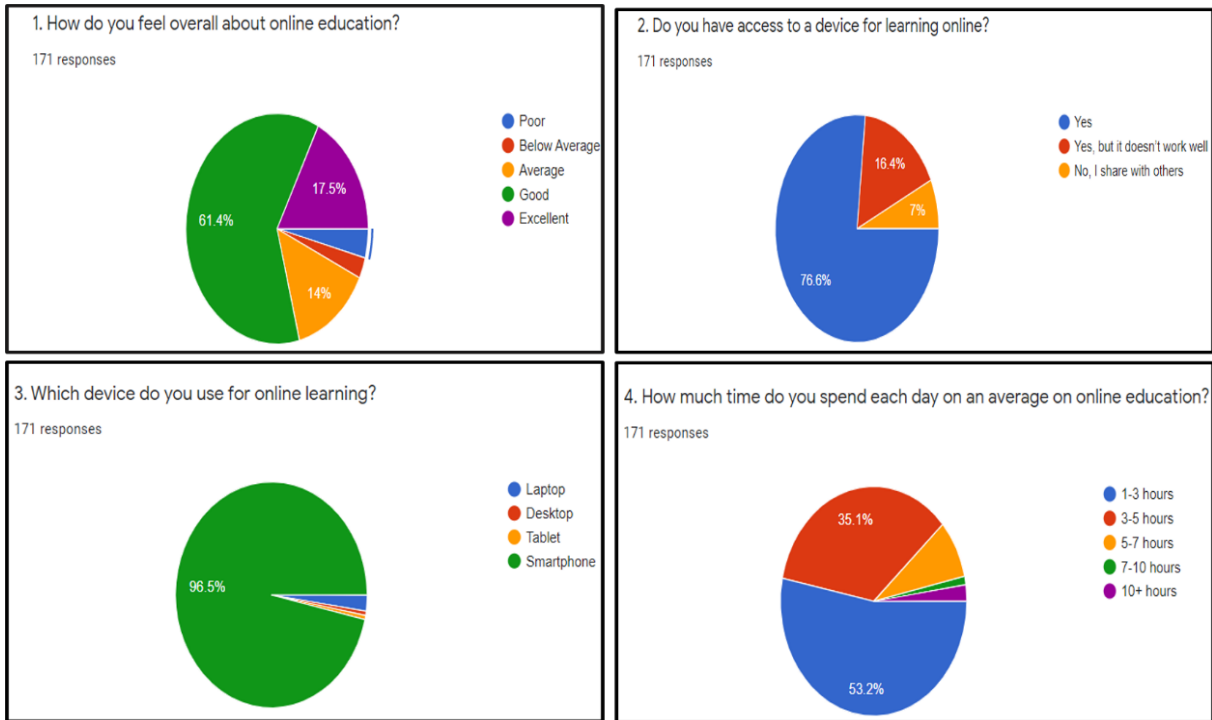


Figure 1: students response on questions 1, 2, 3 and 4 respectively

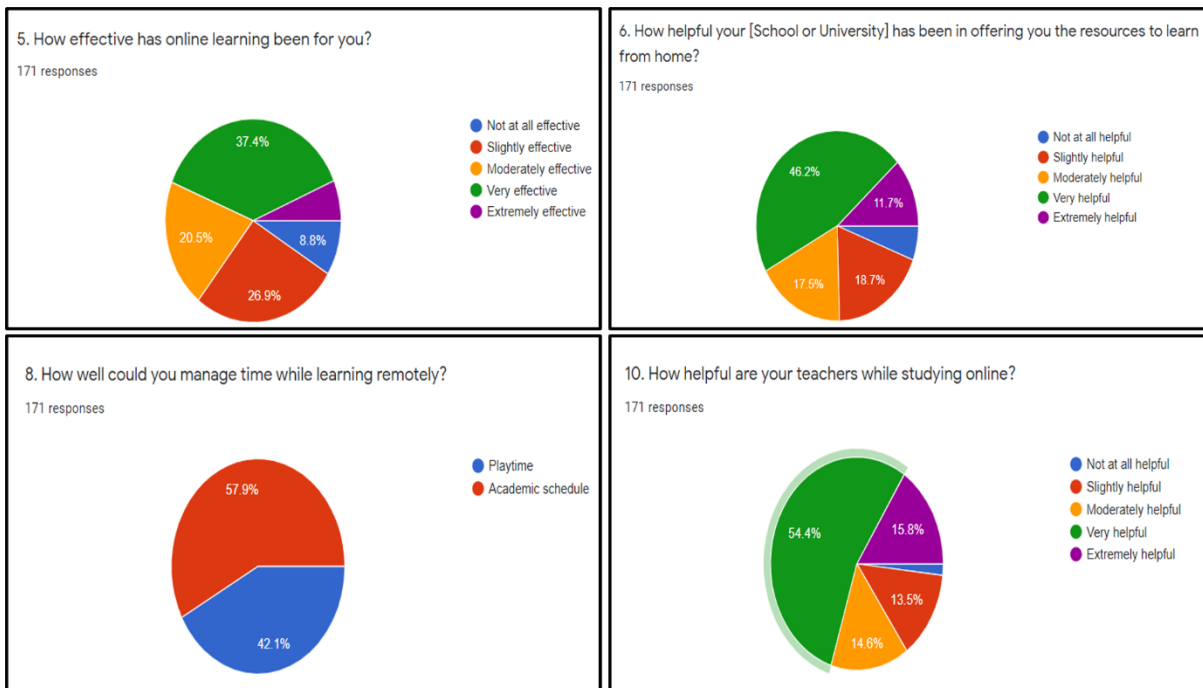


Figure 2: Students response on questions 5, 6, 8 and 10 respectively

From fig. 2 illustrates the efficiency of learning. There are 37.4% of students responds that online learning is very effective and 8.8 % of students responds that online teaching is not at all effective. Although 46.2% of students said that the university has been

very helpful for resources offered to online learning. 42.1. % of students manage their online learning time as a part of their academic schedule, while 57.9% students manage their online learning time in playtime. 54.45 students replied that very helpful teachers during online study. During online learning, 54.45% of students said that their lecturers were extremely helpful.

Conclusion:

This survey showed that e-learning is a valuable method to learning students in COVID-19 pandemic. In the opinion of the students in student's survey, online learning is very effective in rising knowledge and it is extremely accepted. E-learning benefits learners to benefit students to study from anywhere and anytime. There are a few drawbacks of online teaching. Many students were use smartphones for learning, but they are dangerous to health from radiations. Sometimes there was networks issues and other obstacles which affected on studies and concentration. Some students respond that the teachers try their best to teach, but all the points do not reach the students through online. So, it is concluded that in online teaching, an innovative teaching strategy is needed.

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AN IMPACT OF COVID-19 ON HIGHER EDUCATION

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Abstract:

In the Covid- 19 period, information technology was used for education so as not to destruct the students. As education relies on online tools in the aspect of uncertainty created by the policy, there is need to increase the infrastructure required for information technology in rural areas. The students will suffer academic loss, so it is very important to take care that the student's curriculum will not be disrupted. Measures must be taken to ensure that students from all areas of society should continue their education.

Keywords: Covid-19, Lockdown, Education, Information Technology, Internet

Preface:

The world's biggest crisis since World War II has been caused by the corona virus. All transactions in the world were locked down. It affected human life. The corona virus has changed its original form and has come to us in different forms like Delta, Delta Plus and now Omicron. All of this uncertainty has created an atmosphere of fear throughout the world. It was widely believed that the vaccine would be an effective alternative, but there is no denying the fact that there is still no effective alternative to Covid-19. Corona virus and lockdown had stopped the India's economy along with the rest of the world. The economy was reeling under a vicious cycle of unemployment due to the downturn and recession. Hundreds and thousands of hardworking people move from the city to the villages because of the loss of jobs. The hard-working class was stuck in this predicament because of corona. The lockdown forced social emptiness and loneliness into social, economic, mental, health and family problems. During this time people had to face many difficulties. They were saddened by the loss of so many loved ones. They also felt sad that they could not do anything about it. The United States, considered to be one of the world's superpowers, and India, along with all other countries, have been plagued by health problems due to the corona. Corona affected all parts of the world. In all of them, education seems to be the most affected.

All systems in the world were shut down to prevent corona. According to a report by UNESCO in April 2020. 154 crore students from 188 countries were sitting at home. In India, 26 crore students and 89 lakh teachers from 15 lacks schools were sitting at home and 30 crore students from 50,000 colleges offering higher education were also sitting at home. In the world of YouTube, India is referred to as the land of youth. If the youth do not get the job, it directly affects the progress of the country. In the current difficult times, people have been forced to stay at home due to health issues, but there are also educational issues during this crisis. Showing past series to alleviate people's desolation will not reduce current questions. There are still plenty of opportunities in India for the use of information technology in education.

Today is the age of information technology. Computers have made many human tasks easier. We see that computers are being used in all fields because of the internet. As the use of computer for personal work is increasing in daily life, it is time for a pair of traditional education to acquire computer knowledge and become computer. The internet has made it easier for computers around the world to find the information you need or send information to others. The internet is a powerful weapon of new generation that makes everything available. Due to the availability of internet connection on mobile phones and cheap availability of the Android mobiles in market, the internet is being used extensively today. With the availability of 3G, 4G, 5G in India, this medium has become more dynamic and expanded. The internet is not a specific organization or company owed by anyone. It is a system run by the people for the convenience of the people. Today, many companies around the world have created their own websites and made them available on the internet and new websites that provide the information you need are entering the field every day.

It takes time to modernize the learning process using new technologies. According to UGC's new regulations, 40% of higher education courses must be online. Colleges in the state have been closed since March 2020. Traditional teaching methods were closed during the lockdown, so it was necessary to introduce online education using information technology so as not to disrupt students learning. The initiative was to educate students using various options such as YouTube, Zoom, Shodh-ganga, e-library, online courses on the application itself, e-notes. The students pursuing vocational education are from prosperous families, so they have the resources required for online education. The vocational education colleges are mainly located in urban areas so they do not have to deal with such issues as internet connectivity and electricity. The real problem in online education is for traditional colleges

because many traditional colleges are located in rural areas and the students are from poor middle class tribal families. Despite the abundance of information technology tools in rural areas. Tribal rural colleges continued to use online services to the fullest of Google's free services, they used online tools like e-mail, Google Meet, Google Classroom, Google Forms, YouTube, Zoom and WhatsApp groups.

With the proliferation of information technology, there is ample scope for expansion of educational, improvement of quality, provision of opportunities. According to a report released by TRAI (Telecom Regulatory Authority of India) in 2020, the number of Internet users in India is 68.45 crore. The number of mobile phone users is 48.82 crore while the number of smartphone users with internet is 40.72 crore. Today we see the expansion of information technology in the 21st century but even today there is a huge disparity in it. In urban areas 64% of the people use the internet and in rural areas it is only 36%. In India, 67% of men and 38% of women use the internet. In developing countries like India, the use of information technology is seen in urban areas. Information technology infrastructure needs to be developed in rural areas.

Conclusion:

1. Information technology tools are being used to the maximum for education.
2. Internet connectivity and lighting system should reach out to rural areas.
3. Free services like Google are being used in education.
4. Teachers need to be trained to promote online education.
5. Cheap network sources need to be easily available.
6. There should be awareness of online education among the students.

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IMPACT OF COVID - 19 PANDEMIC ON EDUCATION SYSTEM IN INDIA: AN OVERVIEW

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Abstract:

The Education system was drastically affected and has changed due to the uncertainty created by Covid -19 pandemic. The transformation to the the system of teaching-learning environment from the traditional blackboard method to digital technology, has been put on fast-track through online learning or virtual platform. But this sudden transformation affects the education system and its various stakeholders, like students, teachers, examiners and educational institute etc. The aim of this paper is to analyze this impact of the pandemic on the education system in India as well as the changes made in the classroom environment to overcome the hurdle screated by pandemic. The solution/option of online and virtual teaching- learning system, though effective one on paper was insufficient due to lack of access to technology and non-tech-savvy stakeholders of the education system.

Keywords: adverse effects of Pandemic, internet and technology based education, insufficient access, deprived stakeholders of education field

Introduction:

The entire world and all it's activities were affected due to the global pandemic caused by the corona virus which came to be known as the Covid-19 pandemic. All important areas like industry, commerce, economy, education, trade etc. have been adversely affected. All movements in all walks of lifewere bought to a standstill, but as the old saying goes“The show must go on” all the living beings were coping with the unprecedented circumstances that they were suddenly thrown into and things had to run for them. Though physical distancing became the new norm, the option of virtual access which was already prevailing, came to the rescue of many; and the world started slowly but steadily getting back on track with further help from communication technology and internet access. Education field was no exception, and the teaching-learning, examination and assessmentswere shifted to virtual platforms.

As far as India is concerned, in few areas of the country, many people lacked access to modern technology. When the question of virtual teaching learning, and other educational

activities aroused due to this pandemic; Indian students, teachers, and educational institutions faced the problem of insufficient access of technology and techno savviness.

In India many of the student's economic status limited their access to the tools for virtual learning, also not all educational institutions were technologically well versed for a smooth transition to the virtual classroom environment. As far as the teachers are concerned not all were able to cope with the new virtual teaching tools. Hence, all these problems adversely affected the whole education experience and the quality of learning for the students. Virtual learning was new for the students, especially to the pre-primary and primary level students.

Initially, students and teachers were very uncomfortable as they were not used to this new way of conducting and attending class. Due to this, there was a drop in the quality, as one was getting familiarised to the new working conditions of teaching and learning. Examination and assessment system are also affected due to many loopholes in the virtual assessment methodologies. And the question of quality again aroused as many of the students misused the virtual process by implementing unethical practices.

Literature Review:

The impact of covid-19 on education has been the subject of much discussion in both manners positive or negative. All said and done, never ever can teachers be replaced completely with technology. Technology cannot be a substitute for a teacher.

According to a study conducted by Giorgi Basilaia and David Kvavadze (2020) Transition on online Education in School during a SARS-cov-2 coronavirus (covid-19) pandemic in Georgia, "during the (covid-19) pandemic Education intuitions focused on saving the Education process and continue it in any possible format. He concludes that transition from the traditional to the online education system at the school was successful. The online education format can be useful in the post pandemic period, especially in the case of students with special needs."

Dr. Naseer Ahmad Lone and Showkat Ahmad Dar in their research paper conclude that "The teachers have played the role of mentors, guides, leaders and facilitators in the lives of the students. They have encouraged, motivated and inspired the students to aspire, dream and fulfil their desires. This is something which no robot or artificial intelligence machinery can do. This type of warmth and personal care offered by the teacher can in no way be substituted by a machine. Thus we can say that virtual learning resources can revolutionize the teaching learning process, but they can't completely replace the teacher."

Mukesh Rawal suggested in his paper “Even if the COVID-19 crisis stretches longer, there is an urgent need to take efforts on maximum utilization of online platforms. India should develop creative strategies to ensure that all children must have sustainable access to learning during pandemic COVID- 19. As online practice is befitting the students immensely, it should be continued after the lockdown. Further detailed statistical study may be undertaken to explore the impact of COVID-19 on education system of India.”

Objective:

1. To find out the impact of online education during pandemic.
2. To analyse the transformation from traditional to online education system.

Research Methodology:

The present research paper is based on secondary data; gathered from published material in various books, journals, newspapers, magazine and websites.

Findings of the study:

- Compulsory use of technology which was earlier neglected.
- Teachers and students have to cope up with technology, which was earlier treated as an option
- Teaching learning process has become easier, more attractive with the help of PPT’s pictures graphs, videos etc. which helps the students to retain better.
- Accessible from anywhere at any time; which will help the students to learn as per their own pace.
- Digital literacy has enhanced among the students as well as teachers
- Initially, there is a lack of enthusiasm on the part of teachers to equip new technology.
- As parents are not always well versed with mobile applications, they was difficulty in the transition especially for the pre-primary and primary level students
- The cost of internet facility can be very high making affordability an issue.
- In many families there is more than one child, contributing to the affordability issue, especially when trying to manage with a single gadget and limited internet access.
- Lack of internet connectivity in some parts of the country, making it difficult to attend online lectures
- Misuse by the students on the ground of skipping lectures, cheating in the exams etc.
- Difficult to evaluate the Comprehensibility of the students.
- No control on the class as well as restrictions on the instructions given by the teachers.
- The scope of co-curricular activities are limited in online system

Conclusion:

The key aspects of this study is that the teacher cannot be replaced with technology but with the use of technology teachers can surely enhance learning experience. It is the need of the hour to use smart board in each level of education to achieve high quality of teaching-learning experience. Which will definitely help the student to excel in their careers; as the world is making technological progressions in leaps and bounds. The education sector, which had always taken its own sweet time to incorporate new technology available, has been given a reality check and has now been nudged to make it a point to incorporate the latest technology in the teaching-learning process to avoid any setbacks caused by unforeseen turn of events.

Though Covid -19 pandemic has adversely affected the world but we have learnt so many things which were unknowingly neglected previously. The transformation from traditional education system to digital system has given new context to learning.

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CHALLENGES AND OPPORTUNITIES IN ONLINE TEACHING FOR TEACHERS IN SCHOOLS AND COLLEGES OF RURAL AREAS

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Abstract:

In this article we mainly discuss on challenges for teachers in online teaching. For this purpose we collected data from fifty teachers of schools and colleges of Maharashtra mainly from rural area of Palghar, Thane and Solapur district. The collected data is analysed for the reliability by the help of literature reviews [1-3], expert opinions and their motivations where added in this article. At the end we were put the views from the data to enhance effective teaching and learning is all about enabling teachers and students to interact better and engage better.

Keywords: Covid-19 Pandemic, Online Teaching.

Introduction:

Now days Covid -19 pandemic has been a global problem. Every sector of society is affected due to this pandemic. Educational sector is not an exceptional for this rather educational sector is very much affected due to pandemic. Before covid-19 pandemic online education is not a compulsion to every stakeholder, in covid-19 also we assumed that it was a temporary change, but after almost two years schools and colleges are still functioning via virtual mode. The society was still facing the problem of covid-19 pandemic and all the schools and colleges are still remain virtual mode for foreseeable future [1]. At very beginning of year 2020 every student and teaching faculty facing basic issues of online teaching like selection of platform (which platform is comfortable form student and teachers point of view), knowledge of online devices (Mobile, laptop, Notepad, Pen-tab and some others), course content, learning management systems, fear of cheating but now as time passes and every student and teacher become familiar with devices and teaching platform. As everyone is familiar with online teaching learning methodology but the teaching faculty are facing the problems like attention of students in class, active participation of students, network issues, student's device issues and many more.

Alike student and teachers, schools and colleges are very badly affected due to covid-19 pandemic. We know every school and college had heavily invested money for infrastructure and campus development. The covid-19 comes in picture and everything is shifted online like other industry and promoted for work from home. Some innovative and leading institutes started to invest in online software's or online teaching platforms and usable device for online teaching. Some college had invested for software for online exams. There is well said mathematical statement if there is problem then there is solution. So if there are difficulties in online teaching but on the flip side there are some opportunities too. Now the students can find their courses and books online where they can study as per their own schedule. In virtual mode student can listed the lectures as many number of times as he want.

In our work we discuss on challenges and opportunities for teaching faculties in online mode. In the survey we mainly collected the data from the teaching faculties of school and colleges in Palghar, Thane and Solapur districts. For this survey we prepared the questioners with the help of (cite the papers) and expertise in academics. The obtained data is analyzed and discussed with professors and experts, and the detailed report is explained in this article. From the survey we shortlisted five challenges and with the help of expert opinion their solutions are also explained.

Challenges and solutions in online teaching for teaching faculties in schools and colleges in rural area:

Following are the some analysis of data collection from Thane, Palghar and Solapur Discript,

1. Online teaching is stressful?

Indeed, while online teaching there are lots of problems from student as well teachers point of view. Many students are from tribal and lack of network, many students facing problems of money hence unable to recharge mobile for internet connectivity. Teaching was very stressful during covid-19 pandemic because there wasn't any training to faculties about online teaching, the internet connectivity was the main issues. Students were also new in this system hence got very trouble during this period.

Solution: - In order to reduce the stress of online teaching on faculty and student can use the precautions like making small length videos or reducing the time of video lecture, using learning management system, using available lectures from different platform like NPTEL, e-Pathshala, Coursera and many others. There are many television channel

where the experts from respective areas deal with student, teachers can use this channel for his student also[3-8].

2. Online Learning Challenges – Learning Management Systems

Indeed, at very beginning of the year 2020 many of faculty members and students are not aware about the learning management system. Some faculties are unaware about the basic tools like zoom, google meet and google class room and many things. Many faculty members facing the problems while content development for course.

Solution:-By arranging workshop and webinars on online teaching tools we can overcome the lacunas about learning management systems. For the content development institute should take initiatives by arranging DTP operators or with help of non-teaching faculties[3-8].

3. Lack of proper teaching methods in online learning.

Due to lack of online teaching tools and software like laptop, high resolution camera, pen-tab, Jamboard (By Google meet), white board(By zoom), Microsoft office and other, faculty using traditional methods for online teaching. But it seems using trading method for online teaching is not very much effective for online teaching.

Solution: - Training programs on handling of online teaching tools by the experts should arrange for colleges and school teachers. - Central government has started many courses on Television, the student who had network problem but availability of television can watch the lecture there[2-7].

4. Face-to-face communication for you while teaching remotely

As our syllabus is designed by the traditional teaching point of view so there are number of problems in virtual teaching, viz, face-face communication with student, Fear of Cheating. Teacher is not able to observe the body language, expression of the students while teaching and he not conclude the student is understanding or not that what he is teaching.

Solution: - By opinion of expertise, professors and BOS need to modify syllabus which is compact for online learning and teaching. Teacher can motivate to student for fare and honest performance in exam. More force on self learning by the students may increase student grasping power. Secure Browsing, Remote Proctoring, Remote Candidate Authentication, Data Encryption during transit, and Record and Review Proctoring, etc. are some of the technology used to avoid cheating of student in exams [3-8].

5. Engaging students during online class teacher communication problem during online learning class.

While online teaching the student attention on lecture is a very big challenge for teacher.. Moreover many students don't have smart phone. Students are not attentive in online lecture they keep their video and Mick off and they do as they want. Student may feel boar during online lecture.

Solution: While online lecture teacher can use student interactive technique like discussion method, student seminar, student technique. While continuous assessment teacher focus on project work or report writing, viva and MCQs exams. The time period of lecture may be decrease and making the compact so that student will focus and enjoy the lecture [3-8].

Following graphical figures are obtained using the analysis of the survey of teachers in various institutes in rural areas of Thane, Palghar and Solapur district.

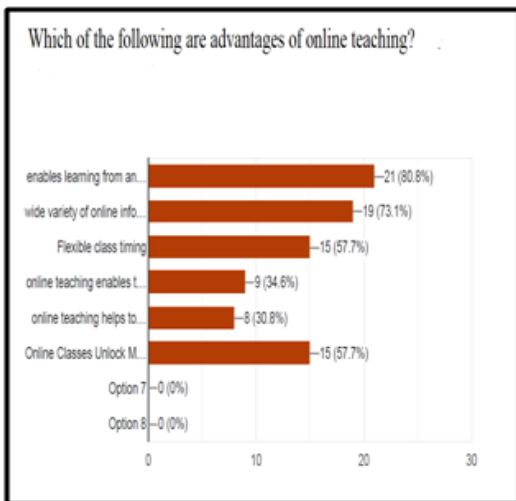


Figure 1: Responses on using online teaching

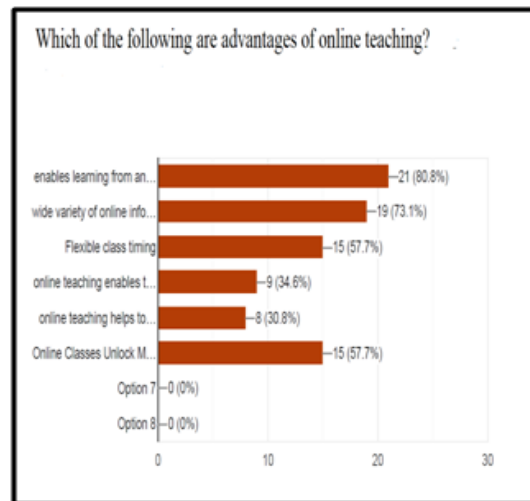


Figure 2: Responses on device used for Online teaching

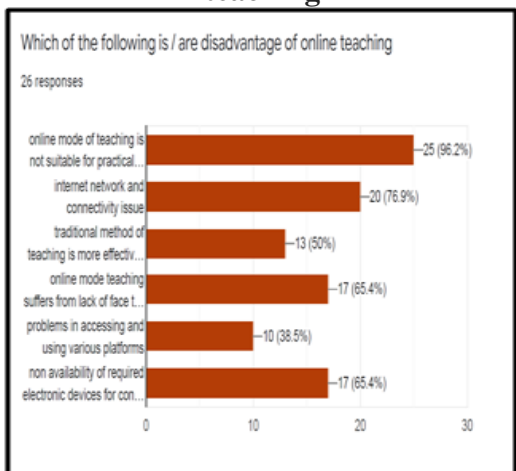


Figure 3: Responses on disadvantages of online teaching

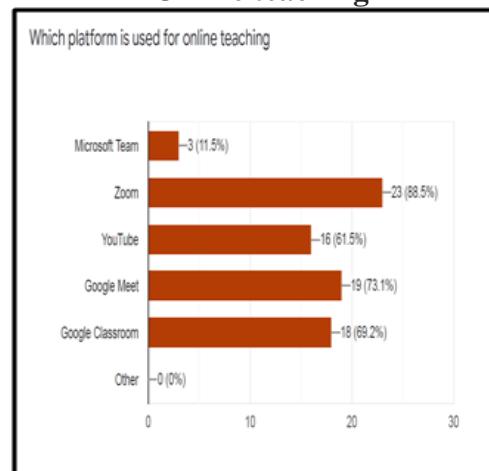


Figure 4: Responses on e-learning platform for online teaching

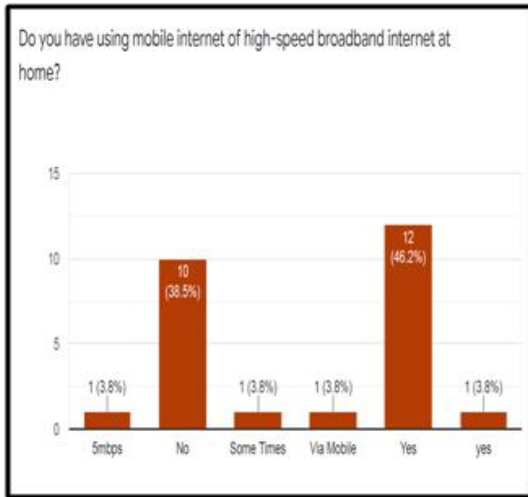


Figure 5: Responses on internet connectivity for of online teaching

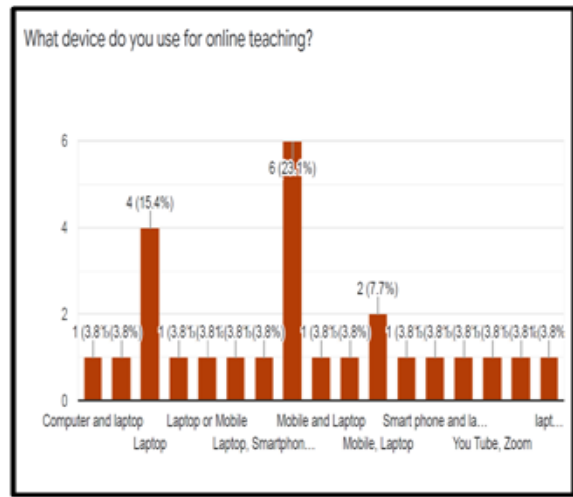


Figure 6: Responses on device used for online teaching

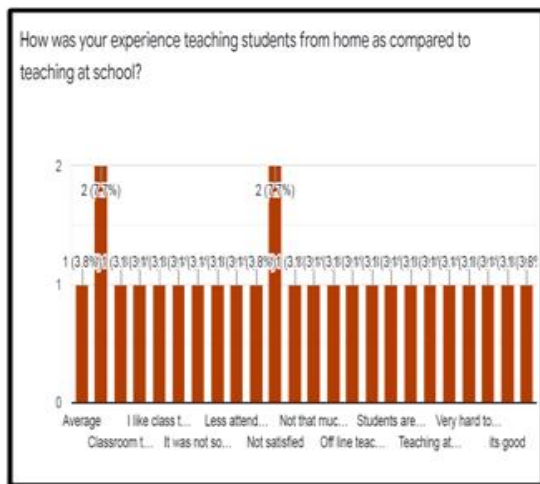


Figure 7: Responses overall experience of online teaching

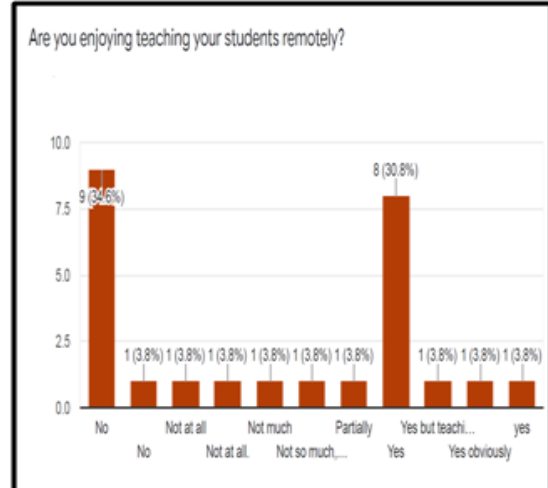


Figure 8: Responses of overall experience of online teaching

Conclusion:

By this survey and literature review we can assume that online teaching learning mode has some benefits and some difficulties. In this article we were taken five challenges from survey and try to give solutions by the literature review and expert opinions.

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IMPACT OF COVID-19 PANDEMIC ON EDUCATION SYSTEM IN INDIA

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Abstract:

The present paper discusses about the impact of Covid-19 pandemic on education system in India. The Covid-19 originated in Wuhan city of China in December 2019 and had captured the entire globe within short time. The World Health Organization (WHO) declared on March 11, 2020 the Covid-19 outbreak a global pandemic. Under these circumstances government of India declared nation wise lockdown on March 25, 2020 to combat Covid-19, has made worst impact on the education system. The apex bodies of educational system either postponed or canceled all campus due to rapid grow of Covid-19 pandemic. These bodies have taken intensive measures to prevent and protect all students and staff members from the highly infectious disease. Covid-19 has imposed the drastic changes into the traditional mode to application of technologies while online teaching in which all education related things happen online. In this review paper the author will focus on the potential impact of Covid-19 outbreak on the education system India.

Keywords: Covid-19, Pandemic, Impact, Education System, Online Teaching.

Introduction:

The World Health Organization (WHO) declared on March 11, 2020 the Covid-19 outbreak a global pandemic in this circumstance government of India has announced nation-wise lockdown on March 25, 2020 because In India, the first positive case of Covid-19 was found on 30 January 2020 in the state of Kerala and the affected had a travel history from Wuhan, China (Wikipedia). On March 12, 2020 first death was reported due to Covid-19 disease and nation observed the Janta Curfew to combat the Covid-19 pandemic and assess the country's ability to fight the virus. On the bases of available data on Covid-19, then the Prime Minister of India was declared 1st lockdown simultaneously the Indian Government has been extending the lockdown period in different phases. Due to lockdown scenario all education system and their activities brought to an end, across the nation has a severe impact on education sector closed their premises, postponed and canceled the exams. Despite of all

these challenges, education system have reacted positively and managed to ensure the continuity of teaching-learning process with some tools and techniques during the pandemic.

Objectives:

Following are the main objectives of the paper

1. How the education system has faced havoc situation of Covid-19.
2. To focus on the role of online education platform in the education system.

Methodology:

Authors has collected through secondary and tertiary data for present paper is from various sources such as reports, institutional web portals and published articles by various national and international institutions on the impact of Covid-19. Some research journals are referred relating to impact of COVID-19 on educational system.

Impact of Covid-19 on Education System:

In order to control the spread of the Covid-19 therefore central and state governments imposed the strictly lockdown and extend in different phases. All Education Institutes started the closure of schools and colleges across the country. During this period there are various activities take place which are very crucial such as competitive exams and entrance tests of various universities, board examination and semester examinations in universities, nursery school admissions as well as admission process in universities. In order to stop the outbreak of COVID-19, no immediate solution is found out. The closure of education system will not create the short time crisis but also hits future education sector.

Positive Impact of COVID-19 on Education System:

Outbreak of Covid-19 pandemic has created much negative impact on entire education system of the world but simultaneously huge number of opportunities is also created. Developing countries like India have accepted the challenges and trying their best to provide seamless support services to the students during the pandemic. The Indian education system got opportunities and transferred the way of education from traditional to online. The following points may be considered as the positive impacts on education system of India.

1. Application of Technology in Education

Due to spread of Covid-19 central government imposed the lockdown in various phases, the result is that education system have closed and the end of offline activities. Closing the education system is not good sign for any country because it's against the right of education; therefore, through the education institutes have started online education with the application electronic gadgets:

2. Promotion of Hard to Soft Reading Materials

In the different lockdown phases through the nation entire education system was closed. In this situation students were not able to get the hard copies of reading materials most of the students used soft copy materials for reference.

3. Enhanced Digital Literacy

After the few phases of nationwide lockdown education system was introduced the online education. Through whole the nation entire education scenario have gone drastic changes from class room teaching-learning to online mode with the help electronic gadgets. Belong to the population of education were to learn and use digital technology and resulted in increasing the digital literacy.

4. Promoting the collaborative Teaching

Due to the spread of Covid-19 pandemic through whole the globe, were it provides the new opportunity where the different institutes' staff work collaboratively through organizing webinars, online lecture and so on.

5. Increase in use of electronic media for sharing information

In the situation of Covid-19 pandemic, electronic media was play the vital role in sharing of learning materials among the students easily and the related queries are resolved through e-mail, SMS, phone calls and using different social media like WhatsApp or Facebook, vedio teleconferencing software etc.

6. Promotion of Remote Education

During the pandemic situation, all of the students continued their education from their home and also faculties havetaughtto the students from their home ultimately it help to promote the remote education.

Negative impact on education system:

If Covid-19 pandemic situation has created the positive impact, but simultaneously it imposed the negative shadow on the Indian education system a lot, some of them are following:

1. Discontinue the Education for few time spans

Increasing the number covid-19 affected patients through the nation it was created the fear and panic in Indian education system. Central and various state governments were declared the strictly lockdown in different phases, therefore the whole education system was closed, all educational activities were to end, teaching- learning process was disturbed very rapidly.

2. Rise the unemployment

According to different reports, news and experience of CHB and temporary faculties, unfortunately they were paid huge amount and burned their dreams. During the pandemic lots of faculties were lost their jobs. Even though government did not given any compensation to them, still today huge number of non-permanent or staff of CHB was quit the job for life.

3. Educational Activities Hampered

Covid-19 pandemic has hampered very bad on education through the nation. Central and state governments imposed the strictly lockdown therefore whole education system were closed and classes have been suspended. Education institutes have already postponed the annual examinations, conferences, workshops and entrance tests across India.

4. Assessment and Evaluation

Educational institutes have already suspended semester-end examinations, whereas contiguous assessment has gone through with online classes. The transition from face-to face teaching to online delivery has a serious impact on assessments and evaluation. While assessments and evolution along with technology is a challenging task for Students, as well as faculty are uncertain about the procedure for administrating outstanding assignments, projects, and other continuous assessment.

Conclusion:

In the emerging of Covid-19 Indian education system has impacted very badly. Though it has created many challenges, various opportunities are also evolved. Universities and education institutes suspended the campus for academic activities. Indian education system has implemented a number of measures to slow the spread of the virus.

While in this situation students and staff could have received regular information and guideline through government notification. In those days the health and safety of students and staff was the top priority. Faculty and students were not aware very well about new drastic changes in the education due covid-19.

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ऑनलाईन शिक्षण आणि वास्तव

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प्रस्तावना :

भारत हा विकसनशील देश आहे. तरीही भारतात डिजिटल क्रांती झाल्यापासून जवळपास सर्वच भागात इंटरनेट सेवा , मोबाइल आणि संगणक इत्यादी साधनांचा वापर मोठ्या प्रमाणात वाढत चालला आहे. त्यामुळे माहिती तंत्रज्ञानाचा वेग वाढल्याचा दिसून येतो . यातूनच पुढे ऑनलाईन शिक्षण ही संकल्पना सुरु झाली . ऑनलाईन शिक्षणाचा सोपा अर्थ तंत्रज्ञानाचा वापर करून आपल्याला घर बसल्या शैक्षणिक माहिती मिळणे , कोणत्याही शैक्षणिक संस्थेत न जाता प्रवेश पदवीपर्यंत आयुष्यभरात शेवटपर्यंत सर्वच गोष्टी आपण इंटरनेट या माध्यमातून मिळवू शकतो , पण जेव्हा ऑनलाईन शिक्षण ही संकल्पना राबवायला सुरुवात केली तेव्हा त्याचे वास्तव आपल्याला वेगळेच दिसून येत आहे.

संशोधनाची उद्दिष्टे:

- ऑनलाईन शिक्षण किती फायदेशीर आहे हे अभ्यासणे .
- ऑनलाईन शिक्षणामध्ये विद्यार्थ्यांच्या मनोवृत्तीचा अभ्यास करणे .
- ऑनलाईन शिक्षण आणि त्याचे सध्याचे वास्तव काय आहे हे अभ्यासणे .
- ऑनलाईन शिक्षणाचे फायदे व तोटे अभ्यासणे .

संशोधनाचे गृहितके:

- सध्या ऑनलाईन शिक्षणाचे प्रमाण वाढत जात आहे .
- भारत हा विकसनशील देश असल्यामुळे ऑनलाईन शिक्षणात अडचणी निर्माण होत आहेत .

ऑनलाईन शिक्षणाची साधने:

- १) मोबाईल, संगणक व इंटरनेट सेवा .
- २) ई बुक्स , पीडीएफ फाईल , युट्युब .
- ३) झूम, गुगल meet द्वारे ऑनलाईन वर्ग .
- ४) गुगल क्लासरूम व इतर शैक्षणिक ॲप्लिकेशन .
- ५) ऑनलाईन परीक्षा सॉफ्टवेअर आणि ॲप्लिकेशनस .

ऑनलाईन शिक्षणाचे फायदे:

- १) कोविड - १९ च्या काळात विद्यार्थ्यांचे शैक्षणिक नुकसान होण्यापासून बचाव झाला.
 - २) विद्यार्थ्यांना तंत्रज्ञानाचा चांगला वापर करता येऊ लागला.
 - ३) डिजिटल क्रांती मध्ये मोठ्या प्रमाणात भर पडली.
 - ४) मोबाईल मध्ये गेम खेळण्यापेक्षा ऑनलाईन शिक्षण विद्यार्थी घेऊ लागले.
 - ५) विद्यार्थ्यांचा शाळेत येण्या -जाण्याचा व्यतिरिक्त वेळ वाचला .आणि कोविड - १९ पासून विद्यार्थ्यांचे संरक्षण झाले.
 - ६) विद्यार्थ्यांना घरबसल्या जगभरातील सर्व शिक्षणाची दारे खुली झाली.
 - ७) विद्यार्थी मोबाईल, संगणक, इंटरनेट सेवा यांचा उपयोग शिक्षण घेण्यासाठी करू लागले.
- ऑनलाईन शिक्षणाचे बरेचसे फायदे आपल्याला दिसून येतील पण त्यांचे वास्तव मात्र वेगळेच झाल्याचे आढळून येत आहे.

ऑनलाईन शिक्षण आणि त्यांचे वास्तव

१) भारतातील ग्रामीण भागात ऑनलाईन शिक्षण साधनांचा अभाव

भारतातील आजची बरीचशी लोकसंख्या ग्रामीण भागात राहते त्यामुळे तेथील लोकसंख्या ही दारिद्र्यरेषेखालील आहे आणि त्यांना या साधनांचा वापर चांगल्या प्रकारे करता येत नाही , तसेच या वर्गाकडे पुरेसे ऑनलाईन शैक्षणिक साहित्य उपलब्ध नाही , त्यामुळे आजही ग्रामीण भाग ऑनलाईन शिक्षणापासून वंचित आहे.

२) ऑनलाईन शिक्षण साधनांचा गैरवापर

ऑनलाईन शिक्षण साधनांचा वापर बराच वाढला परंतु त्यांचा गैरवापर करण्याचे प्रमाण देखील वाढत चालले आहे . सायबर क्राईम यासारख्या गुन्ह्यात वाढ होताना दिसून येते . ऑनलाईन शिक्षणाच्या नावाखाली विद्यार्थी त्याचा गैरवापर करून घेत आहेत.

३) ऑनलाईन शिक्षणावरील खर्च आणि पालकांची मनोवृत्ति

ऑनलाईन शिक्षण घेण्यासाठी मोबाईल , संगणक , इंटरनेट सेवा इत्यादी साधनांची गरज असते ही साधने उपलब्ध नसतील तर विद्यार्थ्यांना शिक्षण घेता येणार नाही . या साधनावर सर्वच पालक खर्च करतील असे नाही . भारतातील पालकांची मनोवृत्ति ही करमणुकीची साधने , वाढदिवस , लग्न, भेटवस्तू, बाहेर फिरायला जाणे व बाहेरचे खाणे या वर मोठ्या प्रमाणात खर्च करण्याची तयारी असते पण हाच खर्च शैक्षणिक साधनावर करतील असे नाही.

४) वेगवान इंटरनेटचा अभाव:

आज भारताच्या बऱ्याच भागात वेगवान इंटरनेटचा अभाव आढळून येतो . शिक्षणासाठी वेगवान इंटरनेट ची गरज असते पण वेगवान इंटरनेट नसल्यामुळे ऑनलाइन शिक्षणाला मर्यादा येत आहेत . उदाहरणार्थ - पालघर जिल्ह्यातील जव्हार या ठिकाणी ऑनलाइन शिक्षण साधने आणि इंटरनेट साधनांचा अभाव असल्यामुळे मोठ्या प्रमाणात विद्यार्थ्यांना ऑनलाईन शिक्षणाच्या समस्येला तोंड द्यावे लागत आहे.

५) ऑनलाइन शिक्षण साधनांचा अतिवापर आणि आरोग्यावर परिणाम

ऑनलाईन शिक्षण प्रणाली मध्ये विद्यार्थी व शिक्षक यांना आपल्या मोबाईल व संगणक या साधनांवर वारंवार तास नतास बसून काम करावे लागते त्यामुळे त्यांच्या आरोग्यावर परिणाम होण्याची शक्यता नाकारता येत नाही . डोळ्यांचे आजार, कानाचा त्रास यासारख्या समस्या यांचा समावेश करता येईल

६) ऑनलाइन शिक्षण व दुर्लक्षित वास्तव

- ऑनलाईन शिक्षणात विद्यार्थी हा स्वतःचे जास्त नुकसान करून घेत असतो.
- लाइव्ह लेक्चर मध्ये कॅमेरा बंद करून लेक्चर न ऐकणे.
- ऑनलाइन लेक्चर च्या नावाखाली मुव्हीज बघणे व गेम खेळणे.
- सोशल मीडिया वर जास्तच सक्रीय राहणे.
- एक पालक आपल्या सर्व पाल्यांना ऑनलाइन शिक्षण साधने उपलब्ध करून देऊ शकत नाही.
- विद्यार्थ्यांच्या मानसिकतेवर परिणाम होतात.
- माहिती तंत्रज्ञानाचा अभाव.
- पुरेसा डेटापॅक उपलब्ध नसणे.

७) ऑनलाइन इंडिया आणि ऑफलाईन भारत असे दोन वर्ग निर्माण होण्याची भीती

ग्रामीण भागात ऑनलाईन शिक्षणाचा मोठ्या प्रमाणात अभाव आहे व भारताच्या शहरी भागात ऑनलाइन शिक्षणाचा वाढता वापर यामुळे यामुळे यामुळे भारतात दोन वर्ग तयार होण्याची भीती निर्माण होऊ शकते . ऑनलाईन शिक्षण घेणारे विद्यार्थी ऑनलाइन इंडिया व ज्यांना ऑनलाईन शिक्षण मिळाले नाही ते विद्यार्थी ऑफलाईन भारत या प्रकारे विद्यार्थ्यांचे दोन वर्ग निर्माण होऊ शकतात याचा विद्यार्थ्यांच्या मानसिकतेवर परिणाम होण्याची खूप मोठी शक्यता आहे .

निष्कर्ष व शिफारशी:

कोविड - १९ च्या दरम्यान ऑनलाइन शिक्षणामुळे विद्यार्थ्यांचे होणारे नुकसान मोठ्या प्रमाणात वाढलेले आहे . घरी बसून त्यांना आधुनिक पद्धतीने शिक्षण मिळू लागलेले आहे हे खूप फायदेशीर आहे , पण यामध्ये वास्तव पाहिले तर निराळेच दिसून येते . ऑनलाईन शिक्षणाच्या फायद्यापेक्षा त्याच्या

नकारात्मक बाजू जास्त दिसून येतात . ऑनलाईन शिक्षण प्रणाली मध्ये विद्यार्थी व शिक्षक यांना आपल्या मोबाईल व संगणक या साधनांवर वारंवार तास नतास बसून काम करावे लागते त्यामुळे त्यांच्या आरोग्यावर परिणाम होण्याची शक्यता नाकारता येत नाही .डोळ्यांचे आजार , कानाचा त्रास यासारख्या समस्या यांचा समावेश करता येईल

ऑनलाईन शिक्षणामुळे विद्यार्थ्यांचे नुकसान होण्याचे प्रमाण सुद्धा जास्त दिसून येते , पण जर ऑनलाईन शिक्षण ऑनलाईन संकल्पना फायदेशीर करायची असेल तर सर्व प्रथम विद्यार्थ्यांना ऑनलाईन शिक्षण साधनाचा वापर कसा करावा हे सांगणे गरजेचे आहे आणि त्यानंतर ती सर्व साहित्य विद्यार्थ्यांना उपलब्ध करून देणे . तसेच ऑनलाईन शिक्षण या मधील त्रुटी कमी करून अधिक सुलभतेने कशाप्रकारे विद्यार्थ्यांना ऑनलाईन शिक्षण देता येईल यासाठी प्रयत्न करणे खूप आवश्यक आहे.

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कोरोना काळातील शिक्षणाची वाटचाल

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सारांश:

कोरोनाच्या जगातील महामारीच्या काळामध्ये देशातील विशेषतः महाराष्ट्रातील , शाळा महाविद्यालय पूर्णपणे बंद होती . विद्यार्थ्यांचे शैक्षणिक नुकसान होऊ नये , यासाठी ऑनलाइन पद्धतीने शिक्षणाची सुरुवात करण्यात आली आहेत . शहरी भागातील विद्यार्थ्यांकडे ऑनलाइन शिक्षण घेण्याची साधने होती व मुबलक इंटरनेटची व्यवस्था आणि ऑनलाइन शिक्षण बऱ्यापैकी चालू होते . मात्र ग्रामीण भागातील विद्यार्थ्यांकडे ऑनलाइन शिक्षणप्राप्त करण्यासाठी साधनांची गरज भासत होती . मोबाईल, लॅपटॉप, इतर साधना बरोबर मुबलक इंटरनेटची सुविधा दुर च होती. गावात वीज व रेंजच्या समस्यांमुळे शिक्षणाची वाटचाल खडतर अवस्थेत होती.

कळीचे शब्द : शिक्षण, महामारी, शैक्षणिक सुविधा, तंत्रज्ञान, ऑनलाइन शिक्षण

प्रस्तावना:

कोविड – १९ या विषाणूमुळे सारे जग टाळेबंदीच्या गर्तेत अडकले आहे . देशाच्या आजच्या आणि भविष्याच्या वाटचालीबद्दल गरजा लक्षात घेऊन विविध विषयातील अभ्यासक आपली भूमिका मांडत आहेत. यामध्ये उद्योगक्षेत्र , कृषी , आरोग्य , बाजारपेठ आणि सर्वात महत्त्वाचे शिक्षणक्षेत्र होय . शिक्षण क्षेत्राच्या वाटचालीबाबत विविध प्रकारे भाष्य करण्यात येत आहे . आजची परिस्थिती सतत बदलत आहे . सेवाक्षेत्र उद्योगातील तंत्रज्ञानामुळे झालेली प्रगती निश्चितच उल्लेखनीय आहे . ही प्रगती एका दिवसा मध्ये झालेली नाही. काळाची गरज व महत्त्व लक्षात घेऊन त्यात प्रगती साधली आहे . मात्र सध्याच्या शिक्षण क्षेत्रातील वाटचाल पाहताना शालेय शिक्षणाबाबत काही मूलभूत गरजा लक्षात घेऊन आवश्यक त्या बदलाकडे दुर्लक्ष झाल्याचे आढळून येते . आजही सध्याच्या घडीला साचे बद्ध पद्धतीत शिक्षणाची वाटचाल चालू आहे. कोरोना सारख्या संकटाला अधिक सक्षमपणे व संयमाने सामोरे जाण्याची आवश्यकता आहे . त्यात काही मुद्द्यांचा या ठिकाणी विचार करावा लागेल.

सक्षम मनुष्यबळ व अध्यापन

सध्याच्या कोरोनाच्या परिस्थिती मधून बाहेर पडून नियमित शिक्षणाच्या वाटचालीकडे आपला प्रवाह सुरू राहिल . मात्र मुळात गरज आहे ती कोरोनामुळे निर्माण झालेल्या या बदलत्या परिस्थितीत आपण खरंच १००% शिक्षण विद्यार्थ्यांपर्यंत पोहोचण्यास सक्षम होतो का ? या प्रश्नाला आपल्याला प्रामाणिकपणे उत्तर देण्याची आवश्यकता आहे . अध्यापन करणे ही एक कला आहे . अध्यापनाचे कौशल्य

विकसित करणे हे एक शास्त्र सुद्धा आहे . कारण अध्यापनासाठी अभ्यास करावयास लागतो . केवळ माहिती आणि ज्ञान या पातळीवर केलेली तयारी अध्यापनात अपुरी आहे , त्यासाठी सर्वात महत्त्वाचे शिकून घेणे , समजून घेणे सातत्य ठेवणे आणि त्याचा सराव करणे , सराव असणे यांची शिक्षणाच्या वाटचालीसाठी आवश्यकता आहे . वर्गात मुलांच्या समोर अध्यापन करणे आणि त्याच मुलांना तंत्रज्ञानाच्या माध्यमातून शिकविणे हे काही मूलभूत फरक दिसून येतो . या फरकातील आंतर समजून घेण्याची आवश्यकता आहे . तंत्रज्ञान आणि त्यावर आधारित साधने याप्रमाणे स्मार्टफोन , संगणक, इंटरनेट, स्मार्ट टीव्ही , रेडिओ यांची उपलब्धता त्यांचा वापर आणि काळा जी बाबत शिक्षक विद्यार्थी आणि पालक यांची मानसिकता तयार करणे हेही तितकेच महत्त्वाचे आहे . यासाठी वर्गातील अध्यापन आणि ऑनलाइन अध्यापन या दोन्ही पातळीवर शिक्षणाची वाटचाल आपल्याला सुरू करावी लागेल . शिक्षणातील वाटचाल यशस्वी करण्यासाठी शिक्षकांना अधिक तयार करावे लागेल.

भविष्यकालीन आवश्यक शिक्षण

कोरोनामुळे निर्माण झालेल्या परिस्थितीत ऑनलाइन शिक्षणाच्या माध्यमातून आपण मुलांपर्यंत पोहोचण्याचा प्रयत्न करित आहोत . या परिस्थितीचा सामना करताना आपले प्रयत्न केवळ माहिती आणि ज्ञान देण्या पुरते मर्यादित स्वरूपात राहू नयेत . कारण एकविसाव्या शतकासाठीची आवश्यक कौशल्य मुलांच्या अंगी रुजविण्याचा प्रयत्न शिक्षक वर्गाद्वारे केला जात आहे . माहिती तंत्रज्ञानामुळे शिक्षणाचा प्रसार, शिक्षणाचा विस्तार, शिक्षणाचा दर्जा, शिक्षणाची संधी वाढविण्यावर भरपूर वाव आहे. प्रो. ट्रायच्या अहवालानुसार भारतात २०२० मध्ये इंटरनेट वापरण्याची संख्या ६८.४५ कोटी होती . मोबाईल फोन वापरण्याची संख्या ४८.८२ कोटी आहे. तर इंटरनेट सह स्मार्टफोन वापरण्याची संख्या ४०.७२ कोटी आहे. टीव्ही पाहणार्यांची संख्या ७६ कोटी आहे . माहिती तंत्रज्ञानाचा विस्तार झालेला दिसून येतो . भारतात जवळपास ५२ टक्के लोक इंटरनेटचा वापर करतात . म्हणजेच जवळपास अर्धा भारत इंटरनेट पासून वंचित आहे. ग्रामीण भागात ३६ टक्के व शहरात ६४ टक्के जनता इंटरनेटचा वापर करतात.

शिक्षण वाटचालीतील प्रश्न

शिक्षकांनी अध्यापनाचे कार्य करताना विद्यार्थ्यांबरोबर लयबद्ध संवाद निर्माण करून त्यांच्या शंका आणि समस्या समजून घेतल्या पाहिजेत . एक शिक्षक म्हणून आपण या प्रक्रियेत अधिकृत अभ्यासक्रमांच्या पलीकडे पाहू शकतो का? हा एक महत्त्वाचा प्रश्न आहे. या संदर्भात खालील मुद्दे आहेत.

आधुनिक धारणा :

कोरोना विषाणूमुळे आधुनिक तेची स्वतःची धारणा नष्ट केली आहे . या आधुनिकतेच्या धारणेमध्ये निसर्गावर मानवाचे वर्चस्व असल्याची संकल्पना तंत्रज्ञान आणि विज्ञानाच्या जोरावर अमर्यादित प्रगतीवर आधुनिकतेचा असलेला आत्ममग्न विश्वास आणि तिची भाकित, नियंत्रण, व्यवस्था स्थापना करण्याची शक्ती यांचा समावेश होतो . म्हणून जर आपण विमर्शक(Reflexile) आणि गृहणक्षम (Receptive) असू तर आपल्याला शिक्षणाच्या नव्या वाटचालीसाठी नवीन प्रश्नांचा सामना करावा लागेल . आजच्या घडीला

अण्वस्त्रे, अंतराळ संशोधन, मेघा रुग्णालय, कृत्रिम बुद्धिमत्ता यांची जी उपासना करतो ती किती आभासी आहे, हा एक अदृश्य विषाणू अमेरिकेसारख्या बलाढ्य राष्ट्रांच्या आत्मविश्वासाचा ही चिंधड्या करू शकतो . या वस्तुस्थितीचा सामना शिक्षणाच्या वाटचालीत कशाप्रकारे करणार आहोत ? हा एक महत्त्वाचा प्रश्न आहे.

तांत्रिक कौशल्य:

आधुनिकतेच्या युगात शिक्षणाची वाटचाल योग्य पद्धतीने करताना प्रामुख्याने बाह्य क्षेत्रावर लक्ष केंद्रित केली आहेत . शिक्षणाचे कार्य चालविण्यासाठी आपण तांत्रिक कौशल्यमध्ये प्रभुत्व मिळविले आहे . परंतु याचा परिणाम शिक्षणाच्या वाटचालीतील बरेच जण आपले भय आणि राग , अहंकार, आक्रमकता, वेदना, उत्कटता आपली स्वप्ने आणि प्रार्थना या अंतर्मनातील जाणिवे समजून घेण्याची कला गमावून बसलो आहेत . खरंतर आपल्या बाह्य व आंतरिक जाणीवा समजून घेण्यास असमर्थ आहेत . यात काही आश्चर्य नाही , म्हणूनच आपण आपल्यात अंतःकरणाचे पोषण कसे करतो , सहनशक्ती आणि संयम कसे विकसित करतो, शांततेची तीव्रता कशा प्रकारे समजून घेतो आणि आपल्यातील अदृश्य शक्तींना कशाप्रकारे फुलू देतो हा खरा प्रश्न शिक्षणाच्या वाटचालीतील शिक्षक , विद्यार्थी व पालकांना भेडसावणारा आहे . म्हणून तांत्रिक कौशल्याच्या आधारावर सहन शक्ती व सयमांच्या शिक्षणाची वाटचाल महत्त्वाची आहे.

मूल्यमापन पद्धत:

कोरोना काळात शिक्षणातील वाटचालीमध्ये मूल्यमापन कशा प्रकारे करावे हा एक प्रश्न महत्त्वाचा आहे. अध्यापनाचे तंत्र वापरत असताना मूल्यमापनाची पारंपारिक पद्धत म्हणजेच वेळोवेळी घेतल्या गेलेल्या चाचण्या आणि परीक्षा होय. ऑनलाईन शिक्षणाच्या वाटचालीतील प्रभागांमध्ये स्पर्धात सर्वेक्षण , मतचाचणी यासारखी तंत्रे वापरता येतात . गुगलचा वापर करून मुलांकडून प्रश्नोत्तरे मागवता येऊ शकतात. सध्या मात्र मूल्यमापनासाठी कागद -पेन या पारंपारिक साधनांचा वापर होत आहे . शिक्षकांनी प्रश्नोत्तरे स्कॅन करून पाठवणे त्याची प्रिंटआऊट काढून त्यावर ती सोडवणे व परत ती स्कॅन करून शिक्षकांना पाठवणे किंवा वहीत प्रश्न उत्तरे लिहून त्याचा फोटो शिक्षकांना पाठवणे हे बहुसंख्य ठिकाणी ऑनलाईन शिक्षणातील वाटचालीत दिसून येत आहे.

निष्कर्ष:

१. शाळांमधील मुले पारंपारिक शिक्षणासोबत सामाजिक वर्तन सुद्धा शिकत असतात . कोणत्याही व्यक्तीच्या जडणघडणीमध्ये तो जिथे शिकतो तिथल्या वातावरणाचा संगतीचा आणि सामाजिक कौशल्याचा अत्यंत महत्त्वाचा सहभाग असतो.
२. पूर्णपणे ऑनलाईन असलेल्या शिक्षणाच्या वाटचालीमध्ये मुलांनी आपल्या समवयीन मुलांमध्ये गटामध्ये एकत्र राहणे एकमेकांची मैत्री करण्यात, मैदानात एकत्र खेळण्यात इत्यादी गोष्टी घडत नाहीत.

३. शालेय शिक्षणाच्या वाटचालीमध्ये काही उपक्रम हे प्रत्यक्ष उपस्थित राहून आणि शिक्षकांच्या देखरेखीखाली केलेले प्रयोग महत्त्वाचे आहेत . अशा प्रकारचे प्रयोग ऑनलाईन प्रशिक्षणातून घेताना अत्यंत अवघड आहे.
४. ऑनलाईन शिक्षणाच्या वाटचालीमध्ये शिक्षक आणि विद्यार्थी या दोघांकडेही पुरेशा क्षमतांची तांत्रिक उपकरणे आणि पुरेसे हाई स्पीड इंटरनेट असणे आवश्यक आहे. जेणेकरून शिक्षण प्रक्रिया सुलभ होण्यास मदत होईल.
५. ऑनलाईन शिक्षण व्यवस्था ही काळाची गरज आहे . अत्यंत कमी खर्चात प्रत्येक विद्यार्थ्यांपर्यंत पोहोचू शकेल आणि प्रत्येकाला आपापल्या आवड आणि क्षमतेनुसार घेता येईल , असे शिक्षण खरोखरच महत्त्वाचे आहे. मात्र ऑनलाईन शिक्षण वाटचालीतील महत्त्वाच्या मर्यादांमुळे पारंपारिक शालेय शिक्षण आणि शाळांना ती संपूर्ण ठरेलच असे नाही , संमिश्र शिक्षण पद्धत ही भविष्यातील महत्त्वाची शिक्षण पद्धत असेल.

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DETECTION AND SEPARATION OF FEWMETAL IONS FROM THEIR AQUEOUS MIXTURES WITH THIN LAYER CHROMATOGRAPHY TECHNIQUE

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Abstract:

The reversed phase thin layer chromatography is employed in detection and separation of some few toxic metal ions like Cu(II), Fe(III), Ni(II) ions from their two-three component aqueous mixtures. Silica gel-G is used as stationary phase & monochloro acetic acid is used as mobile phase. Effect of different concentrations and pH are studied to optimize the conditions of the technique. Best metal ions separation is achieved at optimum pH 3.3 and concentration of 0.1 M monochloro acetic acid.

Keywords: Thin Layer Chromatography, Silica gel-G, mobile phase etc.

Introduction:

Water is Life. Water is basic need of human being. For increasing need of pure water, existing water reserves in the area should be protected and so that potable water is available to local residents. Even though industrialization provides new opportunities of employments, increased industrialization and population had led problems like contamination of water bodies. Researchers searched for better water treatment processes, but required cost, machinery and manpower is big problem. Thin layer chromatography can be effective technique than older methods of heavy metal ions detection and separation ion exchange chromatography, Atomic emission spectroscopy, precipitation etc which will help in water purification system (Wanjari, 2012).

Metals with specific density more than 5 g/cm^3 are called heavy metals. Trace amounts of above mentioned metals are required for biochemical and physiological activities in human body, however if their amounts cross permissible limits of concentrations, then they cause toxicity to our health leading to long lasting adverse effect. Now days this has become global environmental issue. (Jaishankar *et al.*, 2013) (Monisha Jaishankar 2014).

Industrialization and urbanization has led to different problems like dumping of waste and domestic effluents and solid waste, destruction of catchment area, accidental chemical spills. So chances of contamination are increased.

Objectives of study:

Occurrence of heavy metals beyond the permissible limits is dangerous to ecosystem, their detection and removal is important. So these studies aimed at 1) Detection and separation of few metal ions from aqueous solutions 2) Application of this technique to environmental samples like river water.

Material and Methods:

Chemicals: Silica gel-G, monochloroacetic acid, Hydrochloric acid, Sodium Hydroxide etc.

Apparatus: Silica Plate is prepared with a glass slide (coated with silica gel and water), a glass jar for glass plate development, pH meter, spraying apparatus for spraying reagents etc.

Metal ions studied a- Fe (III), Cu(II), Ni (II) ions.

Sample solutions of 0.05M using chlorides of the metal ions were prepared in the 0.1M Hydrochloric acid with Chloride of Ni (II) and Fe(III) & Cu(II) ions. Detecting reagents used are 3% alcoholic solutions of DMG i.e. Dimethyl Glyoxime and 1% aqueous Potassium Ferro cyanide solution. Stationary phase used is Silica gel-G and water. Mobile phase used is the aqueous solutions of monochloro acetic acid.

Silica gel is mixed with distilled water in 1:3 ratio so that a perfectly thick slurry is obtained. A glass plate is dipped in slurry and dried in oven for five minutes. Cooled and then used to perform TLC. The sample metal ions solution was put as a spot above the mobile phase solvent level and observes the distinct spots developed for different metal ions and are visualised with proper spraying reagents.

Result and Discussion:

For identification of Fe (III) and Ni (II) ions in Fe + Ni binary system, no of experiments was performed out at various pH and concentrations of mobile phase monochloro acetic acid to determine the optimum conditions. After series of experiments at different pH 1.3, 3.3 and 4.9, pH 3.3 was found to be optimum for separation of Fe(III) & Ni(II) ions

A) The R_f values of selected metal ions change with concentrations at concentration 0.1 M solution for different pH 1.3, 3.3 & 4.9 using monochloroacetic acid as mobile phase are shown in following Table 1.

From table, it is evident that separation factor for Fe(III) and Ni(II) ions is maximum (i.e.0.37) at pH 3.3 than found at other pH 1.3, 4.9 etc. So pH3.3 was determined as optimum pH.

Table 1: Change in R_f values of Fe(III) & Ni(II) metal ions with concentration at concentration 0.1 M solution for different pH

Mobile Phase – 0.1 M monochloro acetic acid		
	Fe(III) - R_f value	Ni(II) - R_f value
pH1.3	0.26	0.64
pH3.3	0.40	0.77
pH4.9	0.38	0.61

Similarly pH 3 was fixed for Cr (VI);Hg (II) , Cr (III);Cd (II); As (III); Ti (III): metal ion separation and using aqueous media of 0.05 M L–Valine and Silica gel –G as mobile and stationary phase respectively with R_f measurement (Wanjari, 2011). Similarly optimum pH-4.0 for further R_f measurements with mobile phase oxalic acid for separation of Cr(VI), Hg(II),Cr(III),Tl(III) , As(III) and metal ions (L. J. Paliwal, 2011).

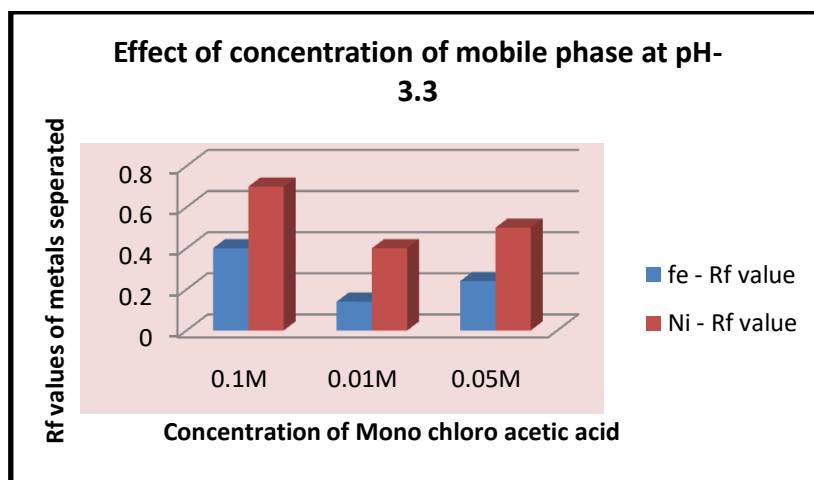
B) The variation in the R_f values of Fe(III) & Ni(II) metal ions with different concentrations at optimum pH 3.3.using monochloro acetic acid (mobile phase) are shown in following Table 2

Table 2: Change in R_f values of Fe(III) & Ni(II)metal ions with concentrations at different concentrations at pH3.3

Concentrationsat pH -3.3	Fe - R_f value	Ni - R_f value
0.1M mono chloro acetic acid	0.40	0.70
0.01M monochloroacetic acid	0.14	0.40
0.05Mmonochloroacetic acid	0.24	0.50

From above observations it is evident that as concentration increases, R_f values also increases. So 0.1 M is maximum optimum concentration. The different metal ions showed R_f values closer to each other and hence it was not possible to separate them at 0.01M and 0.05M concentrations. Metal ions showed the separation tendency further as concentration increases to 0.1 M and showed maximum separation factor. So 0.1 M concentration can be considered as optimum concentration.

Similarly L. J. Paliwal (2011) used Oxalic acid and Silica gel-G as mobile and stationary phase respectively of optimum concentration 0.05 M and as stationary phase for rapid separation of selected metal ions at 4 pH and 15 minutes run time.



C) Similarly, when monochloroacetic acid is used as mobile phase at optimum conditions of concentration 0.1M and pH 3.3, for separation of metal ions from ternary mixture of Cu(II) Fe(III), and Ni(II) metal ions, then observed R_f values are given table 3-

Table 3: R_f values for separation of metals ions from ternary mixture Fe(III)+Cu(II)+Ni(II)

Mobile phase	pH	Concentration	Fe R_f Value	Cu R_f Value	Ni R_f Value
monochloro acetic acid	3.3	0.1M	0.26	0.50	0.70

Similar results have been reported by Jumde, (2019), when reversed phase thin layer chromatographic technique is used for metal separation Cu(II), Cr (VI), Mo(VI) , Cr (III), Zn(II) Fe(III), Co (II), and ions using silica gel ‘G’ as stationary phase and mobile phase of aqueous Humic acid with L-methionine.

Conclusion:

Thin layer chromatography technique can be used for separation of binary and ternary mixtures of Cu(II) , Fe(III) & Ni(II) ions using Silica gel –G and mobile phase of monochloro acetic acid as mobile phase at optimum pH 3.3 and concentration 0.1 M. R_f values are achieved showing separation of metal ions. It is cheaper, easier method i.e. thin Layer Chromatography can be employed environmental samples and metal ions can be separated even at local levels.

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AN OVERVIEW OF EXTRACTION OF CR, CU AND ZN METALS FROM WASTEWATER USING NATURAL SORBENTS (NL, SCB, TW)

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Abstract:

Different methods are evolved for treating wastewater generated from industries which contains toxic metals which give rise in reducing toxicity in order to achieve standards. Current research paper is mainly focused on the adsorption treatment process by using Neem leaves, sugarcane bagasse and tea wastes as sorbents for the removing metals from industrial effluents. The research paper mainly depicts a summary of different researcher's for extraction of Cr (VI), Cu (II) and Zn (II) by utilizing Neem leaves, Sugarcane bagasse and tea wastes as biosorbents. A comparison between different methods, instrumentation techniques and their results obtained by various researchers are tabulated for knowing exact optimistic and cheaper alternative method for extracting toxic heavy metals from different industrial waste water. A summary of different adsorption isotherms and their suitability is also mentioned in the current review article. This review paper gives an overall idea and applicability of NLP, SCB and TW to be used in the form of sorbents so that they could serve as best alternatives in the coming future.

Keywords: Heavy Metals, Neem Leaves (NL), Sugarcane Bagasse (SCB), Tea Wastes (TW), Adsorption.

1. Introduction:

Environmental pollution due to waste water is currently biggest issues facing humanity. Toxicity created in industrial waste water charged with heavy metals is one of the most important concerns all over the globe. Conventional methods which include evaporation, electroplating, ion exchange, precipitation, membrane processes, electro-coagulation, electro dialysis etc. are being implemented due to their far advantages as

compared to other technologies. Different industries generate different types of wastewater depending on the nature of industrial processes as well as different technologies used by them. Treating wastewater for extracting metals is of high concern as these metal ions damages human health and other living beings in danger. Metals ions namely chromium, copper and Zinc are highly poisonous and toxic in nature even though present in very less amount.

Recently, the trends of using different biosorbents to achieve higher environmental standards have been increased. Due to some modifications as it may be either chemical or thermal, different biomass shows high adsorption capacity for extraction of metals ions from wastewater. Sorbent characteristics, concentration of sorbents and surface modifications are the factors responsible for metal adsorption capacity. For selecting sorbents, its feasibility as well as costs is the two important parameters in extraction of metals from wastewater. In this article, technical applicability of Neem leaves powder, sugarcane bagasse and tea wastes biosorbents for extraction of hexavalent chromium, zinc and copper metal ions from industrial wastewater has been reviewed considering different methods and instrumentation techniques.

2. Traditional Methods of Heavy Metal Extraction

Physical, chemical and biological are the regular or traditional methods that are used for removal of heavy metals from wastewater (Figure 1) [15]. These methods are explained in Figure 2. Each and every method has its own advantages and disadvantages such that not able to find out the exact treatment of wastewater. Some of these advantages and disadvantages for metal removal are tabulated in Table 1.

2.1 Extraction of Heavy Metals by Adsorption Process

It is one of the best methods for extracting metals ions as it is eco-friendly as well as highly effective ones. This process involves high water reuse as well as high runoff standards pertaining to the industries. It is basically mass transfer techniques through which metal ions are set to be transferred from solution to the surface of the sorbents. This technique depends on solid and liquid equilibrium and on mass transfer rates. Adsorptive techniques may be divided into the following types.

2.1.1 Physical adsorptive technique

This process is the outcome of van der Waal attraction of forces. It is the process of accumulation any metal ions present in aquatic medium (called as adsorbate) on the surface of sorbent (called as adsorbent) material. This process favours the effect of temperature and pH.

2.1.2 Chemical adsorptive technique

This technique involves chemical interaction between solute and solvent or adsorbate and adsorbent.

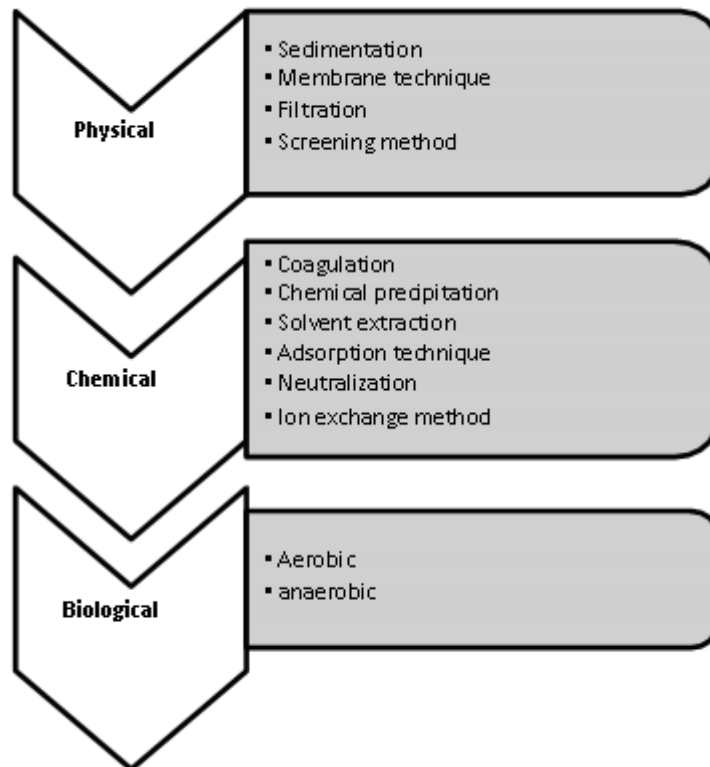


Figure 1: Traditional methods for heavy metal removal (Source: Abdel-Raouf *et al.*)

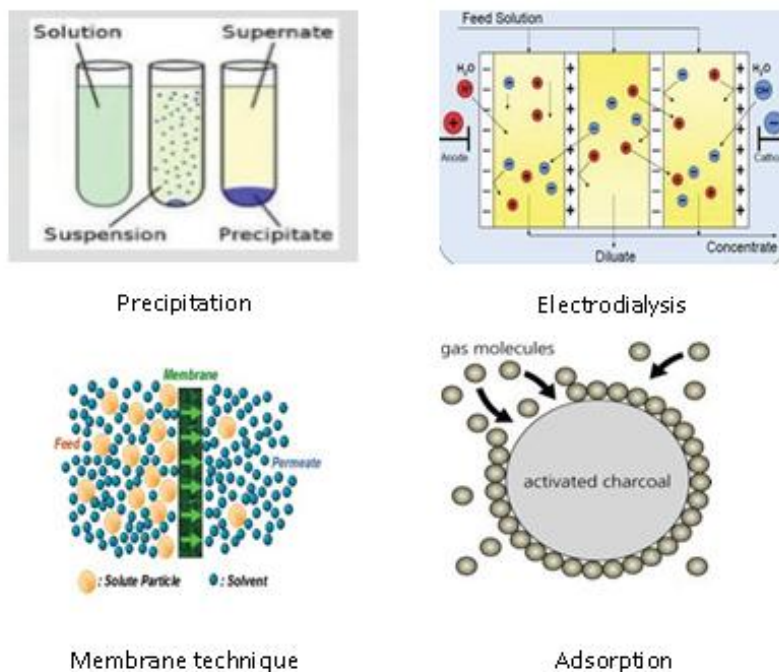


Figure 2: Explanation about some traditional methods for metal extraction (Source: Abdel-Raouf *et al.*)

Working mechanism of adsorption technique

Following steps are involved in making adsorption process properly:

1. Adsorption of metal ions (called as sorbate) onto the surface or pore particles of sorbent.
2. Transfer of metals ions internally from outer surface of sorbent to inner surface of porous structure.
3. Adsorption rate is dependent and governed by the forming a film or due to diffusion if inter particles or due to both parameters.

Table 1: Pros and cons for heavy metals ions extraction based on traditional methods

Traditional treatment	Pros	Cons	Ref.
Chemical precipitation	Simple and cheaper treatment	vary large sludge production, slow pace for metal precipitation	[15]
Ion exchange	Highly Metal selective	highly Elevated process	
	capacity of treatment is very high	high maintenance	
	Adsorption kinetics mechanism is fast		
Membrane filtration	Suspended solids, organic compounds and heavy metals extraction. different membranes are used depending on size of particle e.g. ultrafiltration, Nano filtration, RO etc.	flow rats are very slow	
		cost is very high	
Electrochemical treatment	limited to certain metals	pH dependent	
	less sludge production	Very high cost	
Coagulation and flocculation	Simple and non-metal selective	sludge and toxic compounds transfer takes place into solid phase	

The parameters which need to be investigated for optimization of the use of different sorbents in carrying out wastewater treatment are as below.

1. Sorbent and sorbate nature
2. Initial Metal ions concentration
3. Contact time of sorbents

4. Mechanism of adsorption Kinetics,
5. Different isotherm models and
6. pH and temperature

1.1. Comparison between Batch and Column Studies

Table 2: Comparison of batch and column sorption process (Monash and Pugazhenthil 2010; Cavalcante Jr 2000; US EPA 1983)

Parameters	Batch adsorption Study	Continuous Fixed-bed Sorption Study
Introduction	Sorbent and sorbate are thoroughly mixed in well diluted solution at constant volume.	It consists of sorbent in which sorbate is allowed to flow continuously through a system of beds of sorbents keeping rate of flow constant.
Features	Very easy and cheap method.	Very easy and cheap technique
	Highly accepted by most of the researchers to verify the applicability of sorbate-sorbent techniques.	Column study is used on higher scale for treating industrial wastewater as sorbate is continuously contact with sorbent. It is used where pollution load is very much high.
Disadvantages	It is rarely found to be used as there are limitations on the quantity of wastewater to be used for treatment. Utilised in case of very less pollution load.	Column study faces attrition, feed channelization and non uniform flow problems associated with particles.
	This method removes the sorbents by simply filtration method.	In this, a forceful interaction is created between sorbate and sorbent to reduce time and space.

1.2. Adsorption Isotherm Models

2.3.1 Langmuir Adsorption Isotherm

This model depends on following conditions:

- 1) The process of adsorption works on monolayer principles
- 2) Every surface has its own ability on the equality of adsorption process

3) The ability of active sites to adsorb was changed from one to other (Dada *et al.* 2012).

Langmuir isotherm is (Dada *et al.* 2012) $q_e = \frac{RT}{b} \ln(K_T C_e)$ (1)

For use, linear equation is given as $q_e = B_T L_n K_T + B_T L_n C_e$ (2)

Where, C_e - equilibrium concentration of adsorbate in mg/L

q_e - adsorption capacity at equilibrium in mg/g

Q_o - active site maximum capacity in mg/g

K_L - constant of Langmuir in L/mg

2.3.2 Freundlich Adsorption Isotherm

This equation depends on adsorption on a heterogeneous surface. It is used in calculating adsorption efficiency of sorbate on the sorbent (Kalalagh *et al.* 2011).

This equation is given as (Kalalagh *et al.* 2011) $q_e = \frac{Q_o K_L C_e}{1 + K_L C_e}$ (3)

In logarithmic form, it can be rewritten as

$$\frac{1}{q_e} = \frac{1}{Q_o} + \frac{1}{Q_o K_L C_e}$$
 (4)

Where, n Freundlich constant

K_F adsorption capacity of sorbent in L/g

2.3.3 Temkin Adsorption Isotherm

This isotherm equation introduces that the heat of adsorption of molecules in layer reduces linearly with covering due to sorbent-sorbate interactions. Adsorption is described by a uniform distribution of the binding energies, till some maximum binding energy (Kalalagh 2011).

The model to measure adsorption potentials of the sorbent for sorbate.

It is given by (Kalalagh 2011). $q_e = K_F C^{1/n}$ (5)

Final linear equation is obtained as $L_n q_e = n L_n C_e + L_n K_f$ (6)

Where, T- temperature in K

R- Gas constant in 8.314 J/mol. K

K_T - constant for equilibrium binding in L/mg

b_T - adsorption energy in KJ/Mol

B_T - Temkin constant in KJ/Mol

2. Bio-sorbents for Heavy Metal Removal

Various low cost bio sorbents discussed in this review article with respect to research includes

Neem leaves, sugarcane bagasse and tea wastes. Following section contains discussion about research on extraction of Cr (VI), Cu (II) and Zn (II) by NLP, SCB and TW sorbents.

2.1. Neem Leaves Powder (NLP)

Utilization of Neem leaves powder for bio sorption of Cr (VI) was investigated by Parineeta Pandhram et al; [1]. They used Neem leaves powder as a sorbent for extracting Cr (VI) from wastewater. Batch experiment consisting pH, metal concentration and sorbent dose shows maximum adsorptive efficiency as 67.5% at 4.1 pH, 98% when initial concentration of 30 mg/100 ml and 85% at dose of 8 gm/100 ml respectively. Batch adsorption follows Langmuir and Freundlich Isotherms. Column experiment consisting of effect of flow rate, initial concentration and height of adsorbent on break through time was not as per satisfactorily observed. In all condition, metal ion concentration of Cr (VI) was at 10 mg/100 ml. Instrumentation was carried out by using UV spectrophotometer. Biswajit Singha et al; [2] have carried out batch and FTIR studies for extracting Cr (VI) by using Neem leaves powder and to find functional groups responsible for adsorption from aqueous solutions. Different Adsorptive characteristics examined considering pH, metal ion concentrations, time and different sorbent dosages. Optimum pH for extraction was found to be 2 for sorbent dose of 10 g/l at 240 min. contact time with 25 mg/l Cr (VI) concentration. Different physical characteristics of Neem leaves were also obtained by using standard methods. Langmuir isotherm model values shows applicability for use as a sorbent for Cr (VI). FTIR study indicated the presence of surface hydroxyl and Sulphonate functional groups. S.P. Tawde and S.A. Bhalerao [3] carried out batch study for extracting chromium (VI) using Neem leaves powder. Equilibrium study includes contact time, sorbent dose, concentration of chromium, pH and volume of solution. Adsorption behaviour follows Freundlich adsorption isotherm. Effect of agitation time (180 mins.) shows 100% Cr (VI) extraction at Cr (VI) concentration of 60 mg/l, 25 mL volume of aqueous solution with 40 gm/l of sorbent dose at pH of 7.

K. Gopalakrishnan *et al.*, carried batch experiments on dye effluent collected from textile industry by using Neem leaves powder for extraction of Cu (II), Zn (II) and Cr (VI) [4]. Maximum Removal efficiency of 56%, 66.5% and 64.5% was achieved when adsorbent dosage of 50 g/L was used at optimum temperature of 23⁰C and time of 60 min. for Zn (II), Cu (II) and Cr (VI) metals respectively by keeping volume of the effluent solution constant. At pH 1.0, removal efficiency was observed as 56.5%, 74% and 60% for Zn (II), Cu (II) and Cr (VI) respectively. Similarly, at 300 minutes, the maximum removal of Zn (II), Cu (II) and Cr (VI) was found to be 48.5%, 65% and 60.5% respectively. Biswajit Singha and

Sudipkumar Das carried out batch study at optimum operating conditions of pH 2, Initial Cr (VI) concentration of 25 mg/L, contact time of 240 mins. and Neem leaves sorbent dose of 10 g/L [5]. FTIR study showed that aliphatic group is responsible for Cr (VI) adsorption onto Neem leaves. This research basically deals with identifying functional groups responsible for extraction of Cr (VI) ions by naturally available sorbents.

Gopalakrishnan S. *et al.* performed equilibrium studies in a batch including agitation time, sorbent dosage, temperature and initial metal ion concentration of chromium [7]. Adsorption isotherms were also studied which includes Freundlich, Langmuir and Temkin isotherms for the Neem leaves. 100 % removal of Cr (VI) observed for contact time of 180 min. with initial metal ion concentration of 100 mg/L at a sorbent dose of 3 gm. and temperature of 29⁰C. Freundlich adsorption isotherm well fitted to the data observed for the Neem leaves. Raka Bhattacharjee and Reshma Patel researchers found 71.43% removal efficiency of Neem leaves for Cr (VI) extraction [9]. The results show that the efficiency of adsorption of Neem leaves increases with adsorption dosage. The maximum removal was at 5 hours at 10g/l adsorbent dosage was 71.43% and lowest removal was at 1 hr. at 1g/l adsorbent dosage was 4.53% using 30 mg/l concentration of Cr (VI) of pH 6.

2.2. Sugarcane Bagasse (SCB)

V. Vinodhini and Nilanjana Das performed batch sorption isotherm studies containing metal ion concentration ranging between 10 and 150 mg/l and 2 g/l biosorbents with Cr (VI) solution at pH 2 having contact time of 3 hr. at constant temperature (28±1⁰C). Maximum sorption capacity was obtained at pH 2.0. Adsorptive capacity was observed to be 23.8 mg/g for sugarcane bagasse [6]. Dr. Nasim Ahmad Khan and Mr Hapsah Mohamad made an effort to evaluate potential of raw sugarcane bagasse for elimination of Cr (VI) from synthetic wastewater [8]. During batch experiments, it was found that removal was effective at low pH values and low Cr (VI) concentrations. Cr (VI) removal efficiency was found to be 70.2% at initial Cr (VI) of 10 mg/L at pH 1 and 4 hrs. Contact time with a sorbent dose of 7 g/L. adsorption data obtained during study fitted well with Freundlich isotherm.

Patil Kishor *et al.*, carried out investigation on Zn (II) metal ion using sugarcane bagasse as a sorbent which found a very good low cost sorbent for the treatment of wastewater [10]. Different % removal of Zn (II) was observed depending on conditions. 30.7% max. removal was observed at 1 hr. with dose of 0.2 gm/20 ml with Zn solution of 33 mg/l at temperature of 35-40⁰C. 15% max. Zn (II) removal was observed at solution of 43.13 mg/L and sorbent dose of 0.2gm/20ml at temperature of 40-80⁰C. 13 % max. Zn (II)

extraction was found out at sorbent dose of 1gm/20 ml at concentration of 41.35 mg/L at temperature of 35-40⁰C. Zn (II) removal of 16% observed at pH of 5 with Zn solution of 29.02 mg/L at sorbent dose of 0.2 gm/20 ml at temperature of 35-40⁰C.

2.3. Tea Wastes (TW)

Bindra Shrestha *et al.* carried out adsorptive extraction of Cu (II) from aqueous solution using exhausted tea leaves [11]. Sorbent was modified using dimethyl amine for N-functional groups. Particular sorbent needed to be characterised using DRFTIR, SEM, XRD and TG/DTA etc. analysis for confirming modification. Using batch experiments, adsorption efficiency was found as 71.20 mg/g for Cu (II). Desorption studies were carried out for regeneration of sorbent and recovery of metal ions. Wasewar KL *et al.* carried out for batch adsorption studies using tea factory waste as a low-cost sorbent for extraction of zinc metal ions [12]. Effects of pH, sorbent dose, concentration of zinc and temperature were taken into consideration using tea factory waste (TFW). Maximum adsorption efficiency of Zn (II) per gram of TFW was found to be 8.9±0.08 mg. Positive results were obtained considering tea wastes as a sorbent in developing country like India.

B.M.W.P.K. Amarasinghe, R.A. Williams were investigated removal efficiency of Cu using tea wastes as a sorbent by batch and fixed bed adsorption method [13]. Adsorption efficiency was found to be highest at pH of 5 to 6. Langmuir and Freundlich isotherms data were found to be fitted well. Metal uptake of 48 mg/g was observed for Cu which follows pseudo second order model having correlation coefficient more than 0.999. S Cay *et al.* investigated adsorption capacity of Turkish tea waste obtained from different tea-processing factories for extracting Cu (II) from single and binary aqueous systems [14]. Maximum adsorption efficiency of Cu (II) per gram tea waste was found to be 8.64±0.51 mg for single and 6.65±0.31 mg for binary aqueous systems. Whatever experimental data obtained for single and binary aqueous systems for Cu (II) was found to be fitted well for Freundlich adsorption isotherm ($r^2=0.977-0.992$).

3. Literature Review-Summary

Heavy Metals	Researchers	Type of Sorbent	Type of study/ Isotherm	Experimental Conditions	Results/ Conclusions
Cr (VI)	Parineeta Pandhram and Shubhangi Nimbalkar (2013)	Neem leaves powder	Batch and column study, Langmuir and Freundlich	Batch: Cr (VI) concentrations (1-5 mg/l), effect of pH (1-5), contact time (20-120 mins.), sorbent dose (2-10 gm/100 ml), Column: Flow rate (0.5 and 1.5/20 sec.), Initial concentration (10 and 20 mg/100 ml) and height of sorbent bed (10, 20 and 30 gm) on break through time.	Max. Removal efficiency of 85% observed for Neem leaves sorbent at optimum values of parameters. For column study, break through time decreases as flow rate increases and sorbent bed reaches to exhaust level. Rate of ions increases with increase in sorbent dose.
Cr (VI)	Biswajit Singha, Tarun Kumar Naiya <i>et al.</i> (2011)	Neem Leaves	Batch study, FTIR study, Langmuir	pH (1-9), Cr (VI) metal concentration (5-300 mg/l), contact time (0-300 mins.), sorbent dosage (2.5-12.5 g/l)	Cr(VI) removal was optimum at pH 2 for sorbent dose of 10 g/L and equilibrium time of 3 hr. to 6 hr. aliphatic groups responsible for adsorption
Cr (VI)	S.P. Tawde and S.A. Bhalerao (2010)	Azadiracht a indica. A. Juss. (Neem)	Batch study, Freundlich isotherm	Agitation time (30-360 mins.), sorbent dosage (8-40 g/l), Initial Cr (VI) metal concentration (20-300 mg/l), vol. of aqueous solution (25-125 ml), pH (3-9)	100 % Cr (VI) removal was observed at contact time of 180 min at sorbent dose of 40 gm/L with initial Cr (VI) metal concentration of 60 mg/l at pH of 7 in a volume of 25 ml aqueous solution.
Zn (II), Cu (II), Cr (VI)	K. Gopalakrishna n <i>et al.</i> (2010)	Neem Leaves Powder	Batch study	Sorbent dosage (10-50 g/L), pH(1-7), contact time (60-300 mins)	At pH 1 and time 300 minutes, maximum adsorptive efficiency of Cu (II), Zn (II) and Cr (VI) were observed.

Cr (VI)	Biswajit Singha and Sudipkumar Das (2010)	Neem Leaves	Batch Study, FTIR analysis	Sorbent dosage (1-10 g/L), optimum time (4 hr.), Cr (VI) metal concentration (25 mg/L) and pH-2	FTIR shows aliphatic C-H group responsible for extracting Cr (VI) metal ions.
Cr (VI)	V. Vinodhini and Nilanjana Das (2009)	Sugarcane bagasse	Batch study, Langmuir and Freundlich	pH(2-8), sorbent dose(1-9g/L), contact time(0-24 hrs.), Cr(VI) concentration(10-150 mg/L)	Adsorption efficiency was found to be 23.8 mg/g for sugarcane bagasse.
Cr (VI)	Gopalakrishna S. <i>et al.</i> (2013)	Neem leaf powder	Batch study, Freundlich, Langmuir and Temkin Isotherm	agitation time (30-180 mins.), sorbent dosage (0.25 to 3 gm), Initial concentration of Cr (VI) metal (100-350 mg/L) and temperature (29 to 50 ⁰ C)	100 % removal of Cr (VI) observed for contact time of 180 min. with initial concentration of 100 mg/L at a sorbent dose of 3 gm. and temperature of 29 ⁰ C. Sorbent follow the Freundlich isotherm
Cr (VI)	Dr. Nasim Ahmad Khan and Mr Hapsah Mohamad (2007)	Sugarcane bagasse	Batch study, Freundlich	Initial Cr (VI) metal Concentration (10-70 mg/L), contact time (1-4 hr.), sorbent dosage (1-7 gm/L), pH (1-4)	At 4 hrs. Contact time and initial metal concentration of 10 mg/L, 70.2 % Cr (VI) removal was observed. As metal concentration increases removal efficiency decreases.
Cr (VI)	Raka Bhattacharjee and Reshma Patel (2017)	Neem Leaves	Batch study, Langmuir and Freundlich	contact time (1-6 hrs.), sorbent dosage (1-10 g/l), Cr (VI) concentration 30 mg/l	Freundlich isotherm fitted best for Neem leaves, max. Adsorption efficiency found to be 71.43%.
Zn(II)	Patil Kishor <i>et al.</i> (2012)	Sugarcane Bagasse	Batch adsorption study	contact time (1,2,3,5,5,6.5 hrs.), sorbent dosage (0.2-1 gm/20 ml), Zn (II) concentration (33, 43.13, 41.35, 29.02 mg/l), temperature (40 ⁰ C-80 ⁰ C), pH (2-7)	30.7%, 15%, 13% and 16% Zn (II) removal were observed depending on different batch conditions applied.

Cu(II)	Bindra Shrestha <i>et al.</i> (2016)	Exhausted Tea Leaves	Batch study, regeneration by desorption study, Langmuir isotherm	pH (1-7), Cu (II) concentration 20 mL, sorbent dose of 25 mg, contact time of 24 hrs.	Optimum pH found to be 5 for Cu (II), maximum sorption capacity was 71.2 mg/g, experimental results showed that tea wastes can be effectively utilised for Cu (II) removal.
Zn (II)	Wasewar KL <i>et al.</i> (2009)	Tea wastes	batch study	pH, sorbent dose, initial metal concentration of zinc and temperature	Colour removal was obtained and TFW showed good adsorption towards Zn (II) at pH 4.2 with room temperature.
Cu (II)	Amarasinghe BMWPK, Williams RA (2007)	Tea wastes	Batch, Column study, Freundlich, Langmuir Isotherms, Kinetics study	sorbent dose, initial metal ion concentration, pH, particle size, kinetics mechanism, Fixed bed adsorption	Very high metal uptake of 48 mg/g, Kinetics showed for Cu uptake was fast having 90% or more adsorption occurring within first 15–20 min contact time, pseudo second order model found to be fitted well.
Cu (II)	S Cay <i>et al.</i> (2004)	Tea industry wastes	Batch study, Freundlich	pH, contact time, initial concentration of metal ions and sorbent dosage	Tea factory waste may be utilised for extracting Cu (II) ions.

4. Conclusions

Review paper comprises of adsorption technique, types and working mechanism, three sorbents namely Neem leaves powder (NLP), Sugarcane Bagasse (SCB) and Tea wastes (TW) and adsorbates namely Cr (VI), Cu (II) and Zn (II) as well as comparative batch and column adsorption study. This review shows that more work was carried out on Cr (VI) metal only as compared to Cu (II) and Zn (II) metal ions. Out of three sorbents applicability and more focus on use was observed mostly on Neem Leaves Powder compared to Sugarcane bagasse and Tea wastes sorbents (NLP>SCB>TW). Tea wastes sorbent was rarely utilized in many of treatment applications and processes. It was also observed that only batch sorption experiments were carried out and mostly preferred technique for extraction of heavy metals compared to that of column studies which is more practical based and can be utilized on industrial scale.

Column study revealed that it is economical, simpler, not very easy but feasible to implement on industrial scale for extraction of hazardous waste metal ions. Different important factors have great impacts on: pH, initial concentration of sorbate, bed height, rate of flow, varying particle size of different sorbents and temperature. Based on literature review, it is concluded that more emphasis should be given in carrying out research work on fixed bed column experimental studies for extracting various heavy metal ions from industrial wastewater at a higher scale.

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STUDY OF HEAVY METAL CONTENT IN *ERANTHEMUM ROSEUM* (VAHL) R.Br. BY USING ATOMIC ABSORPTION SPECTROPHOTOMETER

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Abstract:

The present research work was carried out to study the concentration of heavy metals in *Eranthemum Roseum* (Vahl) R.Br., a medicinal plant. The study of Iron (Fe), Zinc (Zn), Cadmium (Cd), Lead (Pb), Copper (Cu) and Chromium (Cr) were carried out in the extract of *Eranthemum Roseum* plant. The plant samples were collected from different regions of Palghar, Maharashtra and its powder form was analyzed for heavy metals. *Eranthemum Roseum* (Vahl) R.Br. possess various medicinal properties and therefore it is necessary to carry out the analysis of heavy metals in its content. The organic solvent extraction method for heavy metal analysis was carried out using Atomic Absorption Spectrophotometer. The concentration of heavy metals in the analyzed sample are arranged as 0.0042mg/gm (Iron) > 0.00087mg/gm (Zinc) > 0.00054mg/gm (Lead) > 0.00032mg/gm (Copper) > 0.00029mg/gm (Chromium) > 0.00014mg/gm (Cadmium).

Keywords: *Eranthemum Roseum* (Vahl) R.Br., heavymetals, Atomic Absorption Spectrophotometer

Introduction:

In India, the use of plants for medicinal behavior dates back to Vedic era. About 500 plants with medicinal uses are mentioned in ancient texts and around 800 plants have been used in indigenous system of medicine. Vast ethnobotanical and ethnopharmacological knowledge exist in India from ancient times. According to world health association report about 80% of the world population depend on plant-based medicines and traditionally used herbs as their primary health care (WHO). The herbal drugs are well recognized for their therapeutical benefits. Nutritionally important mineral elements build up in the plants which are used as herbs and food supplements. Elements like Lead, Cobalt, Chromium, Cadmium

etc., which do not use the plants directly but accumulate in the plants and are harmful to human health when consumed^[1].

The *Eranthemum Roseum (Vahl) R.Br.* is commonly known as Gulsham or Dasamuli, is up to 2 m height and found in tropical and subtropical parts of Asia that is western and southern parts of India like Chhattisgarh, and Satpuda valley in Maharashtra. This shrub is cultivated in Indian gardens for its attractive foliage and flowers. Flowers are blue when fresh, rose colored afterwards and brown on drying. Ethno botanically, root of *Eranthemum roseum* boiled with milk is a popular remedy for leucorrhoea. Roots are also given to pregnant cattle to promote the foetus growth. Few ayurvedic manufacturing units have formulated the products by using this plant for body massage oil and as mother tonic^[2].

Heavy metals are reported to accumulate in plants in various concentrations. Its excessive consumption may cause intake of toxic heavy metals, which may result in serious complications such as accumulative poisoning, nervous disorder, and cancer and leads to mortality. Heavy metal contamination with cadmium, copper, lead, nickel, mercury, and arsenic when accumulated in plants that are above the standard permissible limits causes environmental pollution and can cause major health complications. It is mandatory to test the presence of highly toxic heavy metals such as arsenic, mercury, lead, and cadmium in the plant extract for food safety and quality control^[3].

Materials and Methods:

Sample Collection:

The samples of plant *Eranthemum Roseum (Vahl)R.Br.* were collected from different regions of Palghar, Maharashtra during the period of November - January. The plant sample was authenticated from Viva Herbarium, Palghar. The collected sample were washed and dried in an area without sunlight. The foreign materials were removed from the sample and the whole plant was grounded to fine powder. The fine powder was sieved to get fine particles which were later used for analyzation.

Chemicals:

Deionized water, Concentrated nitric acid, Perchloric acid.

Standard Preparation:

The standard solutions for all the heavy metals under study were prepared in three to five different concentrations to obtain a calibration curve by diluting stock standard solution of concentration 1000ppm.

Analysis Method:

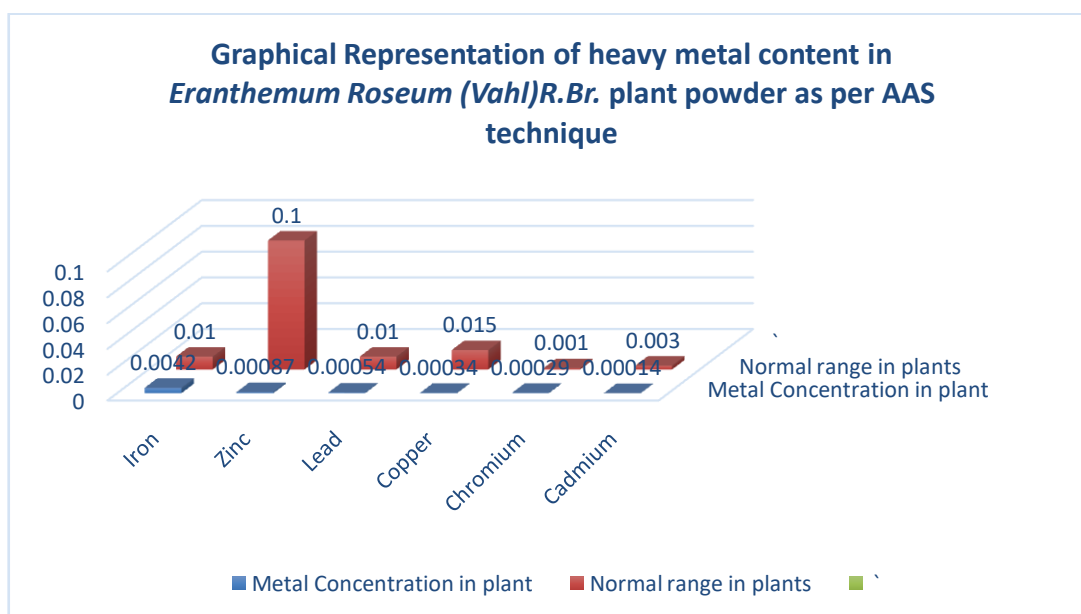
Samples under study were first digested using wet digestion method. Briefly approx. 100mg of the sample was taken in volumetric flask and about 10 ml of HNO₃ was added and solution was allowed to stand for few hours than it was carefully heated until it became almost dry. It was allowed to cool at room temperature and then about 4 ml of perchloric acid was added and then flask was heated again over water bath to evaporate till a small portion approximately 2ml was left and then it was filtered through Whatman filter paper no.42 and made up the volume using distilled water till 100ml. It was then subjected to AAS.

Results as per Atomic Absorption Spectroscopy technique:

The results of these heavy metals analysis from whole plant using Atomic Absorption Spectroscopy have been presented below:

Metals	Metal Concentration in <i>Eranthemum Roseum (Vahl) R.Br.</i> (mg/gm)	Normal range in plant material (mg/gm)
Iron	0.0042	0.01
Zinc	0.00087	0.1
Lead	0.00054	0.010
Copper	0.00032	0.015
Chromium	0.00029	0.001
Cadmium	0.00014	0.003

Normal Range Readings^{[11],[12],[13],[14]}



Conclusion:

The main aim to carry out this research work was to analyze the concentration of heavy metals in plant *Eranthemum Roseum (Vahl)R.Br.* The heavy metals under study were Iron, Copper, Cadmium, Lead, Zinc and Chromium. The concentration of heavy metals in plant after analysis was found to be within permissible limit as given by WHO. Within the data, Iron was found to be more in concentration when compared with other metals. The different concentration of these metals could be attributed due to some geological variations from where the sample was collected. The heavy metal analysis data can be used as a part of standardization for *Eranthemum Roseum (Vahl)R.Br.* Thus, heavy metal analysis can also be used as a quality control method which will help in selection of raw plant materials.

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NEED AND RELEVANCE OF ENVIRONMENTAL MANAGEMENT

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Abstract:

With the rapid development in all references, man has obtained the power to modify the environment in endless ways on a remarkable scale. When we speak about environmental management we need to look at all aspects of it, as it's essential because the resources are insufficient and if it's not used appropriately then they might get consumed promptly.

Environmental Management is not just "management of environment" but it also relies on the establishment of human actions in regards to ecological elements. The main purpose is to meet the fundamental necessities within the capacity and limitations of environmental methods. There is a need for environmental management because it's not just a mere phrase, instead, it's an urgent necessity that needs to be taken into consideration so that we can conclude possible consequences.

This research aims at all the environmental factors as it's the arduous phenomenon of varied components which are the forces and modes of nature. It also focuses on all branches of the environment which leads us to comprehend the significance and function of the environment in all prospects of life and its main emphasis on the fulfilment of reserves.

Keywords: Sustainable development, Ecology, Nature, Resources, conservation

Introduction:

Environmental management deals with the guideline procedure and safety of our planet, by encouraging human activities which can bring a progressive effect on the ecosystem.

Environmental management also discourses issues such as global conflict, toxic waste, deforestation, land degradation, energy crisis, or depletion of Earth's natural and energy resources. Experts try to address various types of environmental crises throughout the world so that we can develop solutions and bring out sustainability.

This research aims to create attention on our insubstantial environmentalism and ecology and also to enrich our eco-diversity, through all these perspectives we can elevate appropriate issues on the environment such as toxic waste, depletion of forest resources, loss of productivity, climate change, and reduction of limited natural reserves. It also urges an individual to re-think the bond that we once shared with nature, and as responsible beings, we need to start adopting certain sustainable practices and obtain some measures with which we

can keep the environment functioning well and to regain balance in managing the environment.

Depletion of Resources:

“Resource refers to all the materials available in our environment which help us to satisfy our needs and wants”.

Resources play an important role in our life. Various type of resources helps to progress the human lifestyle. However few resources are depleting now and the only way to monitor the conservation of resources is by adopting sustainable development.

However, conservation of resources attempts to throw light on severe resource shortage as it truly said that the resources are inadequate whereas the needs of human beings are limitless. We use resources as raw materials to fulfil our needs and in the process, we consume and exploit them too. The rapid change in advancement has diversified and increased the individual demand as well as the claim for resources. We need to look after certain factors to stabilize these resources and to understand the importance of environmental degradation and their classification.

The reduction of resources arises when resources are expended at a sooner rate than that of replacement. And natural resources are those resources that are present without any human intervention in regards to finite resources. A resource that is exceptional due to depletion has a greater significance than any of the natural resources which are in large quantity. Nevertheless, due to the increase in the worldwide population, the levels of natural resource are also depleting.

In addition, various factors contribute towards the cause of depletion of natural resources be it poor soil management practices, logging, overconsumption of renewable resources, uncontrolled release of toxic chemicals among other pollutants leading to the extinction of various species, even in developing countries, forests resources are particularly worn out due to overutilization and this has led to several threatened and endangered species at risk of extinction and there is a consequent loss of eco-diversity. On a greater scale, the effects of ecology, desertification, and depletion of natural resources even unmanageable use of forest resources have brought a huge impact in changing climate patterns as well as other demanding global conflicts. Most of the world face major problem regarding forestry and natural resources are due to poor management, economic and social pressure, commercial logging among others

Conserving the resources:

Conservation of Resources (COR) Theory is a stress theory that describes the motivation that drives humans to both maintain their current resources and to pursue new resources.

Conservation includes the core and protection of these resources so that they remain available for the future generation. Resource conservation mainly involves genes and ecosystems. Conservation practices involve land conservation, water conservation, soil conservation, water management, community development, and protection of other environmental needs.

Therefore these natural resources must be well-preserved as they are getting consumed at a startling rate. Also, it has a destructive effect on the environment which ultimately causes damage to biotic components. The current way of life and modern technology have a severe impact on the means of natural resources. Natural resources like coal and petroleum are reducing at a very firm rate, and once they are exhausted then we might need to rely on other sources of energy. So it becomes necessary for an individual to develop a solution and act in a way that authorizes the conservation of resources.

Though we must adopt a systematic approach and adopt various methods to conserve resources. Non-renewable resources get exhausted easily due to which resource becomes limited in quantity and when this happens something needs to be found to replace them. Besides large quantity, resource value is unwavering by how simple it is to discover and remove. If such reserves are challenging to practice, then they will not be utilized up until the value for that resource becomes high that it is worth paying for.

We must embrace some of the methods of resource conservation for example substitution of goods and use of renewable resources as far as possible. Recycling is yet another method to conserve resources. Society needs to be aware of its duties towards the minimization of waste. Cutting trees on a large scale should be stopped by enforcing laws. A guideline needs to be provided to formulate correct estimation for the policy of conservation.

Importance of Environmental Management:

Einstein once remarked, *“The environment is everything that isn't me”*

Environmental management and its protection is not new notion. It existed since the pre-historic period and it's our duty to protect nature its resources and thus the environment. Many awareness has been created on various environmental issues. As an individual, we need to achieve the objective of refining social well-being and protecting our environment and to do so we need to stabilize sustainability.

As defined, “Sustainable development can be defined as development that meets the needs of the present without compromising the ability of future generations to meet their own needs”

In order to achieve the sustainable development one needs to follow their duties and ensure healthy economy and restore reserves for current and future generation.

The objective of environmental management is to develop the life span of humans and to admin the practice of both natural and economic commodities. Besides environmental social and economic expansion is also necessary as it achieves the primary necessities of human beings. As environment management accurately discourses the problems and if we manage the environment appropriately we can decrease toxic waste and even manage to end it. Our development should be sustainable and the natural cycle should work in an unconstrained manner.

Conclusion:

Suitable management of the environment at all stages is very crucial in order to conquer the predicament of environment and ecology, use of resources should be done reasonably, new values need to be maintained towards the clean environment, the policy of afforestation should be taken into consideration on a larger scale. We have to develop such ways and means to lead towards a sustainable development path. It is necessary to form strategies for the conservation of resources only then we can achieve the goal of sustainability. Hence, besides the main aim of environmental management is to eradicate unsustainable patterns and to adopt appropriate healthy and productive life to live in harmony with nature.

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ESTIMATION OF Fe(III) IN TABLET USING ACETOPHENONE-2',5'- DIHYDROXY SEMICARBAZONE

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Abstract:

A spectrophotometric method has been developed for the determination of Fe (III) using Acetophenone-2',5'-dihydroxy semicarbazone as an extractive reagent. The reagent forms a colored complex which has been quantitatively extracted into n-Butanol at pH 5.8. The method obeys Beer's law over a range of 1 to 5 ppm. The molar absorptivity is 7150.83 L mole⁻¹ cm⁻¹ and Sandell's sensitivity is 0.00781 µg cm⁻² respectively. The proposed method is very sensitive and selective. This method has been successfully applied to synthetic and commercial samples.

Keywords: Iron, Spectrophotometric determination, n-Butanol, Acetophenone-2',5'-dihydroxy semicarbazone.

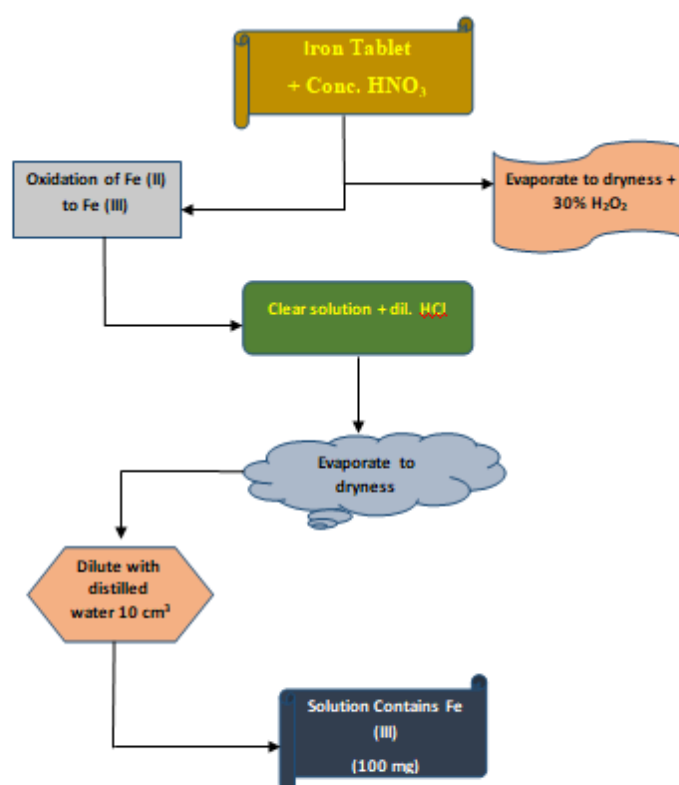
Introduction:

The literature survey reveals the benefits of Iron for human beings. Iron is a mineral that the body needs for growth and development. Human body uses iron to make hemoglobin, a protein in red blood cell that carries oxygen from lungs to all parts of the body and myoglobin, a protein that provide oxygen to muscles. The deficiency of Iron causes Anemia. Anemia is characterized by lower hemoglobin content of blood, retarded growth, loss of appetite and sluggish metabolic activity. Excess of iron in body is called Hemosiderosis which occurs because of repeated blood transfusion over years. Iron poisoning can occur when doses of 20 to 60 mg/kg or more of elemental iron ingested with most cases reporting primarily gastrointestinal symptoms. Signs for severe iron poisoning should be evaluated such as any confusion or extreme lethargy, increased heart rate, low blood pressure for adults. In children, signs of shock can be noted with behavioral changes.

From the above references it is cleared that amount of iron below the lower limit as well as above the threshold value is harmful to human being so, analysis of iron contain in the tablet with certain amount of accuracy and precision is necessary and it is found that above reagent can be used for the quantitative estimation of iron with spectrophotometry which gives satisfactory results.

Experimental:

Weighed 1gm of iron tablet. Crushed and 1 cm³ of concentrated HNO₃ was added. Filtered, residue is rejected, and filtrate is collected and evaporated to dryness. It is extracted with 5 cm³ of 30% H₂O₂ to convert Fe (II) to Fe (III) and the solution become colorless. The colorless solution is filtered, and filtrate is then treated with dilute HCl and evaporated to dryness. The residue was dissolve in 10 cm³ of distilled water and further diluted to 1000 cm³ with distilled water and aliquot of this is use for Fe(III) analysis by present method. In the aliquot of this ADHS is added which will form the complex with Fe(III) and it is extracted using 5 cm³ of n-Butanol the extraction is carried out twice and then both the extractions are mixed and subjected to spectrophotometric determination and with the help of calibration curve method the quantity if Fe (III) is detected. The obtained results are compared with standard method that is AAS and the developed method found comparable.

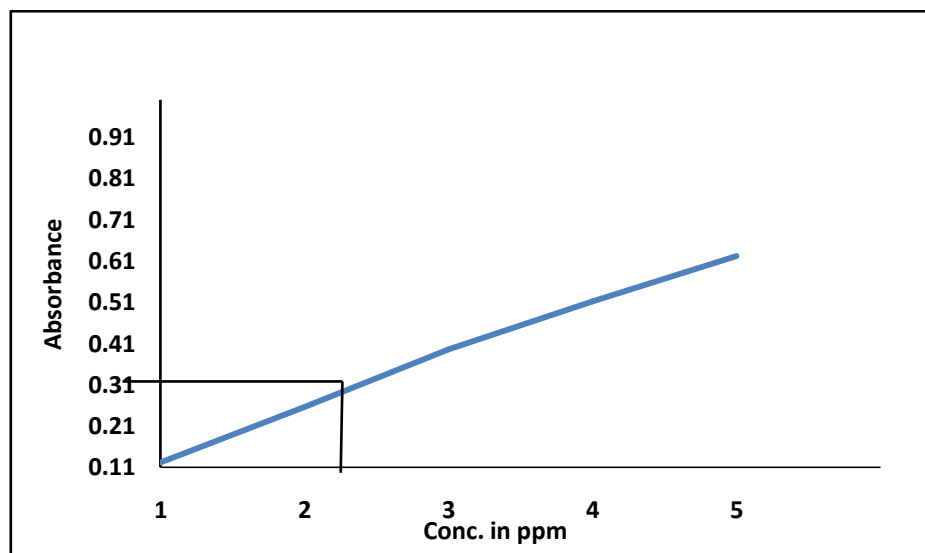


Above solution was of 100 ppm. From that 2.5 ml of solution was pipette out and diluted to 100 ml with distilled water.

Observation table for calibration plot of Fe (III) ADHS Complex

Amount of iron taken : varying amount of Fe (III) solution 1 ppm to 5 ppm

Aqueous phase : 10 cm³ containing varying amount of iron solution
 and
 2 cm³ of 0.1 % ADHS in methanol
 Organic phase : (5 x 2 cm³ of n-Butanol)
 pH : 5.8
 Wavelength : 380 nm



Observation table for determination of Fe (III) using ADHS

Sr. No.	Sample	Amount Of Fe(III) (Standard Value)	Amount of Fe (III)
1.	HB-UP Tablet	2.5 mg	2.49 mg

Result and Discussion:

The newly developed method ADHS was used for the complex formation for the iron and it is observed that the reagent can be effectively used for quantitative extraction and estimation of Fe (III) in the tablet the proposed method is quick and required less volume of organic solvent and the results obtained are found in good agreement with standard method the new develop method is precise, simple, faster and cheaper. The suggested method requires only UV-Visible spectrophotometer and not much sophisticated and costly instrument.

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FUNCTIONAL GROUP DETECTION OF *DERRIS TRIFOLIATA* A MEDICINAL PLANT USING FTIR

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Abstract:

The present study aims to detect functional groups present in the leaves of *Derris trifoliata*. The samples were collected, dried and mixed with KBr and subjected to FTIR. The FTIR spectroscopic studies revealed different characteristic peak values with various functional compounds in the extracts. The spectra confirmed the presence of functional groups such as carbohydrate amino group, antioxidant enzymes carboxylic acid, aromatic compounds, nitro compounds, phenols, aromatic amine and halo compounds.

Keywords: FTIR, functional groups, chemical constituents, *Derris trifoliata*

Introduction:

Medicinal plants are the richest bio-resources of folk medicines and traditional systems of medicine, and food supplements, pharmaceuticals industries and chemical entities for synthetic drugs^[1]. India is the birthplace of a renewed system of indigenous medicine such as Siddha, Ayurveda and Unani. Traditional systems of medicines are prepared from a single plant. The efficacy depends on the use of proper plant parts and its biological activities which in turn depends upon the presence of required quantity and nature of secondary metabolite in a raw drug^{[2] [3] [4]}. The identification of phyto-constituents from the medicinal plants using various techniques such as FTIR, HPTLC and GC-MS analysis^[5]. FTIR Spectroscopy has been recognized as a dependable and sensitive method for finding the functional groups present in the plant extracts and they were determined with the aid of IR region in the range of 400-4000cm⁻¹^[6]. It is possibly the major, authoritative technique used for identifying the types of chemical groups (functional groups) present in compounds^[7]. A survey of literature revealed that the FTIR analysis of functional groups wasn't so far with the medicinal plants such as *Derris trifoliata*. Hence, an attempt is made in the present study to analyse the functional groups of phytoactive compounds present in the leaf and stem extracts.

The chemical bonds in the molecules have been predicted using FTIR. *Derris trifoliata* belongs to the Fabaceae, alternatively leguminosae is a common climber that grows in mangroves, especially in Sundarban of India and Bangladesh. It is a perennial climber, or a much branched climbing evergreen shrub reaching a length of 8 meters or less^[8].

Materials and Methods:

The plant material of *Derris trifoliata* were collected from Nallasopara region, Palghar district, Maharashtra. The plant was identified from VIVA Herbarium, Palghar. The plant was washed and dried in a hot air oven at 40⁰C. The plant was grinded and sieved using 0.25 micro mesh size and stored in an airtight container.

Sample preparation:

The powdered plant samples were grounded in an agate mortar and pestle in order to obtain fine powder. Powdered leaf material was mixed with KBr (at a ratio of 1/100) completely, and subsequently the mixture of each plant was subjected to FTIR spectroscopic analysis.

Test chemicals:

The AnalaR grade Alcohol and KBr were used throughout the experiment.

Spectroscopic analysis:

FTIR spectra were recorded with a Jasco FTIR 4100. The powdered leaf Samples *Derris trifoliata* were scanned at room temperature (25±2°C) and spectral range of 4000–400 cm⁻¹. Background spectra collected under identical conditions were subtracted from the sample spectra. Therefore, in the present study it is possible to directly relate the intensities of the absorption bands to the concentration of the corresponding functional groups.

Results:

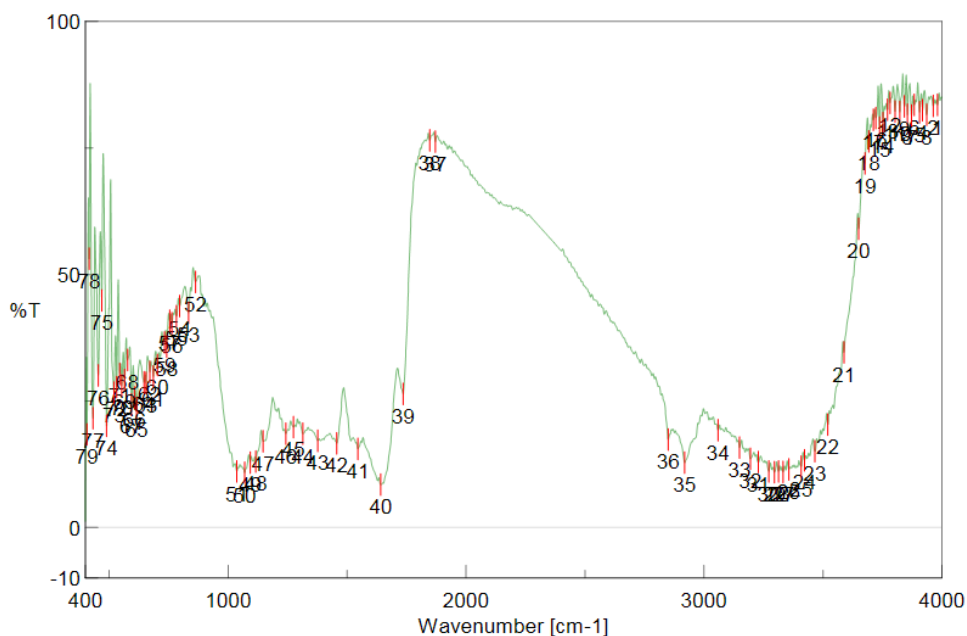


Figure 1: FTIR spectra of *Derris trifoliata*

[Result of Peak Picking]

No.	Position	Intensity	No.	Position	Intensity	No.	Position	Intensity
1	3982.28	83.4938	41	1545.67	15.4787	42	1456.96	16.5873
3	3936	81.5097	43	1376.93	17.0978	44	1314.25	18.4827
5	3906.11	82.0287	45	1274.72	19.7775	46	1242.9	18.5105
7	3872.36	81.3625	47	1147.44	17.0088	48	1116.58	12.9695
9	3842.47	83.1775	49	1092.48	12.7701	50	1069.33	10.7555
11	3802.94	82.165	51	1036.55	11.0394	52	862.989	48.4833
13	3771.12	82.5073	53	834.062	42.3829	54	796.457	43.7252
15	3738.33	79.0262	55	782.958	41.7	56	763.673	40.3151
17	3712.3	80.5164	57	754.995	40.8195	58	742.46	35.6956
19	3676.62	71.9125	59	732.817	36.5334	60	702.926	32.0479
21	3588.88	34.5475	61	685.57	29.7979	62	671.106	30.7062
23	3466.42	15.0338	63	654.715	28.5335	64	647.001	28.6434
25	3408.57	11.9907	65	616.145	23.6193	66	606.503	25.6528
27	3332.39	10.9415	67	593.968	24.2738	68	577.576	33.0666
29	3296.71	10.8735	69	565.041	29.1173	70	553.47	28.052
31	3228.25	12.8641	71	544.792	30.3098	72	532.257	27.6917
33	3150.15	15.7211	73	519.722	26.6119	74	488.866	20.0546
35	2918.73	12.7591	75	468.617	44.8266	76	454.154	29.9804
37	1870.61	76.2226	77	431.977	21.5453	78	415.585	53.0643
39	1735.62	26.3448	79	406.907	18.316			
40	1641.13	8.43282						

Table 1: FTIR frequency range and functional group present in leaves of *Derris trifoliata*

Wavenumber in cm ⁻¹		Vibrational Assignment
Peak no	<i>Derris trifoliata</i>	
1	3588, 3650, 3693	O-H stretching vibration
2	3228,3520,3466,	O-H stretching vibration, presence of carbohydrate amino group
3	2850, 2918,3059, 3228	O-H stretching vibration of carboxylic group
4	Absence	N=C=O stretching of Isocyanate
5	1641, 1735, 1847, 1870	C-H bending vibration of aromatic compound
6	1545	N-O stretching vibration of nitro compound
7	1340	O-H bending vibration of phenol
8	1274	C-N stretching vibration of aromatic amine
9	1421	CH ₂ bending vibration of lipids
10	1116	C-H stretching vibration of Antioxidant enzymes
11	647	C-Br stretching bromo compound
12	616	C-I stretching iodo compounds

Discussion:

Results of FTIR spectroscopic studies have revealed the existence of various chemical constituents in leaves of *Derris trifoliata*. The absorption bands, the wave number (cm⁻¹) of dominant peaks obtained from absorption spectra were defined in Table 1. No peaks were observed at 1635 cm⁻¹ due to the absence of moisture content in the samples investigated, as shown in Figs.1. The peak at 3588, 3650, 3693 cm⁻¹ and 3228, 3520, 3466 cm⁻¹ represents the presence of O-H stretching. Peak at 2851 cm⁻¹ and 2921 cm⁻¹ represents the presence of O-H stretching of the carboxylic acid group. No peak between 2250-2275 cm⁻¹ confirms the absence of an isocyanate group. Peaks at 1641, 1735, 1847, 1870 cm⁻¹ represent C-H bending vibration of aromatic compounds. N-O stretching of nitro compound was confirmed with presence of 1545 peak in spectra. Peaks at 1341 cm⁻¹ and 1421 cm⁻¹ confirmed the presence of phenols and lipids respectively. Peak at 1116 cm⁻¹ represents the presence of antioxidant enzymes. Peaks at 647 and 616 represent bromo compound and iodo compound respectively.

FTIR analysis confirms the presence of carbohydrate amino groups, antioxidant enzymes carboxylic acid, aromatic compounds, nitro compounds, phenols, aromatic amine and halo compounds. FTIR analysis also confirmed the absence of an isocyanate group that means the plant can be used in further analysis. Hence FTIR can be used in detection of functional groups present in the samples.

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A REVIEW OF THE JOURNEY OF COVID -19 VACCINE FROM PHARMACEUTICAL INDUSTRIES TO COMMON PEOPLE AROUND THE WORLD

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Abstract:

The body of the human being learns from vaccines to identify and battle against the pathogens in a safe way. Vaccine encourages the immune system of the human body to produce antibodies, T-cells or both, so that in future our body will come across the infection as well as our immune system defend against it. In the progress of developing and distributing the vaccine there are several difficulties. In the present review we try to know about the basic criteria and steps in preparation of vaccine as well as difficulties in distribution of it. And also the different types of vaccines and their effectiveness against infection. In the preparation of vaccines there are many steps and approval at domestic and international level. Pharmaceutical industries and inventors have to deal with all the obstacles and prove themselves in the market of vaccines.

Keywords: Vaccines, Covid-19, Pharmaceutical industry, Infection etc.

Introduction:

Corona virus causes respiratory infections including cold, pneumonia, sneezing and coughing and in animals it causes upper respiratory diseases and diarrhea. Corona virus transmitted human to human or human to animal via airborne droplets. It enters the human cell through the membrane ACE-2 exopeptidase receptor. The total world population is fronting the crises of covid-19 disease and its different variants of virus. Till date the whole world is struggling for development of effective vaccines against covid -19. Vaccine's development process is continuing to induce the ability to stop or prevent diseases as well as improve health and save lives of mankind. Preparing and developing new vaccines is a complicated process and the benefits from this progress will not be fully valued unless there is also substantial progress in areas such as regulatory union and organization. The development of new vaccines is a long venture. It usually takes between 10 to 20 years to

develop a new vaccine as well as establish its quality, efficiency and safety. There are three major factors that add to these long timelines.

Vaccines are made by using different technologies. It has four different approaches as follows:

Sr.No.	Type of Vaccine	Approach	Response
1	Viral vector	Uses a harmless virus which is altered to contain part of Covid-19 genetic code	The code tells our cells to make the covid-19 spike protein which triggers an immune response
2	RNA (Nucleic acid)	Contains a synthetic version of part of Covid-19s genetic code (messenger RNA)	The code tells our cells to make the covid-19 spike protein which triggers an immune response
3	Whole virus	Contains a weakened or inactivated version of the Covid-19 virus	This triggers an immune response
4	Protein subunit	Uses fragments of the Covid-19 virus-sometimes fragments of the spike protein	This triggers an immune response

1. Viral Vector Vaccines:

A harmless virus is rehabilitated by introducing part of the disease-causing virus' genetic code, such as the code for Covid-19's 'spike' protein. The harmless virus transports the code into our cells in a similar way to RNA vaccines which then start to produce the protein. This stimulates an immune response, to attack the real virus later. Viral vector vaccine is produced by Oxford-AstraZeneca and it has got permission for Covid-19. The pharmaceutical industries such as CanSino Biologics, Gamaleya Research Institute and Johnson & Johnson all these industries are also prepare this type of Vaccines. They all use adenoviruses, a group of viruses that cause the common cold as the carrier [2].

2. RNA Vaccines:

In RNA type of vaccine sequencing of genetic code is done by messenger RNA, which sequencing is used our bodies all the time. It transfers the message to our cells that what type of proteins to build so they can function. The scientists develop an artificial version of messenger RNA of the viruses for production of RNA vaccine. When this is injected into our bodies, cells identify it and provides an instruction to our body cells to start building the

appropriate viral protein. for example, Covid-19's 'spike' protein. This prompts our immune system to reply, and in doing so it learns how to protect against future Covid-19 infection [2].

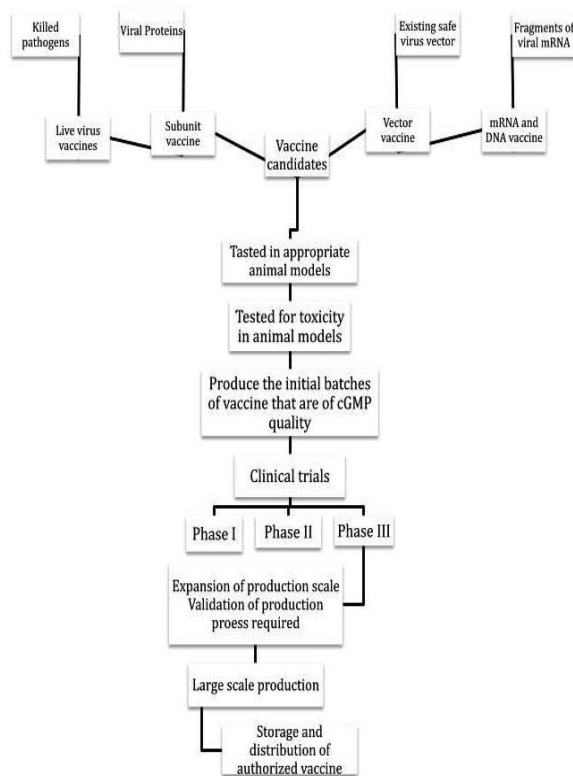
3. Whole virus vaccines:

If version of the virus is inactivated these vaccines could be inactivated by being exposed to radiation, heat or chemicals. A version of the virus, that is virus like particle which is nearly similar to the real thing, is generated artificially, but it does not have any genetic material, so it is not transfer to foreign bodies. These vaccines cannot cause the disease, but will cause our bodies to produce an immune response which will protect against future infection [2].

4. Protein subunit vaccines:

A small piece of the virus genetic code is inserted into another cell feasibly a bacterial, yeast, mammalian or insect cell. The code contains instructions for this cell to start building the virus protein, for example the Covid-19 ‘spike’ protein. Cells like this act as factories, building large quantities of the protein which is then extracted, purified and used as the active component in the vaccine. When it is injected, our bodies learn to be familiar with the viral protein so that they can build up an immune response which protects against future infection [2].

Flow chart of Covid-19 vaccine generation: [1]



Comparison of different Covid-19 vaccines:

The different vaccine approaches present different prospects and challenges therefore we will need a range of vaccines to get control of the pandemic situation. [3]

Company/Industry	Fit for people with weak immune systems	Storage	Number of doses required	Other vaccines using this technology
Viral vector vaccine Gamaleya Research Institute and Johnson & Johnson. Oxford-AstraZeneca, CanSino Biologics,	Yes, depending upon viral vector used	2 - 8 °C	One to Two	Ebola
RNA vaccines Moderna& Pfizer-BioNTech	Yes	Moderna -20 ⁰ C for 6 months and 2-8 ⁰ C for 30 days Pfizer-BioNTech -70 ⁰ C and 2-8 ⁰ C for up to 5 days	Two	No other licensed vaccine
Whole virus Sinovac, Bharat Biotech Sinopharm(inactivated)	Yes	2 - 8 °C	Two	Hepatitis A(inactivated) Whooping cough (inactivated), Rabbis' (inactivated),
Protein subunit vaccines Chinese Academy of Sciences & Novavax	Yes	2 - 8 °C	Two	Hepatitis B

Accessibility of Covid -19 vaccines to everyone:

To stop or minimize the pandemic, we have to overcome it everywhere in the world. There are many challenges and consequences like logistics, health outcomes, user centric issues, communication and disease spread, individual behavior, societal impact, economy and

security of vaccines respectively. But we will only succeed if vaccines are available and inexpensive to all countries. The Covid-19 vaccine Global Access Facility (COVAX) is working to make this occur, by confirming that all participating countries, irrespective of income levels, they should have equal access to the vaccines in its collection once they are developed. [4] There is a serious risk that poor countries may be shut out of vaccine access, as they are not as much of able to obtain deals directly with pharmaceutical companies. So, the countries that have secured large numbers of vaccine doses, like the UK, must consign to donate their suitable excess doses to COVAX, so that they can be fairly distributed to poor countries. The COVAX and UNICEF implicated in investing in cold chain infrastructure for vaccines that must be transported and stored the vaccine at different temperatures. For the storage of most of the vaccines needs the range of temperature between 2 to 8 °C but they also try to stored and deliver ultra-cold chain equipment for some countries. For cold storage of vaccine needs cold rooms, fridges and cold boxes. UNICEF try to provide the facilities like distribution of vaccines and install the health facilities around the world as part of regular vaccination programs. We need to work together with countries, manufacturers and partners to figure out how we address this. Agility to react to the scenarios as they unfold is one of the big challenges we have now, but it is also one we are overcoming. In some developing countries are struggling for making awareness about need of vaccine to battle this pandemic situation. After getting vaccinated many of the countries are still facing the third or fourth wave's covid-19 infections and their recent mutation is omicron virus. But nowadays scientists will have faith that in the year 2022 the Covid-19 infection can be stopped by getting proper vaccination in the whole world.[4]

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STUDY ON SPECTROPHOTOMETRIC DETERMINATION OF VANADIUM IN ORE AND COMMERCIAL SAMPLES BY USING ANALYTICAL REAGENT

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Abstract:

A new Analytical reagent, 2-Hydroxy-3-Methoxy Benzaldehyde Oxime [2H3MBO] is proposed as a spectrophotometric reagent for V (V). The reagent 2H3MBO is synthesized in the laboratory and characterized by NMR, IR and elemental analysis. Spectrophotometric method is presented for the trace determination of V (V) using 2H3MBO as spectrophotometric reagent ($\lambda_{\max} = 420 \text{ nm}$) in acidic aqueous solution ($\text{pH} = 4.0$). The Beer's law is obeyed in the concentration range from 1 to 10 ppm. The 2H3MBO forms a 1:2 coloured complex. The Sandell's Sensitivity is $0.0425 \mu\text{g cm}^{-2}$ with molar absorptivity $6.004 \text{ L mol}^{-1}\text{cm}^{-1}$. The proposed method has been successfully applied to the determination of Vanadium in ores and commercial samples. The precision and the accuracy obtained were satisfactory for its use in the concerned industry. This chapter details the method development for determination of Vanadium in different commercial samples.

Keywords: Vanadium Metal, Spectrophotometry, 1-Butanol, 2-Hydroxy-3-Methoxy Benzaldehyde Oxime [2H3MBO]

Introduction:

Vanadium is a chemical element with the symbol V and atomic number 23. It is a hard, silvery gray, ductile and malleable transition metal. The element is found only in chemically combined form in nature, but once isolated artificially, the formation of an oxide layer stabilizes the free metal somewhat against further oxidation. Vanadium is a hard, ductile, silver-gray metal. Vanadium pentoxide is also used in making ceramics. Another oxide of vanadium, vanadium dioxide VO_2 , is used in the production of glass coatings, which blocks infrared radiation at a specific heat. It has good resistance to corrosion and it is steady against alkalis, sulfuric and hydrochloric acids. Approximately 85% of vanadium produced is used as ferrovanadium or as a steel stabilizer.

Experimental:

The pH measurements were made using a pH meter Elico, Model LI-129, Indian conjugation with a combined glass and calomel electrode. Shimadzu UV-Visible 2100 spectrophotometer with 1.0 cm matched quartz cells were used for all absorbance measurements.

Reagent and chemicals:

1% 2H₃MBO reagent is prepared by dissolving the essential amount of 2H₃MBO in a known volume of methanol. All chemicals used were of analytical-reagent grade or the maximum purity available. Double distilled de-ionized water and A.R. grade methanol is used throughout the experiment.

V(V) standard solutions:

The stock solution of Vanadium was prepared by dissolving weighed amount of Vanadium Pentoxide in doubly distilled de-ionized water. Additional dilute standard solutions were prepared from this stock solution and used when necessary.

Procedure for the extraction:

1 mL of aqueous solution containing 1.0 µg of Vanadium metal and 1 mL of reagent was mixed in a 50 mL beaker. The pH of the solution adjusted to 4.0, it must be noted that the total volume should not go beyond 10 mL. The solution was transferred to 100 mL separatory funnel. The beaker was washed twice with 1-butanol and transferred to the same funnel. The two phases were shaken for two minutes and allowed to separate. The organic phase was passed through anhydrous sodium sulphate in order to absorb trace amount of water from organic phase and then collected in 10 mL measuring flask and made up to the mark with organic solvent if required. The amount of Vanadium present in the organic phase determined quantitatively by spectrophotometric method by taking absorbance at 420 nm and that in the aqueous phase was determined by Phospho Tungstate method.

Result and Discussion:

pH Study

The extraction of vanadium with 2H₃MBO was carried out over the pH range of 1 to 10. 1 cm³ of aqueous solution containing 100 µg of vanadium and 1 cm³ of 0.1% solution of the reagent were used. It reveals that 99.00 % and above of the metal is extracted into organic phase in the pH range 3.0 to 5.0 so the analytical work for the inference of vanadium is carried out at pH 4.0.

Absorbance maxima:

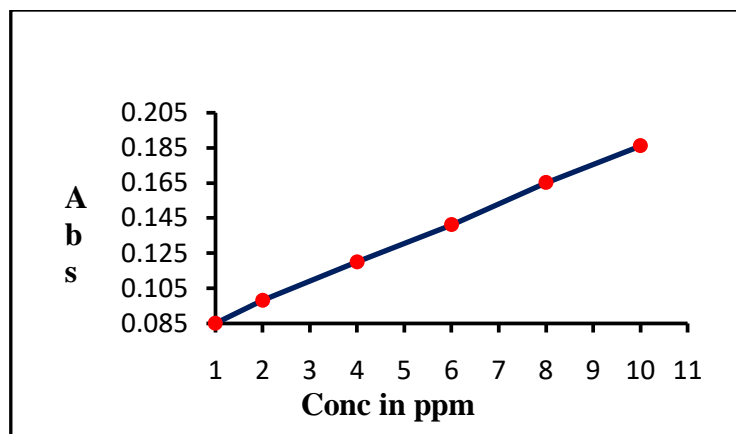
The absorption spectrum of V (V): 2H₃MBO complex in 1 butanol shows maximum absorbance at $\lambda_{max} = 420$ nm. The absorbance due to the reagent at this wavelength was negligible. Hence the wavelength 420nm was selected for further spectrophotometric study of V(V): 2H₃MBO complex against the reagent blank.

Effect of reagent concentration:

The effect of variation in the concentration of 2H₃MBO in the range of 0.2 to 2.0 cm³ of 0.1% 2H₃MBO on the extraction and on colour development. It was observed that 1.0 cm³ of 0.1 % 2H-MBO was sufficient for complete extraction and for colour development. Hence, for subsequent studies 1.0 cm³ of 0.1 % 2H₃MBO was employed.

Calibration curve:

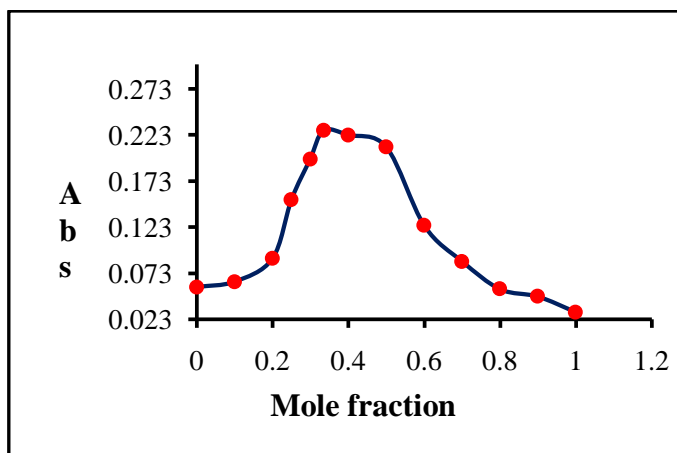
Different amounts of the V(V) from 1µg/cm³ to 10µg/cm³ were extracted quantitatively under optimum experimental conditions and the plot of absorbance against concentration of V (V) gave a straight line indicating that the Beer's law is obeyed in this range. The molar absorptivity calculated on the basis of total V (V) taken was found to be $6.0 \times 10^2 \text{ L mol}^{-1} \text{ cm}^{-1}$ and sensitivity of the method as defined by Sandell's sensitivity which is $0.0425 \mu\text{g cm}^{-2}$.



Job's continuous variation method:

A series of solution were prepared by mixing 0.2 to 1.8 cm³ of $3.92 \times 10^{-3} \text{ M}$ vanadium solution with 1.8 to 0.2 cm³ of $3.92 \times 10^{-3} \text{ M}$ methanolic 2H₃MBO solution, such that the total volume of each of the mixture was 2 cm³. Each solution was treated as described in the procedure under the spectrophotometric determination of vanadium and the absorbance of 1-butanol take out was measured at 420nm against reagent blank. The absorbance values were plotted against the mole fraction of 2H₃MBO to vanadium. It shows sharp maxima at 0.335 mole fraction of V(V) indicating that the coloured complex extracted into 1-butanol was formed

by reaction of V(V) and 2H₃MBO in the ratio of 1:2.



Applications of method:

The present method was applied for determination of amount of vanadium in various samples as synthetic mixture, pharmaceutical sample and alloys. The result obtained was well in agreement with those of standard methods.

Synthetic mixtures:

The separation of vanadium from synthetic mixture of associated metals containing zinc, tungsten, cobalt and zirconium and titanium with varying combination was carried out. A definite aliquot of this solution was taken and after the adjustment of acidity of the aqueous solution to pH 4.0 and addition of 1 cm³ of 0.1% 2H₃MBO solution, the vanadium complex formed was extracted into 10 cm³ of 1-butanol. The amount of vanadium present was computed using the calibration curve method. The result obtained is compared with those obtained by phosphotungstate method.

Observation table for determination of v (v) using 2h3mbo from different samples

Synthetic Samples			
Composition of Sample (mg)	Amount of Vanadium (µg)	Standard method (µg)	Present method (µg)
Zn+W+Co+ V	6	5.97	5.8
Zr+Ti+V	7	6.8	6.67

Pharmaceutical samples			
Tablet	9.8	9.78	9.70
Steel Alloys			
Carbonsteel	5	4.9	4.85
FerroVanadium	1.0	0.98	0.96

- ❖ Each result is average of three independent determinations
- ❖ Compared with phosphotungstanate method.

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PHYTOCHEMICAL INVESTIGATION OF SEMIPURIFIED ALKALOIDAL FRACTION OF FLOWER OF *S. INDICUS* LINN.

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Abstract:

Today, we are witnessing a great deal of public interest in the use of herbal remedies; furthermore, many western drugs are either of plant origin or in the form of plant extract. The plant world comprises of a rich storehouse of biochemical that could be tapped as eco-friendly medicine and pesticides. Here an attempt has been made to confirm some secondary metabolites present in extract and semipurified alkaloidal fraction of flower of *Sphaeranthus indicus* Linn by qualitative chemical test, which are reported by earlier workers.

Keywords: Phytochemistry, *Sphaeranthus indicus* Linn.

Introduction:

Plants have played a significant role in maintaining human health and improving the quality of human life for thousands of years. They have served humans as valuable components of medicines, seasonings, beverages, cosmetics and dyes. Herbal medicine is based on the premise that plants contain natural substances that can promote health and alleviate illness. In recent times, focus on plant research has increased all over the world and a large body of evidence has been collected to show immense potential of medicinal plants used in various traditional systems. Today, we are witnessing a great deal of public interest in the use of herbal remedies; furthermore, many western drugs are either of plant origin or in the form of plant extract. There are many herbs, which are predominantly used to treat digestive and metabolic disorders, liver disorders, cardiovascular problems, central nervous system and skin diseases. Given their potential to produce significant therapeutic effect, they can be useful as drug or supplement in the treatment / management of various diseases. They have been used and continued to be used as medicine in folklore or food supplement for various disorders. Ethnopharmacological studies on such herbs/medically important plants continue to interest investigators throughout the world. One such plant, *Sphaeranthus indicus*

Linn(*S. indicus*), belongs to family Asteraceae, a medicinally important plant used in folk medicine, invites attention of the researchers worldwide for its biological activities. Earlier researchers have reported presence of Glycosides, Terpenoids, Alkaloids, Flavonoids and steroids etc. in *S. indicus*. Some of the chemists have fully characterized them chemically; however, a few of them reported or extended their experimentation biologically. Some of the pharmaceutical companies included this plant as tonic in their formulations. The work on alkaloid of this plant is negligible; therefore, we extend this work to investigate it phytochemically and to characterize a bioactive substance present in it, especially alkaloid in nature.

Preparation of extract

The plant material was collected (January 2008, 2009 and 2010) from North Maharashtra Region, Maharashtra State, India. The flowers were separated and shade dried. After complete drying, the material was pulverized to form coarse powder. Then, dried flower powder was exhaustively extracted in Soxhlet apparatus with methanol. The solvent extract so obtained was then filtered to remove any suspended impurities under vacuum. The extract was separately concentrated under reduced pressure and controlled temperature (55⁰C to 60⁰C). This methanolic extract (MeOHx) of flower was preserved in dry, cool condition in a desiccator. Thus, it was screened for its biological activity and on the basis of promising results, it proceeds for fractionation to isolate the active ingredient especially alkaloid.

Fractionation and Characterization of the MeOHx of flower of *S. indicus*

A number of methods are described in the literature to isolate the natural plant product present in a crude extract. These include adsorption column chromatography, thin layer chromatography, gel filtration etc. depending upon the nature of the plant products present in crude extract. The various adsorbents used are silica gel, silicic acid, neutral aluminium oxide, charcoal and fuller's earth etc. Similarly, depending upon the nature of the active constituent's different solvent systems are employed. Fractionation of MeOHx of flower of *S. indicus* was carried out and evaluated for its biological activities.

Naqvi, (1997) was unable to deduce structure of sphaeranthine – S1, S2, S3, S4, S5, S6, S7 and S8 any alkaloid. In relation to this we followed repeatedly the method for isolation of sphaeranthine, an alkaloid fraction given by Naqvi (1997), we failed to purify any kind of sphaeranthine – S1, S2, S3, S4, S5, S6, S7 and S8. We find it was very complicated. Therefore, some modifications are attempted to isolate alkaloid fraction.

Packing of column

The glass column (30 X 1.8 cm) with cinder was partially filled with chloroform. One hundred twenty-five grams of activated neutral aluminium oxide was placed in a beaker and slurry was prepared in chloroform. This slurry was poured into the above column at a constant speed. The excess of solvent was simultaneously allowed to drain off.

Preparation of sample loading

Five grams of MeOHx of flower of *S. indicus* was added with twenty-five grams of neutral aluminium oxide into China dish and kept in a vacuum desiccator over anhydrous calcium chloride for drying. After complete drying it was macerated so as to get fine particles. Fifty ml of chloroform was added to it, stirred vigourously and immediately loaded on the column avoiding cracking of absorbent.

Fractionation

Elution and fractionation of MeOHx of flower of *S. indicus* was by adsorption column chromatography using neutral aluminium oxide as adsorbent. Proportion of different solvents was done on the basis of separation pattern of secondary metabolites obtained on the TLC and homogeneity tried to maintain on it. The column was eluted successively with chloroform and methanol and their graded mixtures. The different fractions were collected. Protocol for fractionation is given in Table 1, to ensure better separation. The fractions were concentrated by evaporating the organic solvents on water bath at 50⁰C – 60⁰C and preserved in desiccator.

Characterization of extracts by TLC

Thin layer chromatography (TLC) is practiced today, using it as a qualitative tool for separation of simple mixtures; where speed, low cost and simplicity are required. In this method, the adsorbent materials often used are alumina G and Silica gel G. (Stahl, 1985; Wagner, 1996).

Preparation of the slurry and TLC plates

Slurry of a solid thin layer material, silica gel (Qualigen) was prepared by mixing with water in a proportion of 1:5 (w/v) and stirred vigorously for thorough mixing. It was then applied to clean and dried glass plate (5 cm x 20 cm) as a uniform thin layer (1 mm thick) with the help of a plate spreader starting at one end of the plate and moving progressively to the other. The plates left to dry in the air and was activated it in oven at 110⁰C for 1 h.

Table 1: Elution profile of the MeOHx of the *S. indicus*

Solvent system	Solvent ratio	Fraction number
CHCl ₃	100	01 to 20
CHCl ₃ + MeOH	90 + 10	21 to 40
CHCl ₃ + MeOH	80 + 20	41 to 60*
CHCl ₃ + MeOH	70 + 30	61 to 80
CHCl ₃ + MeOH	60 +40	81 to 100
CHCl ₃ + MeOH	50 +50	101 to 120
CHCl ₃ + MeOH	40 + 60	121 to 140
CHCl ₃ + MeOH	30 + 70	141 to 160
CHCl ₃ + MeOH	20 + 80	161 to 180
CHCl ₃ +MeOH	10 + 90	181to 200
MeOH	100	201 to 220

*Semisolid-viscous compound was obtained in these fractions

Spotting of samples on plate

The sample was applied to the plate using fine capillary. The sample spot was placed 2 cm from the bottom of the plate. Hair drier was used in between repetitions of the sample application.

Development of TLC plates

Various mobile systems were tried for optimization of TLC profile of SAF from MeOHx of flower of *S. indicus* especially for the active ingredients, the sphaeranthine, eudesmanolide, isoflavone glycoside, sesquiterpene glycoside etc. Among the various mobile systems, finally we decided to develop the plates in to the Toluene: Ethyl Acetate: Methanol: Glacial Acetic acid (7.5: 3: 0.4: 0.2) mobile phase. After spotting of samples on plate; it was kept into saturated chamber. The solvent level in the bottom of the chamber must not be above the spot that was applied to the plate, as the spotted material will dissolve in the pool of solvent instead of undergoing chromatography. The solvent allows running about 17 cm on the silica plate. Plates were removed, examined under ultra violet light. Later, Dragendorff's reagent was sprayed and 2 colored spots appeared on the plate, among them 1 spot was prominent. The active ingredients gave an orange color spot, confirms the presence of alkaloid. R_f values of the spots were measured, which is 0.64 and 0.77 (Figure 2). For comparison a standard (Std.) - Pilocarpin was applied on TLC.

Phytochemical study

The plant world comprises of a rich storehouse of biochemical that could be tapped as eco-friendly medicine and pesticides. The secondary metabolites have only an insignificant

role in primary physiological process in plants that synthesizes them. But major role is reportedly defensive. Some of the secondary metabolites are alkaloids, glycosides, saponins, terpenoids, tannins etc. that brings out behavioral and physiological effects on animals (Patole and Mahajan, 2009). The properties of the above-mentioned metabolites are described as follows

Alkaloids

The term alkaloid was proposed to alkali or base like nitrogen-containing heterocyclic compounds of plant origin. They are found in combination with various organic acids as salts, which make them more or less soluble in water. Due to the presence of nitrogen atom inside the ring, alkaloids are generally defined as physiologically active basic compounds of plant origin, in which at least one nitrogen atom forms part of a cyclic system. More than 2000 alkaloids are known to be found in 10-15 % of all vascular plants. They are rarely found in lower plants, Gymnosperms and Monocotyledons (Daniel, 1991; Agrawal, 2005).

Glycosides

These are compounds which when split up with the help of acids or enzymes yield a sugar or some closely allied carbohydrate and one or more other products, usually phenols, aldehydes, alcohols or acids, known as 'aglucones'. A great variety of glycosides occurs in low concentrations in nearly all the plants. The important plant glycosides are colorless, crystalline, bitter in taste, soluble in water and optically active. The term glucoside is applied to those only in which the sugar component is glucose. Glycosides are non-toxic as well as toxic. The toxic glycosides are termed as 'Cyanogenic' glycosides, however, orally fed glycosides to animals and human are not toxic (Mangalat *et al.*, 2004 and Patole 2007).



Figure 2: Thin Layer Chromatography pattern of Std. and SAF

Saponins

Saponins are the plant glycosides, which on hydrolysis give sugars (glucose, galactose, xylose etc.) and an aglycone (Sapogenin). Chemically, sapogenins are characterized by the presence of a spiroketal side chain. The saponins produce soapy foam when shaken with water. Hence, they derive their name. It possesses a bitter, acrid taste, and in dry powder form, it is irritating to the nose. Saponins have been used in medicines; as a foaming agent in detergent, in fire extinguishers and fish poisons. In warm-blooded animals, they often produce gastrointestinal irritation, vomiting and diarrhoea when taken by mouth. They cause *in vitro* haemolysis when they come in contact with RBCs. (Pelah *et al.*, 2002; Patole and Mahajan, 2004a; Bishnu and Zeev, 2005; Agrawal, 2005).

Terpenoids

The term 'Terpenoids', originally 'terpene' was applied to a mixture of isomeric hydrocarbons of molecular formula $C_{10}H_{16}$ occurring in turpentine and many other essential oils. Different parts of plants like fruit, flower, stem, bark etc. have some pleasant smell. This pleasant smell is actually due to presence of certain steam volatile oils known as essential oils. Terpenoids are further classified as mono, di and tri-terpenoids (Mansour *et al.*, 2000; Ahluwalia 2009). These have been shown as pesticides (Thomas *et al.*, 2004; Panwar *et al.*, 2005).

Phytochemical Tests

Here an attempt has been made to confirm some secondary metabolites present in extract and fraction by qualitative chemical test, which are reported by earlier workers (Harborne, 1998).

Test for alkaloids

Three methods were used to test alkaloids. (i) A portion of the extract was treated with few drops of aqueous solution of hydrochloric acid and 0.5 ml Mayer's reagent. Formation of white precipitate indicates the presence of alkaloid. (ii) Few drops of dilute HCl and 0.5 ml Wagner's reagent was added to a portion of the fraction. A brown flocculent precipitate indicates the presence of alkaloid. (iii) A portion of the extract was treated with equimolar mixture of dilute HCl and Dragendorff's reagent. A brown coloration with precipitate indicates the presence of alkaloid.

Test for cynogenic glycosides

One ml of 1% extract was added to equal volume of cold concentrated sulphuric acid. Formation of intense color indicates the presence of glycosides.

Test for cardiotonic glycosides

1) Kedde test

To a small portion of extract one drop of 90% alcohol was added. To this, two drops of 2% 3,5-dinitrobenzoic acid in 90% alcohol was added. Then it was made alkaline with 20% sodium hydroxide solution. A purple color was produced.

2) Keller-killani test

To a small portion of extract 0.4ml of glacial acetic acid and a trace of ferric chloride was added. Transferred this to a test tube, to it 0.5ml of Concentrated H_2SO_4 was added down the side carefully. A green blue color in the upper acetic acid layer was produced.

Test for phenolic compounds

Phenolic compounds of extract were detected by Folin-Ciocalteu reagent. A portion of the extract was mixed with few drops of diluted Folin-Ciocalteu reagent and aqueous sodium carbonate solution. The mixture was allowed to stand for 10 min and formation of blue color indicated the presence of phenolic groups.

Test for flavonoids

Two methods were applied for the qualitative detection of flavonoids. (i) A portion of extract sample was dissolved in 10 % HCl and to this Zinc powder was added. Appearance of effervescences with pink color indicates the presence of flavonoids was observed. (ii) Small amount of extract was dissolved in concentrated H_2SO_4 , formation of intense color observed; this indicates the presence of flavonoids

Test for terpenoids

A red to purple color formation indicates the presence of terpenoids, when a chloroform soluble portion of fraction was treated with an equal volume of concentrated H_2SO_4 .

Test for tannins

A small portion of extract was mixed with few drops of 0.1 % Ferric chloride and observed for brownish green coloration, indicates the presence of tannins.

Test for saponins

The 0.5 ml of extract was dissolved in 5 ml of distilled water. The solution is shaken vigorously and observed for a stable persistent froth with honeycomb structure, indicates the presence of saponins.

Test for amines

1. Small amount of extract was added to Ehrlich's reagent which gave pink color.
2. Blue color indicates presence of amines when Folin-Ciocalteu reagent added to fraction.

Test for anthocyanins

1. After addition of sodium acetate solution to the extract change of color to blue, a blue violet, or violet red was observed when treated.
2. On addition of sodium carbonate solution to the extract, a change of color to blue, blue violet, or red violet.

Results

The yield of MeOHx and SAF is 7.3% and 20% respectively. The MeOHx gave positive test for Alkaloids, Glycosides, Flavonoids, Phenolic compounds, Tannins and Saponins, whereas, SAF gave positive test for Alkaloids and Glycosides (Table 2). Earlier work of Patole (2007) on the total aqueous extract of *S. indicus* for its post-harvest management strategies showed excellent results. However, he did not isolate the bio-active ingredient. Similarly, no reports on any isolated product of *S. indicus* appeared in literature regarding its various biological activities on different animals. In continuation with this, we isolated semi alkaloidal fraction, characterized it partially and planned to evaluate MeOHx and SAF for its various biological activities, broadly grouped into three categories namely, Medicinal, Agricultural and Allied properties.

Table 2: Phytochemical analysis of the MeOHx and SAF of flower of the *S. indicus*

Phytochemical ingredients	MeOHx	SAF
Alkaloids	+++	+++
Glycosides	+++	++
Flavonoids	++	-
Phenolic compounds	++	-
Tannins	+	-
Saponins	+	-
Terpenoids	-	-

+ Less, ++ Moderate, +++ High, - Absence

Conclusion:

The yield of MeOHx is 7.3% and SAF is 20%. In the present study, a scheme for alkaloidal fraction (SAF) is outlined from the MeOHx extract. SAF gave positive test with Dragondorff's reagent indicates that it is alkaloid in nature. Trace amount of sugar is present in SAF; therefore, SAF may be Alkaloidal glycoside.

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INFLUENCE OF COVID – 19 PANDEMIC ON HUMAN HEALTH WORLDWIDE; BIRTH RATE, MORTALITY RATE AND DEATH RATE

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Abstract:

In December 2019, the existence of a developing disease of infectious etiologic has paralyzed everything, already being a public health problem due to its high rate of infection, a life-threatening disease. The study aims to examine the effects of coronavirus disease-2019 (COVID-19) measures on global environment and fertility rate by using the data of 2020. The WHO has named it COVID – 19, caused by severe acute respiratory syndrome coronavirus 2 (SARS-CoV2). The current outbreak of COVID-19 coronavirus infection among humans in Wuhan (China) and its spreading around the globe is heavily impacting on the global health. In an effort to contain the spread of COVID -19, a huge amount of disinfectants and antibiotics have been utilized on public health. New studies provide information of the role of the environment in COVID-19 transmission process, mortality related to this infectious disease and the impact on human health. The following review Study aims to analyze information on the worldwide implications of COVID-19 infection on human health viz Birth rate, mortality rate and Death Rate.

1. Introduction:

After the outbreak of a new coronavirus infection (COVID-19) on 31 December 2019 among humans in Wuhan (China), (Li *et al.*, 2020), possibly linked to a wholesale seafood market in Huanan (Y. Chen, Liu, & Guo, 2020). Chinese health authorities have employed rapid public health measures, including intensive surveillance, epidemiological investigation and the closure of the markets on January 1, 2020 (N. Chen, Zhou, *et al.*, 2020). The new coronavirus (SARS-CoV-2, initially named 2019-nCoV) has been isolated from a patient in a short time on January 7, 2020, and the genome sequencing of this virus has been performed (Lu *et al.*, 2020). The genetic sequence of SARS-CoV-2 has been officially recognized by World Health Organization (WHO) on January 12, 2020, and this has led to the development of specific polymerase chain reaction PCR-based diagnostic tests to detect the new infection in different countries (Corman *et al.*, 2020). SARS CoV-2, previously indicated as an

unknown beta-coronavirus, is the seventh member of coronaviruses' family which infects humans, different from both MERS-CoV and SARS CoV, SARS-CoV-2 (Zhu *et al.*, 2020). This outbreak is possibly related to the sale of bush meat derived from wild or captive sources in the seafood market (Cui *et al.*, 2019).

World Health Organization (WHO) declared COVID-19 as a Public Health Emergency on 30th January, 2020. By 11th March, 2020, COVID-19 was declared as a global pandemic by the WHO, and has since continued to spread at an accelerated rate. Common symptoms at the onset of illness due to coronavirus COVID-19 were fever, cough and myalgia or fatigue. Less common symptoms were sputum production, headache, haemoptysis and diarrhoea. The virus generally spreads between persons during close contact, most often through small droplets produced by sneezing, coughing, and talking. It can also spread by touching contaminated surfaces followed the touching of the face, nose, and eyes with unwashed hands. Some initiatives such as spatial distancing restrictions and lockdowns across the world have been strictly imposed to prevent the spread of the virus and reduce the magnitude of the pandemic.

As a result of the transmission control efforts, more than 2/3rd of the world population have experienced lockdown measures, lasting from weeks to months, and thereby affecting family and social lives, as well as imposing a substantial burden on psychological health. Thus, in addition to the physical health effects of the virus in those persons infected, the pandemic is also causing detrimental social and mental health effects, which in turn can influence fertility, conception, gestation, Birth, Mortality and Death.

2. Literature Review:

2.1 COVID-19 impact on birth rates: -

Aldo Franco De Rose (2021) discuss that they observed a substantial downward trend in birth rates. However, immediate fertility rebound and birth rate escalation after the end of the COVID-19 pandemic are more than desirable, as was the case after many other previous catastrophic events.

2.2 COVID-19 pandemic affect births: -

UNFPA Technical brief (2021) discuss observations from developed countries, UNFPA has been tracking births across programme countries. To date, monthly birth data has been collected from 15 countries up until the third quarter of 2021. Numerous countries indicate stable trends in monthly births, with no evident impact of COVID-19 (Brazil, Cuba, Georgia, Mongolia, Colombia, Iran). Further they discuss about several countries show a

small decline in births in the beginning of 2021, followed by rebound to the pre-pandemic trend (Peru, Thailand, Ukraine) - similar to the observations in Europe and the USA.

2.3 COVID-19 on health and care workers: -

WHO, (2021) discuss In this paper, deaths were taken as a cumulative total between January 2020 and May 2021, an approach that by and large reduces the effect of delays in registering deaths, specifically those of HCWs. Out of the 3.45 million COVID-19-related deaths reported to WHO, only 6643 were in HCWs. At the most conservative level, a population-based estimate indicates that around 115 500 HCWs (ranging between 80 000–160 000) out of the global health and care workforce of 135 million people could have lost their lives. The upper range of estimation could exceed 180 000 if the estimated overall deaths among the high-burden countries are taken into consideration. This is an alarming picture of the impact of the pandemic on HCWs who need to be provided with better protection (including access to vaccines, personal protective equipment, training, testing and psychosocial support) and decent work conditions (including adequate remuneration and protection against excessive workloads)

1. Objectives of the study: -

- 3.1. To study the impact of Covid – 19 Pandemic on Global Birth Rate.
- 3.2. To study the impact of Covid – 19 Pandemic on Global Death Rate.
- 3.3. To study the impact of Covid – 19 Pandemic on Global Survival Rate.

2. Limitation of the study: -

Though there is a scope of study, it has some limitations. It is limited to maximum data are collected only from websites. Only Secondary data are collected there is no primary data collected for this research.

3. Methodology: -

The data of this qualitative study was collected from secondary source like different research e-journals, e-books, websites etc. Various tables and graph are collected from various organisations like World Bank, WHO, UNFPA etc.

4. Data Collected: -

Data are collected in percentage from World Bank, WHO, UNFPA, Economic Studies.

Table 1 shows Estimated Impact of Covid on Birth in Late 2020, by Age group.

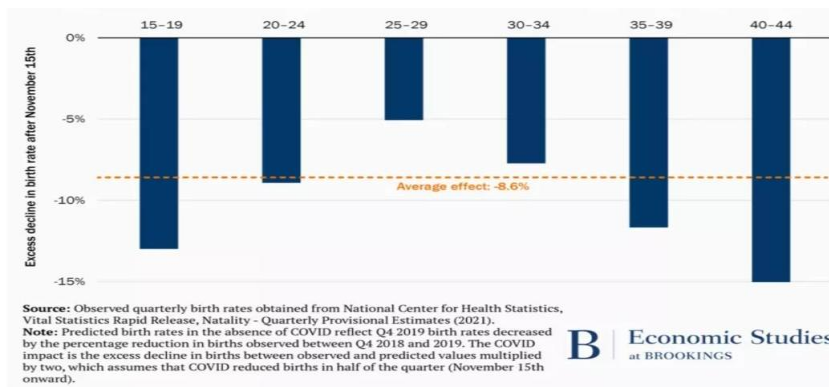


Table 2 shows Birth rate; The number of live births occurring during the year 2020 and in between 1950 – 2020, per 1,000 people.

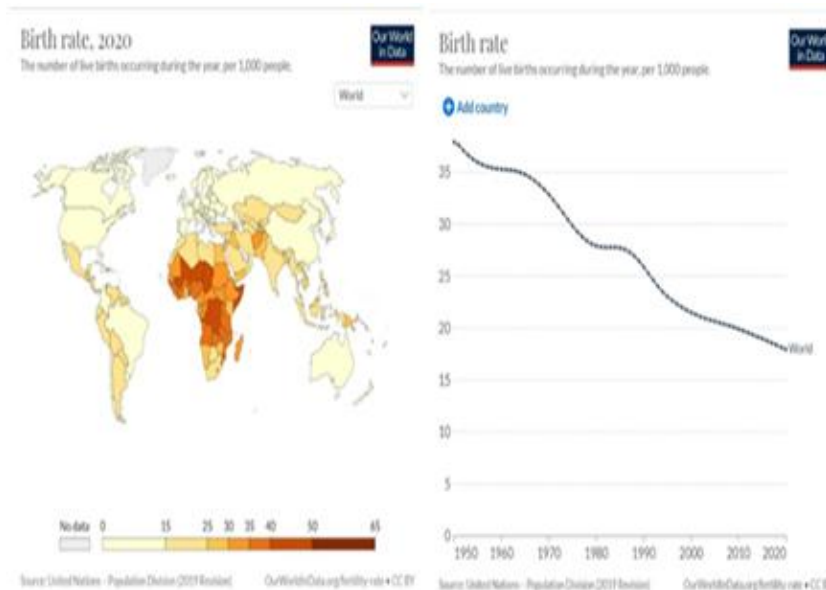


Table 6.3 shows % of fully vaccinated people

Latest global Covid-19 data	
Total cases	New daily cases
327.79m	1,640,644
Total deaths	New daily deaths
5.54m	3,682
% fully vaccinated	New daily vaccinations
50.1%	34.0m

% fully vaccinated figure refers to people who have received all doses prescribed by the initial vaccination protocol, as a proportion of the total world population. Data from [JHU CSSE Covid-19 Data](#) and Our World in Data at 09.09 on 17 January 2022

Table 6.4. shows Number of COVID-19 cases reported weekly by WHO Region, and global deaths, 30 December 2019 through 04 October 2020

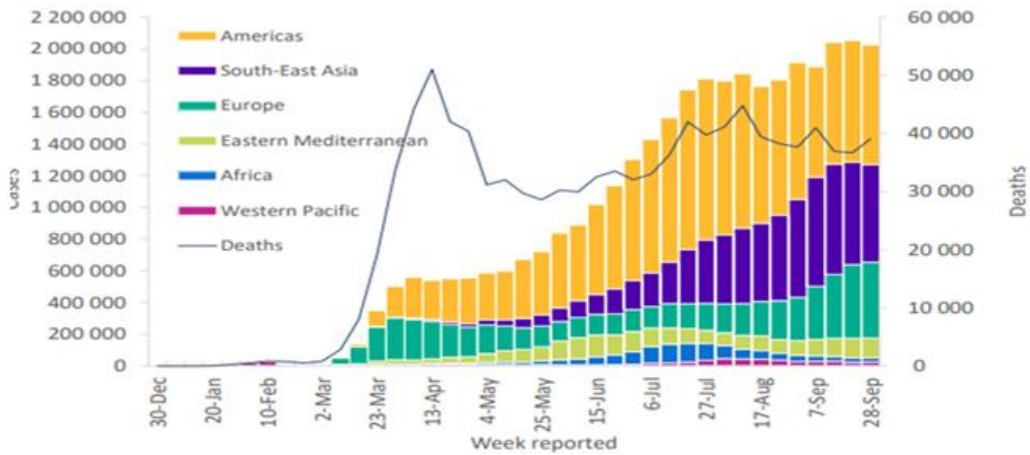


Table 6.5 shows new daily deaths per million people 2021 to 2022

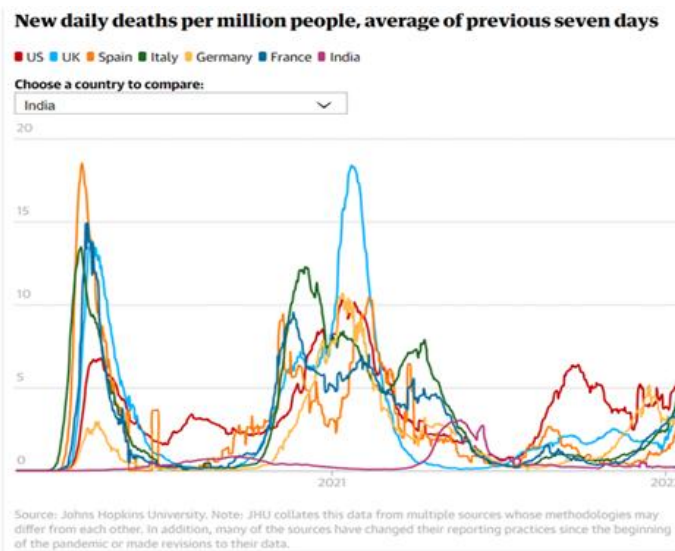


Table 6.6 shows countries currently having high death rate:



5. Influences of Covid-19 Pandemic on Birth Rate Worldwide;

A recent demographic study estimated that the total number of COVID – 19 infections is 4 times larger than the number of confirmed cases. As mentioned, if SARS-CoV-2 exerts a direct effect on either male or female fertility, the impact of such asymptomatic infections on birth rates could be increased, and yet unless universal testing is instituted for detection of all asymptomatic cases, the point factor to such decline in fertility and consequently birth rates would not be recognised. If SARS-CoV-2 is vertically transmitted from asymptomatic mother to child, the assumption on COVID – 19 not affecting pregnancy outcomes or birth rates may be hypocritical. At present, and with very limited evidence, it is somewhat difficult to predict whether and how COVID – 19 will affect birth rates. However, considering factors such as changes in socio-economic conditions, mental health, mortality rates, and direct effects of the virus on fertility, and incorporating lessons learned from the previous pandemics, it would be reasonable to postulate that the COVID – 19 pandemic may significantly affect future birth rates with long – term effects.

6. Influences of Covid-19 Pandemic on Death Rate Worldwide: -

As of June 2020, 470,000 lives have been lost, and there is a looming possibility of a still higher fatality in Brazil, the UK, USA and parts of Asia.

Most countries seemed discernibly ill-equipped to handle an outbreak of a mammoth proportion like COVID – 19. In the absence of credible vaccination treatment, social distancing and ensuing lockdown efforts, which were intended to curb infection spread, are threatening to bring the global economy to a halt. The decline in industrial output and stock exchange percentage, increase in the price of goods as well as a projected contraction in US GDP [5] is prompting the national administrations to relax lockdown rules and revive global economy.

First, COVID-19 ranks as a leading cause of death; at certain times, it is the leading cause of death. Compared with leading causes of death from the same period in 2018, novel COVID – 19 was the third leading cause of death for children and adults (697.5 deaths/million), ranking only behind heart disease (1287.7 deaths/million) and cancer (1219.8 deaths/million). No age group has been spared, although COVID – 19 was not the leading cause of death for the younger age groups. These figures probably underestimate true excess mortality by at least 20%, due, in part, to the indirect effects of the pandemic on non-COVID-19 deaths including the death risk that lethal communicable diseases pose to others.

8. 1. Table shows Deaths and death rates of Some country;

Country	Deaths: all time	Deaths: last two weeks	Rate: all time	Rate: last two weeks
US	850,060	23,084	2,568	70
Brazil	621,233	1,832	2,923	9
India	486,066	4,173	352	3
Russia	314,166	9,882	2,153	68
Mexico	301,334	1,790	2,337	14
Peru	203,265	483	6,165	15
United Kingdom	151,899	3,048	2,238	45
Indonesia	144,167	70	527	0
Italy	140,856	3,210	2,330	53
Iran	132,044	364	1,572	4
Colombia	130,860	834	2,572	16
France	124,277	2,875	1,904	44
Argentina	117,989	785	2,611	17
Germany	115,627	3,466	1,380	41
Ukraine	104,663	2,242	2,393	51
Poland	102,270	4,678	2,702	124
South Africa	93,278	2,050	1,573	35
Spain	90,759	1,354	1,941	29

7. Conclusion:

The COVID – 19related pandemic is negatively impacting human welfare in many domains, and as a result, birth rates fall down and death rates are likely grown up. Whatever be the cause or origin, the occurrence of COVID – 19 has emphasized to improve the mutuallyaffective connection between humans and nature. The impacts of COVID – 19measures are largely supported to restrain the susceptible cases of coronavirus, which further improving environmental quality and increasing the likelihood of fertility rates across countries. At this point of time, it is indispensable to control the source of disease, cut off the transmission path, and use the existing drugs & means to control the progress of the disease proactively.

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महामारी आणि साहित्य

डॉ. चांदोजी सोपान गायकवाड

सहाय्यक प्राध्यापक मराठी

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प्रास्ताविक: (Introduction)

साहित्याचा आणि समाजाचा अतिशय घनिष्ठ संबंध असतो . समाजातील विविध घडामोडीचे प्रतिबिंब साहित्यातून पडत असते . साहित्याचा अभ्यास विविध पातळीवर केला जातो . साहित्य हे विविध ज्ञानशाखाशी संबंध जोडणारे महत्वाचे माध्यम आहे . मानवी जीवनाच्या अनंत काळातील घडामोडीचे प्रतिबिंब साहित्यातून विविध अंगाने पडलेले दिसून येते . जगातील साहित्यामध्ये मानवी जीवनावर आलेल्या विविध अरिष्टांची वेगवेगळ्या पद्धतीने मांडणी केली गेली आहे . महाकाव्य असतील, नाट्य वाङ्मय असेल , कथा असतील किंबहुना लोकजीवनामध्ये निर्माण झालेले लोकसाहित्य असेल या सर्व साहित्यामध्ये मानवी जीवनावर आलेल्या विविध अरिष्टांची वेगवेगळ्या अंगाने मांडणी झालेली आहे . आणि ही साहित्य संपदा युद्धे असतील , मानवी जीवनातील विविध घटनांची नोंद लोकसाहित्य आणि साहित्यामधून झालेली आहे .

प्रस्तूत शोध निबंधातून जगात जेव्हा जेव्हा वेगवेगळ्या प्रकारच्या महामाऱ्या आल्या तेव्हा साहित्यावरती त्यांचा कसा परिणाम झाला . महामारीच्या प्रभावातून साहित्याची निर्मिती होत असताना साहित्यातून या महामारीचे रूप कसे समोर येते . या महामारीतून मानवी जीवन कसे ढवळून निघते . यासंबंधीची मांडणी प्रस्तूत शोध निबंधात केली आहे .

साहित्याला समाजाचा आरसा असं म्हटल जातं कारण समाजाचं प्रतिबिंब साहित्यातून पडत असतं साहित्य कितीही काल्पनिक म्हटलं तरी साहित्याचा आणि समाजाचा अनोन्य संबंध असतो . मानवी जीवनातील घडामोडीचे चित्रण साहित्यातून येत असते . विश्व साहित्यातील श्रेष्ठतंम कलाकृतीचा धांडोळा घेतला तर बहुतांश कलाकृती या युद्धजन्य परिस्थितीचे वर्णन करणाऱ्या आहेत . मानवी जीवनातील लोभ, असूया, प्रेम, मोह, मद, मत्सर, वासना यातूनच जगातील साहित्याची निर्मिती झालेली दिसते . कारण मानवी जीवनाचे सुत्र प्रामुख्याने वासनांच्या पुर्तीमध्ये गुरफटलेले आहे . या वासनांच्या पुर्ती साठी अनेक प्रकारची घनघोर युद्धे झाली त्यावरती साहित्य लिहिल्या गेले . जगात नैसर्गिक आणि

मानव निर्मित विविध प्रकारच्या आपत्ती आल्या त्यावरती साहित्य निर्माण झाले . जगामध्ये विविध प्रकारच्या महामाऱ्या आल्या त्यावरती साहित्य निर्माण झाले . महामारी आणि साहित्याचा संबंध तपासण्या आधी आपण आजवर जगात आलेल्या महामाऱ्यांचा थोडक्यात आढावा घेऊ.

महामारीचा संक्षिप्त इतिहास:

जगात आलेल्या विविध महामारींचा आढावा घेत असताना प्रामुख्याने आजवर जगात विविध प्रकारच्या महामाऱ्यांनी थैमान घातलेले आपणाला दिसून येते . कोरोॅना-१९ ही काही जगाला नवीन वाटणारी महामारी नाही.

जस्टीयन प्लेग:

जगात सुमारे १५०० वर्षांपूर्वी जस्टीयन प्लेग नावाच्या आजाराने थैमान घातले होते . या आजाराने एक साम्राज्य संपविले असे म्हटले जाते . १५व्या शतकात स्मॉल पॉक्समुळे अमेरिकेच्या एकूण लोकसंख्येच्या ९० % लोकांचा मृत्यू झाल्याचे म्हटले जाते . सुमारे शतकापूर्वी स्पॅनिश फ्लू मुळेही जगातील ५ कोटीहून अधिक माणसे मरण पावली . जगात आलेल्या प्रमुख महामारी पुढील प्रमाणे सांगता येतील .

ॲंटोनियन प्लेग: इ. स. १६५

रोममध्ये हा आजार इ. स. १६५ च्या सुमारास पसरला . या आजारामध्ये रोमच्या राजाचेही निधन झाले . या आजारात सुमारे ५० लाख लोक दगावली .

जस्टीनियन प्लेग :

इ. स. ५४१ मध्ये हा रोग आशिया , उत्तर आफ्रिका , अरब आणि युरोप मध्ये पसरला होता . या रोगाचा सर्वात जास्त परिणाम बायझंटायन या पूर्व रोमन साम्राज्यावर सर्वाधिक झाला . या आजाराने त्याकाळी ५ कोटी लोकांचा बळी घेतला . मृत्यूचा हा आकडा त्या वेळच्या जगाच्या लोकसंख्येच्या निम्मा होता .

द ब्लॅक डेथ:

इ. स. १३४७ ते इ. स. १३५१ या कालखंडात हा रोग युरोप आणि आशिया मध्ये सर्वाधिक पसरला . हा रोग प्लेगचाच एक प्रकार होता . त्याला 'बुबोनिक प्लेग' असे नाव देण्यात आले . त्याकाळी समुद्रामार्फत व्यवसाय होत असे . समुद्रावरील जहाजामध्ये जे उंदीर असत त्या उंदरापासून माशांद्वारे हा आजार माणसात पसरला . या रोगामुळे सुमारे २०० कोटी लोक मृत्युमुखी पडले . या आजारामुळे युरोपला १३४७ पूर्वीची लोकसंख्या गाठण्यासाठी २०० वर्षे लागली इतका हा आजार महाभयंकर होता . यामुळेच या आजाराला 'ब्लॅक डेथ' या नावाने ओळखल्या गेले .

स्मॉल पॉक्स:

१४९२ मध्ये युरोपियन लोक अमेरिकेत दाखल झाले . त्यांच्या येण्याने 'स्मॉल पॉक्स' नावाचा संसर्गजन्य आजार अमेरिकेत पसरला . या आजारामुळे त्या काळात संक्रमित १० लोकांपैकी ३ लोकांचा मृत्यू झाला . या रोगात २ कोटी अमेरिकन मृत्युमुखी पडले . मृत्यूचा हा आकडा त्या काळातील अमेरिकेच्या एकूण लोकसंख्येच्या ९० टक्के असल्याचे म्हटले जाते . स्मॉल पॉक्स हा आजार अजूनही संपलेला नाही . बीबीसी . च्या अवाहलानुसार या आजाराने ३५ कोटीहून अधिक लोक मरण पावले . १९७६ मध्ये एडवर्ड डोनर यांनी या आजारा संदर्भात लस विकसित केली .

कॉलरा:

कॉलरा नावाचा आजार भारतात उत्पन्न झाला . इ . स . १८१७ मध्ये याची लागण भारतात झाली . हा आजार गंगानदीच्या डेल्टामार्गे अमेरिका आणि आफ्रिकेत पसरला . अति दुषित पाणी पिण्यामुळे हा आजार निर्माण झाला . या आजाराने सुमारे १० लोक मृत्युमुखी पडले . जागतिक आरोग्य संघटनेच्या मतानुसार या आजाराने दरवर्षी जगात सुमारे १३ लाख ते ४० लाख लोक पीडित होतात त्यातील सुमारे १ . ५० लाख लोकांचा मृत्यू होतो .

स्पनिश फ्लू:

'स्पनिश फ्लू' हा रोग गेल्या ५०० वर्षांच्या इतिहासातील सर्वात धोकादायक रोग म्हणून ओळखल्या गेला . इ . स . १९१८ मध्ये या रोगाची लागण झाली . जगातील ५० कोटीहून अधिक लोकांना या आजाराने गिळंकृत केले . या महामारीने भारतात १ कोटी ७० लाख दगावले . या आजाराचे वैशिष्ट्य हे की सर्वाधिक निरोगी लोक या आजाराने मरण पावले . H1N1 हा विषाणू या साथीसाठी जबाबदार होता . हा विषाणू अजूनही अस्तित्वात आहे .

एशियन फ्लू:

एशियन फ्लू हा आजार हाँगकाँग मधून जगात पसरला . H2N2 या विषाणूमुळे हा आजार जगभरात फोफावला . हा रोग पूर्व आशियात निर्माण झाल्यामुळे त्याला एशियन फ्लू असे म्हटले गेले . या रोगाने सुमारे ११ लाख लोक मरण पावले .

हाँगकाँग फ्लू:

या आजाराची निर्मिती हाँगकाँग मध्ये झाली . पहिला रुग्ण १३ जुलै १९६८ हाँगकाँग मध्ये आढळला म्हणून त्याला 'हाँगकाँग फ्लू' असे म्हटले गेले . या आजारास H3N2 हा विषाणू कारणीभूत ठरला . हा विषाणू व्हियतनाम , सिंगापूर , भारत , अमेरिका आणि युरोपमध्ये पोहचला . ६५ वर्षांपेक्षा जास्त वय असलेल्या लोकांना या रोगाने बाधित केले . सुमारे १० लाख लोक या आजारात मारल्या गेले .

एच. आय.व्ही. एड्स:

इ. स. १९८१ मध्ये हा आजार चिपांझी माकडापासून हा रोग मनुष्य प्राण्यात पसरला . आफ्रिकेतील काँगोची राजधानी 'किन्शासा' येथे या रोगाचा पहिला रुग्ण आढळला . या रोगाच्या उत्पत्तीचे कारण ३० वर्षांनंतर समोर आले . त्यावेळी किन्शासा बुशमीट म्हणजे आफ्रिकन वन्य प्राण्याच्या मांसाची मोठी बाजारपेठ होती . या बाजारपेठेतूनच हा विषाणू मानवात आला . या आजारामुळे ३ कोटी ५० लाख लोक जगभरात मृत्यूमुखी पडली . या आजारावर अजूनही प्रभावी औषध सापडले नाही .

स्वाईन फ्लू:

मेक्सिको मध्ये एप्रिल २००९ स्वाईन फ्लूचा पहिला रुग्ण आढळला . भारतात १३ मे २००९ रोजी स्वाईन फ्लूचा पहिला रुग्ण आढळला . ११ जून २००९ रोजी जागतिक आरोग्य संघटनेने या रोगास महामारी म्हणून घोषित केले . H1N1 हा विषाणू मानवात सापडला आणि हा डुकरातून मानवामध्ये आला . जगभरात सुमारे ५ लाख ५० हजारापेक्षाही जास्त लोक या आजाराने दगावली . हा रोग अजूनही अस्तित्वात आहे .

कोरोना-१९:

चीनच्या वूहान प्रांतामध्ये नोव्हेंबर २०१९ मध्ये एक वेगळ्याच प्रकारचा फ्लू आढळला . या फ्लूला ३१ डिसेंबर २०१९ रोजी जागतिक आरोग्य संघटनेने व्हायरल निमोनिया असे म्हटले . हाच न्यूमोनिया कोरोना-१९ म्हणून जगभर थैमान घालत आहे . ११ मार्च २०२० रोजी जागतिक आरोग्य संघटनेने या रोगाला महामारी म्हणून घोषित केले आहे . या महामारीमुळे जगभरात १८ लाखापेक्षा जास्त लोक मृत्यूमुखी पडले आहेत .

जगातील वरील महामारीचा संक्षिप्त इतिहास लक्ष्यात घेण्याचे प्रमुख कारण हे की कोरोना महामारी ही काही जगाला वेगळी नाही . जगात या अगोदरही अशा भयंकर महामार्या आलेल्या आहेत आणि त्यामध्ये अपरिमित अशी हानी झाली आहे . या महामार्यांचे चित्रण विविध अंगाने साहित्यातून आलेले आहे .

महामारी आणि साहित्य:

महामारीच वास्तव मांडणार साहित्य जगात विविध प्रकारे लिहिल्या गेले . १६६५ साली ब्रिटनमध्ये जो प्लेगने हाहाकार माजविला होता त्यासंदर्भात ब्रिटीश लेखक डेनियल डोफो यांनी 'ए जर्नल ऑफ द प्लेग इयर '१' या नावाचे पुस्तक १७२२ साली लिहिले . या पुस्तकात प्लेगच्या एकंदरीत परिस्थितीबद्दल विस्तृत मांडणी डोफो यांनी केली . या पुस्तकाची सुरुवात सप्टेंबर १६६४ मध्ये होते .

ताऊन इथल्या ववाने हॉलंडवर हल्ला केल्याची अफवा पसरते . त्यात डिसेंबर मध्ये लंडनात प्लेगचा पहिला मृत्यू होतो . काही काळातच हा रोग आपला हाहाकार माजवितो , मृत्युचे तांडव सुरु होते एव्हढे की लंडनच्या सर्व चर्चमध्ये या रोगाची नोटीस लावली जाते . जुलै १६६५ मध्ये लंडन मध्ये संपूर्ण टाळेबंदी घोषित केली जाते . कोरोना-१९ च्या महामारीत आपण जो टाळेबंदीचा अनुभव घेत आहोत तोच अनुभव लंडनमध्ये १६६५ साली तेथील जनता घेत होती . लंडनमध्ये सार्वजनिक कार्यक्रमावर बंदी घालण्यात आली , हॉटेल्स , बार , मनोरंजन स्थळे , क्रीडा-मैदाने आदी सर्व बंद करण्यात आले . डोफो सांगतात की लोक नियमांचं पालन करत नव्हते . ते बेफिकीरीने वागत होते . सार्वजनिक ठिकाणी खरेदी साठी गर्दी करत होते . तुरळक लोक नियमांचं पालन करत होते . इ.स. १६६५ च्या कालखंडात हे सर्व घडत होते . माणसे प्लेगने पटापट मरत होती . या काळात लंडनमध्ये अतिशय भयानक परिस्थिती निर्माण झाली होती . ही परिस्थिती आटोक्यात येण्यास डिसेंबर १६६५ उजाडला असं डेनियल डोफोने नमूद केलय . ही सर्व परिस्थिती नमूद करण्याच मुख्य कारण म्हणजे आज २१व्या शतकात आपण कोरोना-१९ या जागतिक महामारीशी सामना करताना जी यातना अनुभवतोय ती परिस्थिती जगात या अगोदरही निर्माण झालेली आहे .

अल्बर्ट कामू यांनी 'दि प्लेग'^२ या नावाच्या ग्रंथात अल्जिरीयातील ओरा शहरात आलेल्या प्लेगच्या महामारीच संकट किती भयानक होत याची मांडणी केली आहे . ओरा शहर प्लेगने कसे उध्वस्त झालं याची वस्तुस्थिती प्रस्तूत ग्रंथात मांडली आहे .

१९१८ साली 'स्पनिश फ्लू' नावाच्या आजाराने जगाचं चित्रच बदलून टाकलं . या महामारीत जगभरामध्ये सुमारे ५ कोटी लोकांचा मृत्यू झाल्याची नोंद आहे . 'स्पनिश फ्लू' वर जगभरात विविध प्रकारचं लेखन झालेले आहे . १९३९ मध्ये ब्रिटीश लेखिका कॅथरीन एन . पोर्टर यांनी 'Pale Horse Pale Rider'^३ या कादंबरीत 'स्पॅनिश फ्लू' या महामारीचं कथात्मक चित्रण केलं आहे . या कादंबरीतील मिरांडा हे पात्र जेव्हा आजारी होतं तेव्हा तिचा मित्र एडम तिला सांगतो , "हे दिवस अत्यंत वाईट आहेत सर्व थिएटर्स , दुकाने , रेस्टॉरंट्स बंद आहेत , गल्लीतून दररोज अंत्ययात्रा निघालेल्या दिसतात आणि सतत रुग्णवाहिकेचा आवाज अस्वस्थ करतो ." कादंबरीतील यावर्णनावरून त्याकाळातील मानवी जीवन किती भयावह अवस्थेत जीवन जगात होते याची प्रचीती येते .

२००९ मध्ये मार्गरेट ऑटवूड यांची 'The Year of the flood'^४ ही कादंबरी अशा कल्पनेवर आधारलेली आहे की जागतिक महामारीच्या संकटानंतर माणूस कसा खचून जातो . या महामारीच वर्णन त्यांनी महापुराप्रमाणे केलेलं आहे . अख्खी शहराच्या शहर महामार्ग्यानी कसे उध्वस्त होतात याचे अत्यंत प्रत्ययकारी वर्णन या कादंबरीत केलेले आहे .

या कादंबरीत 'टोबी' नावाची माळीण 'रेन' नावाची नर्तकी आपल्या आयुष्यातील प्रसंग कथन करीत आहेत आणि त्यांच्या कथनातून महामारीच वास्तव जग समोर आणलेलं आहे . मानव आणि निसर्ग यामधील असंतुलन कसं वाढत चालेलं आहे यावरती ही कादंबरी प्रकाश टाकते.

मूळच्या चीनमधील अमेरिकन लेखिका 'लिंग मा ' यांनी २०१८ मध्ये 'Severance' ५ नावाची कादंबरी लिहिली . या कादंबरीमध्ये त्यांनी २०११ मध्ये काल्पनिक 'Shane fever' नावाचा आजार कसा पसरतो आणि या आजारामुळे शहरात केवळ ९ रहिवासी जिवंत राहतात केंडसचेन नावाचे जे पात्र या कादंबरीत आहे ते आणि इतर आठ साथीदार आपण जिवंत कसे राहिलो याची कहाणी सांगत आहेत . ' आपली प्रतिकार क्षमता जास्त आहे की दैवी चमत्कार ' असे ते म्हणतात . या कादंबरीत महामारीच्या काळात मानवी जीवन किती अस्थिर आणि भयावह होते याची प्रचीती येते.

२०१४ साली नावाची 'स्टेशन-११' ६ कादंबरी 'एमिली सेंट जॉन मंडेल' यांनी लिहिली . या कादंबरीत 'स्टेशन-११' ची कहाणी मांडलेली आहे . या कादंबरीत जॉर्जिया पासून एक संसर्गजन्य आजार सुरु कसा होतो आणि या आजारामुळे न्युट्रोन बॉम्ब फुटल्या प्रमाणे जगातील ९९ टक्के लोक कसे मरण पावतात या सर्व घटना क्रमाची दाहक आणि विदारक कहाणी या कादंबरीत जॉन मंडेल यांनी मांडलेली आहे .

जगातील साहित्यातून महामारीचं वर्णन विविध साहित्यकारांनी केलेलं आहे . अर्थात आज कोरोना-१९ जी साहित्य निर्मिती होतांना दिसून येते त्याच पद्धतीने आजवर जगात जी जी संकटे आली त्यावरती साहित्य निर्मिती झाली आहे . साहित्य हे भूत-वर्तमान आणि भविष्याचा वेध घेत नवी मांडणी करते .

साहित्यातील सर्वच जग वास्तव असते असं नाही . कलावंत आपल्या प्रतिभेच्या द्वारे काल्पनिक पातळीवर आपले एक स्वतःचे जग उभे करीत असतो अर्थात हे जग समांतर जगाशी मिळते-जुळते असते . लेखकाने भोगलेल्या जीवनातूनच ते जग निर्माण होत असते . त्यामुळे विशेषतः मानवी जीवनातील संकटावरील साहित्य हे वास्तव मानवी जीवनाशी नातं जोडणारे साहित्य ठरते . पात्र, घटना, प्रसंग, वातावरण या अनुषंगाने कलावंताने आपल्या पातळीवर काहीवेळा स्वातंत्र्य घेतलेले असते .

२१ व्या शतकात कोरोना -१९ या महामारीने जगाला त्रस्त करून सोडले आहे . आज जगातील राष्ट्रे संपर्क माध्यमांच्या प्रचंड क्रांतीमुळे अत्यंत जवळ आली आहेत . दळण-वळणाच्या विकासामुळे जग अगदी जवळ आलेलं आहे . त्यामुळे कोरोना -१९ या महामारीने संपुर्ण जगाला व्यापलेले आहे . ही महामारी जगाला एक नवी शिकवण देणारी ठरत आहे . ही महामारी नैसर्गिक आहे की मानवनिर्मित या

विषयी शास्त्रज्ञ आपली वेगवेगळी मते मांडत आहेत . यातून मानवाची क्रूरता आणि माणसामधील दानशूरता अश्या दोन्ही बाजूचे दर्शन जगाला घडले आहे . त्या अनुषंगानेच जागतिक पातळीवर आज विविध प्रकारचे साहित्य निर्माण होत आहे .

विश्व साहित्यात वेदनाना विविध पद्धतीने मांडण्यात आलेले आहे . दुःख हे मानवी जीवनाचे मुळ आहे . मानवी जीवनात विविध अरिष्टे येत असतात आणि त्यावरती विविध अंगाने लिहिलं जातं साहित्य हे वेदनांना प्रभावीपणे मांडणारं एक अस्त्र आहे . भारतीय साहित्यात दुष्काळ , महापूर, भूकंप, अतिवृष्टी रोगराई , युद्ध या सारख्या विविध आपत्ती विषयी विविध अंगाने लेखन झालेलं आहे . कथा, कादंबरी, कविता, नाटक या सारख्या विविध वाङ्मय प्रकारातून स्फूट अस्फूट स्वरूपात लेखन झालेलं आहे . प्राचीन साहित्यातील आर्ष महाकाव्यापासून ते संतानी निर्माण केलेल्या भक्ती साहित्यातही या संकटाची विविध वर्णने पहावयास मिळतात . अर्थात ही त्याकाळातील आपत्ती या साहित्यकारांनी मांडली . संतश्रेष्ठ तुकाराम महाराजांच्या अभंगात हे वर्णन आलेले दिसून येते . बखर, पोवाडे, ऐतिहासिक कादंबऱ्या, सामाजिक प्रश्नाची मांडणी करणारे साहित्य अशा सर्वच साहित्यातून विविध अरिष्टाची वर्णने आली आहेत .

१८५७ च्या दुष्काळावर कृष्णराव भालेकरांची 'बळीबा पाटील' ही कादंबरी त्या काळातील दुष्काळाचं अत्यंत प्रभावी असं वर्णन करणारी कादंबरी आहे . ही मराठीतील पहिली ग्रामीण कादंबरी म्हणून ओळखली जाते . १८९७ च्या दुष्काळावर हरिभाऊ आपटे यांनी 'काळ तर मोठा कठीण आला ' या नावाने कथात्मक लेखन केलं .

कोरोना-१९ ही महामारी जागतिक इतिहासातील एक अतिशय भयंकर अशी घटना ठरली . २१व्या शतकात जग अधिकच जवळ आल्यामुळे तंत्रज्ञानाच्या विस्फोटामुळे जगातील आजवर झालेल्या महामारीच्या मानाने ही महामारी जगावर अत्यंत प्रभाव टाकणारी ठरली . या महामारीचं अक्राळ - विक्राळ रूप जगासमोर आलं . माणसातील दानव आणि मानव अशी दोन्ही रूपं या महामारीने समोर आणले . जगाची समाज व्यवस्था , अर्थव्यवस्था, राजकारण अशा सर्वच क्षेत्रावर या महामारीचा दूरगामी परिणाम झाला आणि त्यातून जगात या महामारीच्या अनुषंगाने साहित्य निर्मिती झाली .

मराठीत ज्ञानेश्वर जाधवर या तरुणाची 'लॉकडाऊन' नावाची कादंबरी हे त्यातले एक रूप म्हणता येईल . ही कादंबरी टाळेबंदीने माणसांचे आयुष्य कसे बरबाद झाले याची कहाणी सांगते . कादंबरीत पुण्यात राहणारा एक तरुण अभियंता टाळेबंदी घोषित होताच आपल्या परिवारासह स्वतःच्या गावाकडे जायला निघतो . या प्रवासातील त्याचे अनुभव या कादंबरीत कादंबरीकाराने मांडलेले आहेत .

त्या तरुणाचे गाव काही अंतरावर असताना त्याला संपूर्ण परिवारासह विलगिकरणात ठेवले जाते आणि यात त्याच्या पत्नीचा मृत्यू होतो. अतिशय हृद्यस्पर्शी कहाणी या कादंबरीत आली आहे.

डॉ श्रीकांत पाटील यांचीही 'लॉकडाउन' १० याच नावाने कादंबरी प्रकाशित झाली आहे . या कादंबरीत पाटलांनी महामारीमुळे खेड्या -पाड्यातील माणसाचे आयुष्य कसे उद्धवस्त झाले याची मांडणी केली आहे. कादंबरीत जगाचा पोशिंदा 'बळीराजा' हाच कसा खरा कोरोना योद्धा आहे हे सांगितले आहे.

प्राजक्ता गव्हाणे यांची 'कोरोण्यकांड' ११ ही महामारीवरील आणखी एक कादंबरी ही कादंबरी मराठीत ऋतुजा राजपूत यांनी अनुवादित केली आहे . या कादंबरीत आदिवासी समूहावर कोरोनामुळे काय परिणाम झाला यांची कथात्मक मांडणी केली आहे . कोरोनाने मानवी वस्तीवर विविध अंगाने हल्ले केले. माणसाची जीवन प्रक्रिया ह्या रोगाने गोठवून टाकली . माणसाच्या स्पर्शाचे रोगामध्ये रूपांतर झाले. ही कादंबरी अरण्यामध्ये जीवन व्यतीत करणाऱ्या माणसाचे जीवन कोरोनाने कसे व्यापले याची कहाणी सांगते.

डॉ. तानजीराव चोरगे यांची 'लॉक डाउन' १२ नावाचा कथासंग्रह दिलीपराज प्रकाशनाने प्रकाशित केला आहे . १५६ पृष्ठांचा हा कथासंग्रह एकूण १२ कथांनी व्यापला आहे . कथासंग्रहातील कथांच्या शिर्षकावरूनच कोरोनाचे विविधस्तरीय रूपे कशी आहेत आणि त्याचा मानवीवस्तीवर किती भयंकर परिणाम होतो याची प्रभावी मांडणी करणारा आहे.

संध्या साठे- जोशी यांचा 'लॉक डाउन' १३ नावाचा आणखी एक कथासंग्रह या कथासंग्रहात संध्या साठे-जोशी यांनी महामारीच्या कालखंडात लेखिकेने अनुभवलेल्या माणसांचे चित्रण मांडलेले आहे . वास्तववादी जीवनाचं यथार्थ चित्रण प्रस्तुत कथांमधून आलेलं आहे.

'शुभम पाटील ' यांची 'लॉकडाउन मी अभिमन्यू ' ही कोरोना महामारीवर आधारलेली आणखी एक कादंबरी . या कादंबरीत महामारीचा शिरकाव आणि भारतातील परिस्थिति यांचे संपूर्ण चित्रण आलेले आहे. या कादंबरीत कोरोनासारख्या एका अनामिक शत्रूविरुद्ध लढण्याऱ्या एका डॉक्टरची कहाणी चित्तरली आहे . त्याच्या अवती -भोवतीचे जग आणि कोरोना या महामारीचा सामना करत असताना त्याला येणारे विविध अनुभव अडचणी याची मांडणी या कादंबरीत शुभम पाटील यांनी केली आहे.

'लॉकडाउन २०२०' १४ ही शंभू सिंग यांनी लिहिलेली हिन्दी मधील कादंबरी मध्यप्रदेशातील झाबुआ जिल्ह्यातील पश्चिम ग्रामीण प्रदेशातील भिल्ल आदिवासी समाजाच्या लोकजीवनावर कोरोना

महामारीच्या सावटाचे चित्रण करणारी आहे . एक आदिवासी तरुण जोडप्याची प्रेम कहाणी आणि महामारी असा या कादंबरीचा विषय आहे.

‘अँटीडोन्ट’^{१५} ही स्मिता देशपांडे यांची कादंबरी या कादंबरीत स्मिता देशपांडे यांनी कोरोनाचा प्रचंड प्रवास आपल्या समोर मांडलेला आहे . चीन पासून सुरू झालेल्या कोरोनाची कहाणी हा या कादंबरीचा प्रमुख विषय . ‘कोरोनाचा कोप’^{१६} ही हरिश्चंद्र बोरकर लिखित लघू कादंबरी या कादंबरीची भाषा झाडीबोलीतील आहे . नक्षल ग्रस्त भागातील माणसांच्या जीवनावर आधारलेली ही कादंबरी . कोरोना काळातील या माणसाचे जीवन या कादंबरीत बोरकरांनी मांडले आहे .

‘कोरोना कादंबरी’^{१७} ही अशोक शिंगाडे यांची कादंबरी ई-साहित्य प्रतिष्ठानने प्रकाशित केलेली ही विनामूल्य ई -कादंबरी या कादंबरीत अशोक शिंगाडे यांनी कोरोनामुळे विविध क्षेत्रावर झालेल्या परिणामांचे कथात्मक वर्णन केलेले आहे .

समारोप आणि निष्कर्ष :

कोरोना महामारीच्या अनुषंगाने निर्माण झालेले साहित्य जागतिक पातळीवर विविध अंगाने निर्माण झालेले दिसते . जगात विविध महामार्या आल्या परंतु कोरोना महामारीवर निर्माण झालेले साहित्य अभूतपूर्व असेच म्हणता येईल कारण या महामारीवर निर्माण झालेले साहित्य विविधांगी आहे . जगातील विविध भाषांमध्ये कोरोना -१९ या महामारीवर विविध प्रकारचे साहित्य निर्माण झालेले दिसून येते . जगातील लोकजीवन महामारीमुळे कसे उद्ध्वस्त झाले याची विविधांगी मांडणी साहित्यातून झालेली दिसून येते .

मुद्रित साहित्याबरोबर आजच्या जगात ‘डिजिटल साहित्य’ महत्वपूर्ण बनत चालेले आहे . डिजिटल साहित्य व्यवहारामध्येही कोरोना -१९ ने प्रचंड प्रभाव पाडलेला दिसून येतो . ‘समाज माध्यमे’ ही प्रबळ असल्यामुळे कवितेसारखा अल्पनिवेदन असणारा लेखन प्रकार फेसबुक ट्विटर इन्स्टाग्राम व्हॉट्सअप युट्यूब आणि महाजालावरील विविध संकेत स्थळावर वेगवेगळ्या पद्धतीने पसरलेला दिसून येतो .

ई-साहित्याच्या माध्यमातूनही कोरोना -१९ या महामारीवर विविध प्रकारे लेखन झालेले आहे . आज तंत्रज्ञानाच्या प्रभावी वापरामुळे साहित्य ई -स्वरूपातही महाजालावर उपलब्ध झाले आहे . महाजालावर कोरोना-१९ या महामारीच्या प्रभावातून निर्माण झालेले साहित्य विपूल प्रमाणावर उपलब्ध झाले आहे . या साहित्याचा वाडमयीन दर्जा किती या विषयी विविध अंगाने चर्चा करता येईल . पण उपलब्ध असलेले साहित्य या महामारीचे अनुभव कथन करणारे आहे . जगातील महामारीवर प्रथमच इतके विपूल लिहिल्या गेले हे मात्र निश्चित . कथा, कादंबरी, कविता या प्रमुख प्रकारामधून विविध अंगाने भरपूर निर्मिती झालेली दिसते .

साहित्यातून येणारे अनुभव हे कल्पनाप्रवण असतात असे म्हटले जाते . कोरोना-१९ महामारीवर आधारलेले साहित्य वास्तव अनुभवांचे कथन करणारे साहित्य आहे . हे साहित्य २१ व्या शतकातील मानवी वृत्ती -प्रवृत्तीचे दर्शन घडवित असताना जागतिक पातळीवर या महामारीचे रूप किती भयंकर होते . याचे दर्शन घडविते . कामगार, शोषित, पीडित, दलित, वंचित जगातील माणसांचे प्रश्न एका नव्या रूपात या महामारीने जगासमोर आणले . जगाला थांबविण्याची शक्ती महामारीत कशी असते . माणूस हा निसर्गापुढे क्षुल्लक आहे . निसर्ग श्रेष्ठ आहे निसर्ग शक्ती पुढे मानवी शक्ती मानवी बुद्धी कुचकामी आहे . विषाणू कोणी निर्माण केला हे सिद्ध झाले नसले तरी मानवी शक्तीची आगतिकता या महामारीतून समोर आली आहे . महामारीवर निर्माण झालेले साहित्य प्रासंगिक स्वरूपातून निर्माण झालेले असल्यामुळे त्यात साहित्याच्या पातळीवरील वैशिष्ट्ये कमी -अधिक प्रमाणात लुप्त झालेली दिसतील . पण या साहित्यातून मांडलेले अनुभव हे जिवंत आहेत . एवढे मात्र नक्की .

निष्कर्ष :

१. कोरोना-१९ या महामारीवर जगात विविध प्रकारचे साहित्य निर्माण झालेले दिसून येते .
२. कोरोना-१९ या विषाणूच्या अनुषंगाने अभूतपूर्व अशी साहित्य निर्मिती झाली आहे .
३. महामारी आणि साहित्याचा अनुबंध तपासित असतांना साहित्यावर मानवी जीवनाचा प्रचंड प्रभाव असलेला दिसून येतो .
४. साहित्याने पारंपरिक वाटा सोडून नवीन वाटा या महामारीच्या काळात निर्माण केलेल्या दिसून येतात .
५. साहित्याच्या पातळीवर कल्पना आणि वास्तव या दोहोंमधील संबंध तपासण्यासाठी महामारीने वास्तव जीवनाचे चित्रण साहित्यातून कसे येते हे समकालात दाखवून दिले .
६. जगातील साहित्यात महामारीचे रूपे विविध प्रकारे आलेली दिसून येतात .
७. साहित्यातून मानवी संबंधाचे दर्शन घडत असताना अरिष्ट काळातील मानवी वृत्ती -प्रवृत्ती त्यांच्या गुण-दोषासह पुढे आलेल्या दिसून येतात
८. जागतिक पातळीवरील राजकीय , आर्थिक परिणामांचे विश्लेषण या साहित्याच्या माध्यमातून करता येते .
९. महामारीला वाहिलेल्या साहित्याचा विषय एकांगी वाटत असला तरी जीवनाचे विविध पदर या साहित्यातून उलगडलेले दिसून येतात .
१०. विश्व साहित्यात या महामारीने एक नवी चेतना निर्माण केलेली दिसून येते .

संदर्भग्रंथः

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१०. डॉ श्रीकांत पाटील 'लॉकडाऊन' सप्तर्षी प्रकाशन आवृत्ती २०२०.
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E-JOURNALS AND RESOURCE SHARING THROUGH CONSORTIA

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Abstract:

The dawn of information technology in general and World Wide Web (www) in specific is becoming medium for information interchange and storage. In this situation, the most of the libraries are buying e-information for its client's requirements, because e-information retrieval is very fast and can be easily provided to clients. Consortia are very effective tools for e-information to provide authentic and specific information. This paper opens a full flash momentum of library consortia system and consortia in India. The paper also covers the historical background and rise of library consortium movement, its types, why consortia is required in libraries and desirable features of consortia in libraries.

Keywords: Library Consortia; Consortium Movement, E-consortia, Consortium-India, Resource Sharing.

Electronic Journals (e-Journals):

The culmination of advances in printing and publishing technology, information storage media, information & communication technology (ICT) and networking resulted electronic publishing during 1970's and further refinement thereafter. This not only reduced the cost of publishing but increased the speed of publications exponentially apart from providing many more advantages over print resources.

There are two major types of electronic publishing viz-electronic journals (e-journals) and electronic books (e-books). E-journals are serial publications available in digital format. *Pure Electronic Journals* - Journals whose text is originally distributed only in digital form;

Electronic Print Journals – Journals primarily distributed electronically, but may have very limited distribution in paper form;

Print Electronic Journals – Journals primarily distributed in paper form, but are also distributed in electronic form;

Library Consortia in Developing Countries:

While library consortia are originated in the Western countries, some developing countries have been active in such efforts and have benefited from the advantages of

consortia. In Thailand, there are two existing networks (THAILINET, a network of online catalogues of academic libraries in the Bangkok region, and PULINET, the grouping of provincial academic libraries) have now joined forces to form ThaiLIS, which is the backbone of a national resource-sharing system. Consortium of Academic Libraries of Catalonia (CBUC) is a consortium of the state-funded universities and the State Library of Catalonia (Spain) acting as a channel for cooperation. The digital library of Catalonia has been sharing electronic resources among all the member libraries of the consortium. The Gauteng and Environs Library Consortium (GAELIC) is the largest academic library consortium in South Africa.

International Library Consortia Efforts:

The Regional University and Science Library Advanced Network (RUSLANet) in North-West of Russia is creating common information space of libraries and integrating with worldwide library information space. International Coalition of Library consortia (ICOLC) comprising of library consortia in the United States, Canada, The United Kingdom, the Netherlands, Germany, Israel, Australia and many other countries is a cooperative venture at international level. The Coalition represents over 5000 member libraries worldwide and serves primarily higher education institutions by facilitating discussions among its members on issues of common interest. *Electronic Information for Libraries*, known as eIFL.net, is an independent foundation that negotiates and advocates for the wide availability of electronic resources by library users in transition and developing countries. Its main focus is on negotiating affordable subscriptions to electronic journals for libraries in the education and research sectors, while supporting emerging national library consortia in member countries. The two primary activities of eIFL.net are the creation and support of library consortia in transition and developing countries and assistance in the provision of access to electronic resources. Over the years other program areas have been added.

Library Consortia in India

Types of consortia Many types of Consortia in world-wide such as: National Consortia: National consortia provide service at national level, examples include: • N-LIST in India (National Library and Information Services Infrastructure for Scholarly Content) • INDEST (Indian National Digital Library in Engineering Sciences & Technology) Regional Consortia: • A regional consortium is providing particular regional level services, examples include: • ISPOR-Asia consortium (International society for Pharmacoeconomics and Outcomes Research) • International Consortia: • An international consortium is providing

international level services, examples include: • INFOSEC Consortium • TIMC (The Indian Mathematics Consortium) • ICICI knowledge park (IKP- Innovation Knowledge Progress) Subject based Consortia: Subject base consortia provide particular subject related information resources, examples include: • CeRA (Consortium e-resource in Agriculture) • HELINET (Health Sciences Library & Information Networks) • FORSA (Forum for Resource Sharing in Astronomy and Astrophysics) • NML-ERMED Consortium (electronic information resources in the field of medicine for delivering effective health

E Shodhsindu

The main objective of the e-ShodhSindu: Consortia for Higher Education E-Resources is to provide access to qualitative electronic resources including full-text, bibliographic and factual databases to academic institutions at a lower rates of subscription. The major aims and objectives of the e-Shodh Sindhu are as follows:

- Setting-up e-ShodhSindu: Consortia for Higher Education E-Resources by augmenting and strengthening activities and services offered by three MHRD-funded Consortia;
- Develop a formidable collection of e-journals, e-journal archives and e-books on perpetual access basis;
- Monitor and promote usage of e-resources in member universities, colleges and technical institutions in India through awareness and training programmes;
- Provide access to subscription-based scholarly information (e-books and e-journals) to all educational institutions;
- Provide access to scholarly content available in open access through subject portals and subject gateways;
- Bridge digital divide and move towards an information-rich society;
- Provide access to selected e-resources to additional institutions including open universities and MHRD-funded institutions that are not covered under existing consortia;
- Take-up additional activities and services that require collaborative platform and are not being performed by existing Consortia

Conclusion:

Electronic journal publishing, particularly after the birth of Internet has revolutionized the information world and more so library environment. Consortia, as collaborative effort, in general are tailored to meet the unique needs of their members Consortium provides physical and electronic delivery of library study materials. Consortium covers much larger ground

than the simple Inter Library Loan (ILL) agreement. Consortium is effective tools of to access latest information and archival backup or perpetual access to e-resources. After review different library consortium system activities and digital library tools following characteristic are desired in standard consortium e.g. that should be time efficient, budget friendly, ability of remote accessibility, and simple search based strategy systems.

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कोरोना या संसर्गजन्य आजाराचा राजकीय व्यवस्थेवर पडलेला प्रभाव

प्रा. बसवेश्वर पांडागळे

कला, वाणिज्य व विज्ञान महाविद्यालय, औदे,

ता. विक्रमगड जि. पालघर

प्रस्तावना:

पहिले महायुद्ध आणि दुसऱ्या महायुद्धाचा फटका जगातील सर्वच राष्ट्रांना बसला होता . या दोन्ही जागतिक महायुद्धांच्या परिणामांचा सखोल विचार केल्यानंतर 1945 ला संयुक्त राष्ट्र संघटनेची स्थापना करण्यात आली . आंतरराष्ट्रीय शांतता , सार्वजनिक आरोग्य , मानवाधिकार , सामाजिक व आर्थिक विकासाचे उद्दिष्ट घेऊन संयुक्त राष्ट्र संघटना कार्य करत आहे . अशाप्रकारे आंतरराष्ट्रीय स्तरावर आपले हितसंबंध प्रस्थापित व्हावे सहकार्य व शांततेच्या मार्गाने प्रत्येक प्रश्न सोडवावा तसेच प्रत्येक राष्ट्राचा आर्थिक विकास व्हावा व प्रत्येक राष्ट्रातील लोकांचा जीवनस्तर , त्यांना चांगले आरोग्य मिळावे व त्यांच्या राहणीमानाचा दर्जा उंचवावा तसेच जीविताची हमी मिळावी इत्यादी बाबी लक्षात घेऊन सर्व राष्ट्रांनी आपापल्या परीने आपापल्या प्रादेशिक क्षेत्रात विविध प्रादेशिक संघटनांची स्थापना केली त्यात मुख्यत्वे सार्क, आशियान, युरोपियन युनियन, ओपेक अशा संघटना स्थापन केल्या गेल्या पुढील कालखंडात मानवाने विज्ञानाच्या साहाय्याने विविध प्रयोग करून नवनवीन शोध लावले व त्यांचा प्रत्यक्ष - अप्रत्यक्षरित्या नैसर्गिक बाबतीत त्याने आपला हस्तक्षेप केला व त्याचाच परिपाक म्हणून विविध आजारांचा व रोगांचा सामना करावा लागत आहे जग विविध आजारांना सामोरे गेले त्यात पोलिओ , क्षयरोग, प्लेग, कॉलरा इत्यादी आजारांची सर्वच राष्ट्रांना कमी -अधिक प्रमाणात प्रभावित केले सध्याच्या काळात जागतिक आरोग्य संघटनेने घोषित केलेल्या कोरोना या आजाराने संपूर्ण जग प्रभावित व भयभीत झालेले आहे कोरोनाचा आंतरराष्ट्रीय राजकारणावर प्रभाव व बदलत्या स्वरूपांच्या अनुषंगाने कोरोनाने भारतातील राजकारणाला कश्याप्रकारे प्रभावित केले याबद्दलची माहिती सादर करण्यात आली आहे .

प्रस्तुत शोधनिबंधाच्या अभ्यासाची उद्दिष्टे:

१. कोरोना या आजाराचा भारतीय राजकारणावर कश्या प्रकारे प्रभाव पडत आहे याचा अभ्यास करणे .
२. कोरोना या महामारी बदल जाणून घेणे .
३. कोरोना या संसर्गजन्य रोगाबाबत केन्द्र सरकार व राज्य सरकार यांनी केलेल्या कार्याची माहिती घेणे .

अध्ययन पद्धती:

प्रस्तुत शोधनिबंधासाठी ऐतिहासिक पद्धतीचा अवलंब करण्यात आला असून शोध निबंधासाठी दुय्यम साधनाचा वापर करण्यात आलेला आहे . कोरोना या संसर्गजन्य आजाराचा भारताच्या

राजकारणावर कसा प्रभाव पडला या विषयासाठी विविध वृत्तपत्रे व ऑनलाईन आर्टिकल बातम्या इत्यादी माध्यमांचा आधार घेण्यात आलेला आहे.

कोरोना आजाराविषयी:

चीन मधील वुहान हे शहर कोरोना विषाणूचे केंद्रस्थान होते. या शहरातून पसरलेल्या रोगाने अल्पावधीत जगात थैमान घातले संयुक्त राष्ट्र संघटनेच्या जागतिक आरोग्य संघटनेने covid-19 असे नामकरण केले त्यानंतर या विषाणूने अनेक रूपे धारण केली त्यात डेल्टा, ओमायक्रॉन, आय, एच, यू. अशी विविध रूपे आहेत. जागतिक आरोग्य संघटनेने कोवीड -19 असे नाव देण्यामागे हा विषाणू 2019 साली या विषाणूचा शोध लागला त्यावरून हे नाव देण्यात आले आहे.

कोरोनाच्या जागतिक संकटाने जीवन जगण्याची पद्धतच बदलली आहे हे बदल कायम राहणार की तात्पुरते असतील हे समजायला अजून बराच वेळ आहे. कोरोनाच्या या विषारी विळख्याने मात्र राजकीय व्यवस्थेवर ही प्रभाव पडल्याचे दिसून येत आहे. लोकशाही शासनव्यवस्थेत विरोधी पक्ष नावाच्या अतिशय महत्त्वाच्या घटका समोर एक आगळेवेगळे आव्हान उभे राहिले आहे. लोकशाही शासनव्यवस्थेत विरोधी पक्षाची भूमिका ही शासनाच्या कारभारावरील चुका आणि त्रुटी या जनतेसमोर घेऊन जाणे व आपली अधिकाधिक लोकप्रियता जनतेमध्ये निर्माण करणे हे विरोधी पक्षाचे कार्य असते परंतु लोकशाही शासनव्यवस्थेत राजकीय पक्ष यशस्वी भूमिका निभावताना दिसून येतात परंतु अलीकडे कोणाच्या काळात ही भूमिका मागे ठेवून विरोधी पक्षांना सत्ताधारी पक्षाशी जास्तीत जास्त सहकार्य करावे लागत आहे. ही नवी भूमिका कोरोना विषाणूच्या प्रादुर्भावाने विरोधी पक्षांना बदलावी लागली आहे.

भारतासारख्या लोकशाही देशात केंद्र -राज्य संबंध व भारताने संघराज्य व्यवस्थेचा केलेला स्वीकार यामुळे केंद्र सरकार व राज्य सरकार यांच्या मतभेदातील तीव्र संघर्ष व त्यातून सौदेबाजीचे राजकारण मोठ्या प्रमाणात होताना दिसून येत होते. परंतु कोरोना महामारी च्या काळात विरोधी पक्षांना सहकार्याची भूमिका निभवावी लागत आहे. केंद्रीय स्तरावरून शासनाच्या वतीने पंतप्रधान मोदी पक्षीय राजकारण बाजूला ठेवून काम करत असल्याचे दिसून येत आहे. ते देशातील मुख्यमंत्र्यांशी व्हिडिओ कॉन्फरन्सच्या माध्यमातून बैठका घेत आहेत या दरम्यान पंतप्रधान मोदी हे मुख्यमंत्र्यांच्या सूचना शांतपणे ऐकत होते व सकारात्मक प्रतिसाद देत होते. केंद्र - राज्य संबंधाच्या विषय विभागणीच्या सूचित 'आरोग्य' हा विषय राज्य सरकारच्या यादीत असला तरी सर्व मुख्यमंत्र्यांनी या बदल वाद न घालता मोदींच्या नेतृत्वाखाली ही लढाई जिंकण्याचे मान्य केल्याचे दिसत आहे. आजही कोरोनाचा सामना कसा करावा याबाबत केंद्र - राज्य संबंधात मतभेद असल्याचेही दिसून येत आहे त्यामुळे याचीही दखल घेणे अगत्याचे ठरते काही वेळा देशाच्या इतिहासात अशी स्थिती निर्माण होते की जेव्हा स्पर्धेचे राजकारण पूर्णपणे मागे ठेवून परस्पर सहकार्याने देशाच्या अस्तित्वाला आव्हान देणार्याज कोरोनासारख्या संकटाचा सामना करावा लागतो आहे.

भारतातील विरोधी पक्ष जरी मोदी सरकारला पाठिंबा देत असले तरी त्यांनी सकारात्मक टीका करणे सोडले नाही कोरोना काळातील मोदी सरकारच्या काळातील लॉकडाऊन ला पाठिंबा दिला असला तरी मोदी सरकारने घेतलेल्या अनेक निर्णयाला कडाडून विरोधही केल्या केल्याचे दिसून येते . त्यात खालील बाबींचा प्रामुख्याने समावेश होतो .

१. लॉकडाऊन काळात पंतप्रधान मोदी ने सांगितलेल्या थाळी वाजवणे यास विरोधी पक्षांनी कडाडून विरोध केला .
२. सुरुवातीपासून विरोधी पक्ष व स्वयंसेवी संस्था या शासनाला सांगत होते की कोरोना बाधित व्यक्तीला ओळखण्यासाठी जास्तीत जास्त टेस्टिंग केले पाहिजे होते पण मोदी सरकारने त्याकडे दुर्लक्ष केले .
३. राज्याच्या मुख्यमंत्र्यांनी केंद्र सरकारला जास्तीत जास्त टेस्टिंग करण्यासाठी साधन सामग्री उपलब्ध करण्याची केन्द्रसरकार कडे मागणी केली होती .
४. विरोधी पक्ष सातत्याने लॉकडाऊन चा समाजातील असंघटित कामगारावर कसा विपरीत परिणाम होत आहे . याकडे शासनाचे लक्ष वेधले .
५. कोरोनाच्या महामारीमुळे केंद्र व राज्य सरकारांना संसद आणि विधिमंडळे हे ही व्यवस्थित सुरु ठेवता आली नाहीत त्यामुळे अधिवेशने ही अर्धवटच सोडून द्यावी लागली त्यामुळे जनतेचे प्रश्न सभागृहात मांडणे अशक्य झाल्यामुळे जनतेवर त्याचा एक प्रकारे अन्याय झालेला दिसून येतो .
६. कोरोना काळात गोरगरीबापर्यंत जीवनावश्यक वस्तूंचा पुरवठा व मदत सुरुच आहे . परंतु आजवरचा अनुभव असा आहे की स्थानिक राजकारणी व नोकरशाही वर्ग यांचे संगनमत होऊन भ्रष्टाचार व्हायला वेळ लागत नाही यासाठी सत्ताधारी व विरोधी पक्षांनी आपापल्या जबाबदाऱ्या चोख आणि सक्षमपणाने पार पाडलेल्या दिसून येत आहेत .
७. महाराष्ट्राच्या मुख्यमंत्र्यांनी कोरोनाच्या संदर्भात योग्य वेळी चांगले निर्णय घेतले त्यांच्या पक्षाला हिंदुत्वाची मोठी परंपरा आहे तरीही त्यांना बाकी सगळ्या गोष्टी बाजूला ठेवून संकटाला पायबंद घालण्यासाठी त्यांनी कबर कसली आहे . महाराष्ट्र आणि केरळ ज्या पद्धतीने हा प्रश्न हाताळत आहेत तो राजकारणाच्या दृष्टीने एक आशेचा किरण आहे . शिवसेनेचा पाठीराखा वर्ग जवळपास कामगार भूमिपुत्र असा कनिष्ठ मध्यमवर्गीय आहे त्यामुळे शिवसेना आणि मित्र पक्ष म्हणून महा विकास आघाडीला ते शक्य होत आहे . भाजपची मात्र या मुद्यावर कोंडी होत आहे कारण भाजपचा समर्थक व भांडवलशाही यांच्यामध्ये एक समान धागा आहे . परंपरागत समाज व्यापारी व उच्च मध्यमवर्गीय यांच्या विरोधात भूमिका भाजपला स्पष्टपणे घेता येत नाही ही मोठी कोंडी भाजपची झालेली आहे .

भारतात कोरोनाच्या काळात देशबंदी , राज्यबंदी, जिल्हाबंदी, गावबंदी घालण्यात आली यामुळे अनेक संघर्ष उभे राहिले गाव माणुसकीच्या विरोधात जात आहेत या सर्व गोष्टींची गरज सारासार विवेकानुसार होणे अपेक्षित होते . परंतु याबरोबरच गरीबांचे शहरात स्थलांतर झाले होते अशा गरीबांना शहरात घर नाही आणि गावात बंदी घालण्यात आली यामुळे गाव माणुसकीच्या विरोधात जाताना दिसून येत आहेत कोरोनाच्या काळात डॉक्टर , पोलीस, परिचारिका, शिक्षक, इत्यादी अशा क्षेत्रातील कर्मचारी स्वतः धोका पत्करून लढा चिकाटीने देत आहेत अशा वेळी गावांनी गाव बंदी घातल्याने विसंगती निर्माण झाल्या आहेत या पार्श्वभूमीवर महाराष्ट्र सरकार आणि सरकारी यंत्रणा कृतिशील झाल्याचे दिसून येत आहे . राज्य सरकारला गावांनी मदत करावी कारण गाव हे माणुसकीचे मंदिर राहिलेले आहे . ही खरी ताकत खर्याखुर्या अर्थाने गावाची आहे , शहराची नाही . म्हणूनच महात्मा गांधी यांनी "खेड्याकडे चला " हा दिलेला नारा याचा आपणास कोरोनाच्या संकटकाळात प्रत्यय येत आहे .

पाश्चिमात्य देशापेक्षा वेगळी द्रष्टी निश्चितच भारतीयकाडे आहे . त्यालाच मानवतावादी राजकारणाची द्रष्टी म्हणतात . भारतातील कोरोना विरोधातील लढा देशातर्गत नागरीकाच्या सार्वजनिक आरोग्याच्या द्रष्टीकोणातून अतिशय महत्त्वाचा आहे . आजपर्यंत ज्या धीरोदात्तपणे भारत सरकार , विविध राजकीय पक्ष , राज्य सरकार , वैद्यकीय व्यावसायिक , नोकरशाही ने कोरोना महामारी चा मुकाबला यशस्वीपणे केलेला आहे . पाश्चात्य विकसित राष्ट्रापेक्षा भारतातील मृत्यूदर कमी ठेवण्यात शासनाला निश्चितच यश मिळालेले आहे . या सर्वच घटकाची कामगिरी अभिमान वाटावा अशीच राहिलेली आहे याबाबत दुमत असण्याचे काही एक कारण नाही . कोरोना महामारीने स्थानिक पातळीपासून ते आंतरराष्ट्रीय राजकारणाला प्रभावित केल्याचे दिसून येते .

निष्कर्ष:

१. कोरोना या संसर्जन्य आजारात केंद्र सरकार व राज्य सरकारे कशा पद्धतीने उपाययोजना करीत आहेत हे या शोधनिबंधाचे अनुषंगाने जाणून घेता आले .
२. कोरोना या संसर्जन्य आजारात केन्द्र सरकार व राज्य सरकारच्या राजकारणाचे स्वरूप अश्याप्रकारे बदलत गेले याचे अध्ययन करता आले .
३. कोरोना महामारीचे केन्द्र - राज्य सरकारच्या धोरणावर कश्या पद्धतीने परिणाम झाले या बाबतची माहिती जाणून घेणे महत्त्वाचे ठरते .

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भारत हा जगातील सर्वात सशक्त अशी लोकशाही असलेला देश आहे. लोकशाही म्हणजे लोकांनी लोकांसाठी लोकांच्या लोककल्याणासाठी चालवली जाणारी यंत्रणा म्हणजेच लोकशाही होय. लोकशाहीमध्ये जनता ही सार्वभौम असते. लोकशाही मधील सर्वात महत्त्वपूर्ण घटक म्हणजे त्या देशातील मतदार असतो. मतदाराच्या सहभागाशिवाय लोकशाही प्रणाली यशस्वी होत नाही. म्हणून मतदार हा लोकशाहीचा महत्त्वपूर्ण असा आधारस्तंभ आहे, आत्मा आहे. केवळ मतदार असून उपयोग नाही तर त्या मताचा उपयोग सुयोग्य पद्धतीने देशाच्या सर्वांगीण गुणवत्तापूर्ण विकासासाठी, लोकशाहीच्या मूल्यांची जपणूक होण्यासाठी झाला पाहिजे. लोकशाहीमध्ये मतदान प्रक्रिया, निवडणुका ह्या अगदी सण उत्सव याप्रमाणे राष्ट्रीय उत्सव म्हणून साजरे होताना दिसून येत आहेत, आणि हे देशाच्या लोकशाहीच्या प्रगल्भतेसाठी, यशस्वीतेसाठी अत्यंत उपयोगाचे आहे.

भारताची असणारी एकूण लोकसंख्या आणि प्रत्यक्षात होत असलेले मतदाराची आकडेवारी ज्यावेळेस आपण तपासून पाहतो, तेव्हा आपल्या लक्षात येते की मतदान करणाऱ्यांचे प्रमाण अत्यंत कमी असते. अगदी लोकसभेचे मतदान आपण जर लक्षात घेतलं तर साधारणतः 60% च्या आसपास मतदान सार्वत्रिक निवडणुकीमध्ये होत असते. हे लोकशाहीसाठी धोकादायक चित्र आहे. भारतीय राज्यघटनेने या देशातील नागरिकांना निवडणुकीत मतदानाचा एक फार महत्त्वपूर्ण अधिकार प्रदान केला आहे. स्त्री, पुरुष, गरीब, श्रीमंत, उच्च, नीच असा कोणत्याही प्रकारचा भेदभाव न करता राज्यघटना लिहिणाऱ्या डॉ. बाबासाहेब आंबेडकरांनी प्रत्येकाच्या मताचे समान मूल्य मानले. समानतेचे हे एक फार महत्त्वाचे सूत्र घटनेद्वारे भारतातील प्रत्येकाला मिळाले आहे, त्याचे भान ठेवणे अत्यंत आवश्यक आहे. मतदान हे प्रत्येक नागरिकाचे राष्ट्रीय कर्तव्य आहे, याचे भान आल्याशिवाय जगातील सर्वात मोठी असलेली आपली लोकशाही सुदृढ होणार नाही, हे प्रत्येकाने लक्षात ठेवायला हवे.

आपण प्रत्येक जण सरकारकडून जशा काही अपेक्षा करत असतो, त्या अपेक्षांच्या पूर्ततेसाठी आपणही मतदान करणे हे कर्तव्य ठरते. लोकशाहीने दिलेला हा अधिकार बजावणे म्हणूनच अतिशय महत्त्वाचे आहे. आपण एकट्याने मत न दिल्याने असा काय मोठा फरक पडणार आहे, असा विचार करणारेही या देशात बरेच जण असतात. पण असा विचार आत्मघातकी असतो. आपल्या एका मतानेही फरक पडू

शकतो, हे लक्षात घेतले, तर मतदानाचे खरे मूल्य लक्षात येऊ शकेल. आपल्याला जो पक्ष किंवा उमेदवार महत्वाचा वाटतो, त्या पक्षाला मत देणे म्हणजे आपण ज्या विचारांवर विश्वास ठेवतो, त्याला आधार देण्यासारखे असते. मत दिल्याशिवाय या देशात परिवर्तन अशक्य आहे, याची जाणीव ठेवली, तर हे सरकार नको होते, असे घडले त्याला हेच सरकार कारणीभूत आहे अशा चर्चांना पूर्णविराम मिळेल. सरकारकडून असलेल्या अपेक्षा व्यक्त करण्याची मतदान ही एक संधी असते. कोणत्या प्रकारचे सरकार आपल्याला हवे आहे, हे सांगण्याचे ते एक निमित्त असते. म्हणून मतदानाच्या दिवशी सहलीला जाणे किंवा मतदानालाच न जाणे अतिशय चुकीचे आहे. सशक्त लोकशाही हवी असेल, तर मतदानाशिवाय पर्याय नाही. नागरिक सजग असल्याचे ते एक द्योतक असते. मतदान हा एक मौल्यवान अधिकार आहे. त्याचे मूल्य करून कुणी आपल्याला विकत घेऊ पाहत असेल, तर त्याच्या प्रलोभनांना बळी पडणे म्हणजे या अधिकाराचा घोर अपमान आहे, असे मला वाटते. आश्वासने आणि प्रलोभनांपासून दूर राहून लोकशाही निकोप करण्याच्या प्रयत्नात प्रत्येकाने सहभागी होणे त्यासाठी अतिशय आवश्यक आहे.

घटनेच्या ४९ व्या कलमानुसार एखादी व्यक्ती मतदानकेंद्रावर जाऊ शकते, स्वतःची ओळख देऊन बोटार खूण करून घेऊ शकते. एवढी प्रक्रिया करूनही नंतर कोणालाही मत द्यायचे नसल्याचे नागरिक तेथील निर्वाचन अधिकार्याला सांगू शकतो, अशी तरतूद आहे. अशा विशेषाधिकाराने वापरलेल्या मतालाही विशेष महत्त्व आहे. एकविसाव्या शतकात जगातील सर्वात तरुण राष्ट्र म्हणून भारताची ओळख आहे. इतर जगाच्या तुलनेमध्ये भारताला तरुण का म्हटलं जातं, त्याचे कारण म्हणजे भारतामध्ये 18 ते 45 या वयोगटातील लोकसंख्या ही सर्वाधिक जास्त आहे, आणि कर्तृत्ववान लोकसंख्येची ओळख देखील तीच आहे.

माझ्या सारखा तरुण एकविसाव्या शतकातील मतदार म्हणून आपला मतदानाचा हक्क बजावत असतो, तेव्हा मतदान प्रक्रियेमध्ये मधील स्वातंत्र्यापासून ते आज पर्यंत असलेले अनेक अनैतिक, अमानवीय घटक कार्यरत होते, त्या घटकांचा कोणताही विचार न करता निर्भिडपणे भारताच्या भवितव्यासाठी मला मतदान करायचा आहे ही धारणा मनामध्ये निर्माण होते. जात, धर्म, पंथ, पैसे, दादागिरी अशा सर्व घटकांना तिलांजली देऊन मतदान प्रक्रियेमध्ये सहभागी होऊन मला देशाचे भवितव्य घडवायचे आहे देशाचा सर्वांगीण विकास करून आणायचा आहे केवळ याच उद्देशाने आम्ही या मतदान प्रक्रियेकडे पाहत असतो आणि हेच प्रमाण भविष्यातही वाढत जाणार आहे.

साधारणतः पंचवीस-तीस वर्षापूर्वीचा कालखंड आपण विचार घेतला तर गावातील एखादा पुढारी सांगत असे की आपणास या वर्षी या पक्ष, उमेदवाराला मतदान करायचा आहे. त्यावेळेस मात्र गावातील एकत्रित मतदान संबंधित उमेदवाराला पक्षाला होत असे. आता तशी परिस्थिती राहिलेली नाही, कारण एकविसाव्या शतकातील मतदार हा शिकलेला, इंटरनेटचा युगातील आणि देशाप्रती दिव्यस्वप्न पाहात असलेला तरुण आहे. म्हणून आजच्या युवक मतदारांची भूमिका अत्यंत महत्त्वपूर्ण आहे. म्हणून मतदानाचा

दिन असतो, शासकीय सुट्टी असते अशा वेळेस शनिवार-रविवार जर जोडून सुट्टी आली असेल, तर आपण निश्चितपणे पिकनिक करतो, हे टाळणारा तरुण आता निर्माण होताना दिसतो आहे, आणि प्रचंड आशावादी चित्र देशाच्या लोकशाहीच्या प्रगल्भतेसाठी निर्माण होत आहे.

आपण आपला स्वतःचा विचार करूया देशाचा विचार करण्याची काय गरज आहे, आपण केवळ मतदान केलं नाही, म्हणून काय फरक पडणार आहे का? असे अनेक प्रश्न अगोदरच्या निवडणुकांमध्ये येत तरुणांच्या समोर येत असत, परंतु सध्याच्या एकविसाव्या शतकातील मतदार तरुण आहे, तो मात्र अशा कोणत्याही गोष्टीचा विचार न करता तो केवळ आणि केवळ भारताच्या सर्वांगीण विकासासाठी, आणि भारताच्या एकात्मतेसाठी मतदान करण्याची गरज आहे, या भूमिकेवर येऊन थांबलेला आहे, आणि हे अत्यंत आशावादी सकारात्मक चित्र भारताच्या लोकशाही मध्ये निर्माण झालेला आहे. यासाठी केवळ आणि केवळ कारणीभूत जर कोण असेल, तर तो एकविसाव्या शतकातील मतदार एकविसाव्या शतकातील तरुण-तरुणी आहेत, असे निश्चित या ठिकाणी मला सांगावेसे वाटते.

मतदान करणे सुद्धा देशसेवेचाच एक भाग आहे. लोकशाही सुदृढ व सक्षम असेल तर देशाच्या विविधांगी विकासाला चालना मिळण्यास, विकासाला गती येण्यास भरीव मदत होते. याच दृष्टीकोनातून या देशाचा नागरिक म्हणून प्रत्येकाने आपला मतदानाचा हक्क बजावणे नितांत गरजेचे आहे. किंबहुना मतदानाचा हक्क बजावणे म्हणजे राष्ट्रीय कर्तव्य बजावणे असे म्हणल्यास वावगे ठरणार नाही.

मी एकट्याने मतदान नाही केलं तर काय फरक पडतो!!!. मतदानानिमित्त सुट्टी आहे या सुट्टीचा आनंद उपभोगुया, कुठेतरी सहल काढुया!!! हे विचार म्हणजे नाकर्तेपणाचा कळस होतात. पण थेंबे थेंबे तळे साचे या उत्कीप्रमाणे एका-एका मतानेच मतांचा डोंगर उभा राहतो. यामुळे प्रत्येक व्यक्तीने मतदान करून आपला मतदानाचा हक्क बजावण्याबरोबरच लोकशाही अधिक सक्षम करण्यासाठी आपलाही खारीचा वाटा उपयुक्त होतो ही बाब आता एकविसाव्या शतकातील मतदारांच्या, तरुणांच्या मनामध्ये पक्की झालेली आहे.

15 ऑगस्ट स्वातंत्र्यदिन, २६ जानेवारी प्रजासत्ताक दिन या दिवशी प्रत्येक भारतीयांच्या मनात राष्ट्रप्रेम, राष्ट्रभक्ती ओसंडून वाहते. याचपद्धतीने ध्वजदिन निधी संकलनासही जनता सढळहस्ते मदत करते. नैसर्गिक आपत्ती असो किंवा युद्धजन्य परिस्थिती, प्रत्येक भारतीय नागरिक देशप्रेमाने भारावून जाऊन मदतीसाठी पुढे सरसावतो व आपल्या परिस्थितीनुसार मदत करतो. तद्वतच मतदानाबाबतही लोकांच्या मनात अशी कर्तव्यभावना नव्या युगाच्या मतदारांमध्ये निर्माण झाल्याचे दिसून येते. ती सर्व भूमिका 21 व्या शतकातील तरुणांनी मतदारांनी भविष्य काळात येणाऱ्या निवडणुकीमध्ये आपल्या मतदानाचा हक्क बजावून, एक सार्वभौम, शक्तीशाली लोकशाही राष्ट्र उभारण्यास आपले मतदानाच्या स्वरूपात राष्ट्रीय कर्तव्य पार पाडण्याचा निर्धार करत आहेत.

एकविसाव्या शतकातील नव्या युगाचा मतदार हा सर्व प्रकारची जळमट फेकून देऊन, देश महासत्ता कशी बनेल. महासत्ता बनण्यासाठी मतदान किती आवश्यक आहे, याचे महत्त्व समाजातील शेवटच्या घटकापर्यंत पोहोचवण्याची भूमिका बजावताना दिसून येत आहे, आणि एक दिवस नक्कीच भारत हा महासत्ता बनून, एक आदर्श लोकशाही बरोबरच देदीप्यमान भारत निर्माण करण्याचा आशावाद एकविसाव्या शतकातील मतदारांमध्ये आहे, आणि तो असाच वृद्धिंगत होत जाईल अशी धारणा या धोरणामध्ये निर्माण झाली आहे. आम्ही सर्व 21 व्या शतकातील मतदार आहोत. भारताचे भवितव्य हे उज्वल करण्यासाठी आम्ही सगळ्या बाबतींमध्ये सज्ज आहोत असे याठिकाणी वाटते.

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