Herbal Plants used for Prevention of Covid-19 Pandemic Crisis in Nashik District Maharashtra, India

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Abstract-

Corona virus disease 2019 is a contagious disease Coronaviruses are a group of related RNA viruses that cause diseases in mammals and birds. They cause respiratory tract infections that can range from mild to lethal in humans and birds. Symptoms of Covid -19 are variable, but often include fever, cough , headache, fatigue, breathing difficulties and loss of smell and test. Transmission of Covid -19 occurs when people are exposed to virus containing respiratory droplets and airborne particles exhaled by an infected person those particles may be inhaled or may reach the mouth, nose or eyes of a person through touching or direct deposition. The risk of infection is highest when people are in close proximity for a long time. It is transmitted from humans to humans rapidly become the pandemic responsible for the current global health crisis.

Preventive measures include physical or social distancing , quarantining, ventilation of indoor spaces, covering cough and sneezes, handwashing. The use of face mask or coverings has been recommended in public settings to minimize the risk of transmission.

Ministry of Health of India established a search of clinical evidence for Covid -19. Foods and herbs could be used as dietary therapy and herbal medicine as Covid-19 preventive therapy.

Keywords – Herbal Medicinal Plants, Covid -19, Prevention.

Introduction-

In the beginning of the Pendamic Covid -19 there was no specific treatment, so people in the community and researchers tried to find the best way to cure or prevent the disease including using herbal medicine. since the immune status of patients plays an essential role in Covid -19 infection and herbal medicine which has an immunodulatory effect so the consumption of herbal medicines containing certain active compounds which have anti microbial or anti viral , anti inflammatory and immunostimulatory activities such as Eugenol, Piperidines, Curcumin etc. these herbal compounds are assumed to have the capacity to modulate the immune response and, therefore they are believed to have beneficial effects on preventing or treating Covid -19.

According to ancient Indian texts , **"Aushadham Varjayte Sarvam"**, which implies that food is absolute cure and healer. Ayurveda which is a traditional Indian system of medicine and promotes several herbs, spices and roots that help boost the immune system naturally. Traditionally, In Indian cuisine, herb and spices are used in a dish according to their nutritional benefits and their ability to strengthen immune system. A strong immune system helps the body fight disease causing viruses as well as bacteria. To avoid this ,to strengthen our immune system, for strong and healthy life herbal medicines are useful.

The ministry of AYUSH has been promoting Ayurveda since the beginning of the pandemic claiming that alternative medicines can help improve immunity against the novel Corona virus. It also recommends drinking turmeric milk, Sipping kadha or decoction applying medicated oils in nasal passage and performing steam inhalation with ajwain or eucalyptus oil.

In the present paper some important herbal medicines can be used to prevent Covid-19 and strengthen the immunity of a person.

According to the World Health Organization around 80% of the world population uses herbal medicines from primary health care. India is home of several spices which are used as a traditional medicines. Spices like Cloves, Cinnamomum, Ginger, Black pepper are known to be have medicinal properties. Medicinal herbs like Mint, Tulsi, Fruits of Lemon are to use to impart flavor and aroma to foods; They stimulate the appetite and mostly these herbal medicines are used during the Covid-19 crisis.

1) Tulsi-Ocimum tenuiforum(Family- Lamiaceae)

i) Tulasi is rich in vitamin C and Zinc. It acts as a natural immunity booster and keeps infections at bay. It has immense antibacterial , antiviral and antifungal properties which protects us for variety of infection.

ii) Reduces fever (antipyretic) and pain (analgesic) : Tulsi has antibacterial and antiviral properties which help to fight infections , thus reducing fever. The fresh juice of tulsi taken with black pepper powder cures periodic fever. Tulsi leaves boiled with cardamom (elaichi) in half a liter of water and mixed with sugar and milk. It also effecting reducing temperature .

iii) Reduces stress and blood pressures : It contains ocimumosides A and B . It reduces stress and balanced the neurotransmitters serotonin and dopamine in the brain. Anti-inflammatory properties reduce inflammation and blood pressure.

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vii) Camphene, cineole, eugenol present in tulsi helps to reduced cold and congestion in the chest.

viii) Juice of tulsi leaves mixed with honey and ginger is effective in bronchitis, asthma, influenza, cough and cold.

ix) Tulsi leaves are useful to cure indigestion and loss of appetite, they are also used for treatment of flatulence and bloating.

x) Tulsi leaves are rich in antioxidant and useful to prevent premature ageing.

xi) Tulsi has antifungal property which is useful to prevent the development of fungus and dandruff.

xii) Tulsi leaves detoxifies the body and has diuretic properties, it decreases the level of uric acid in the body which is the main reason for kidney stone formation. It helps for reduction of uric acid level.

xiii) Tulsi is useful for prevention of cardiovascular diseases by means of lowering blood lipid content , suppressing ischemia and stroke, reducing hypertension.

2) Turmeric-(Curcuma longa) (Family- Zingiberaceae)

i) Turmeric has anti-inflammatory and antioxidant properties.

ii) Turmeric has antiviral, antibacterial and antimicrobial properties, it is best food to maintain, protect and boost immunity so it helps to protect the body against pathogens that can cause disease and infections.

iii) Curcumin present in turmeric used to improve and boost levels of the brain hormone, brain-derived, neurotrophic factor which promotes the growth of new neurons and helpful in many degenerative processes in the brain.

iv) Curcumin plays a better role in the prevention of heart diseases, Its antioxidant and anti-inflammatory properties can improve the function of the endothelium, it lowers the level of low density lipoproteins (LDL) or “bad” cholesterol which is helpful to reduce the risk of developing heart disease and even stroke.

v) Curcumin is effective to cure arthritis which is the disorder characterized by joint inflammation.

vi) Curcumin is helpful to reduce depression and give relief in stress.

vii) Curcumin improve endothelial function, which plays a key role in regulating blood pressure.
viii) Curcumin help to protect against age related loss of function and increased risk of heart disease.
ix) Curcumin paly a role in treating and preventing a variety of cancer types, including colorectal, pancreatic, prostate, breast and gastric cancers.

3) Cinnamomum-(Cinnamomum malabatrum) (Family- Lauraceae)

i) The essential oil is obtained by distilling the leaves ,inner bark of this plant.oil is used to avoid irritation
ii) Cinnamomum powder with honey is used to relive cough.
iii) Cinnamaldehyde helps to fight with different infections, it is having antibacterial , antiviral, antifungal properties, it controls respiratory infections caused by fungi.
iv) Cinnamon is rich in antioxidants such as choline, betacarotene, alphacarotene etc.
v) Cinnamon fights against infection and repair damaged tissues.
vi) Cinnamaldhyde present in it helps to reduce the swelling and prevent blood platelets from clumping together, it is useful in arthritis.
vii) Insulin is important hormone to control blood sugar levels and to regulate metabolism : Daily consumption of cinnamon improves insulin and regulates blood sugar level.
viii) Cinnamate decrease enzyme activity that makes cholesterol, reducing the number of fatty acids in the blood, it helps to reduce bad cholesterol in the body and reduces the risk of heart diseases.
ix) It has anti-cancerous property which inhibits the growth of cancer cells and prevents the formation of blood vessels in tumor so daily consumption of cinnamon
x) Provides a protective against cancer
xi) Cinnamon keeps skin shiny and smooth.
xii) Cinnamon is a neuro protective that helps neurons and improves motor function, it reduces the symptoms of Alzheimer's and Parkinson's disease.
xiii) It relives digestive problems improves eye health, induced weight loss.

4) Black pepper- (Piper nigrum) (Family- Piperaceae)

i) Black piperine which have antioxidant properties which help to prevent free radical damage to cells which are helpful to prevent premature aging, heart disease and certain cancer.
ii) Piperine is useful to improve degenerative brain diseases so it is useful to cure Alzheimer's and Parkinson's disease.
iii) Black pepper extract may improve blood sugar control.
iv) Black pepper may increase the absorption of essential nutrients like calcium and selenium as well as some beneficial plant compounds those found in green tea and turmeric.

5) Cloves - (Syzygium aromaticum) (Family- Myrtaceae)

i) Cloves contain fiber, vitamin and minerals for giving flavor to food.
ii) Cloves are rich in antioxidant including eugenol which helpful to reduce stress.
iii) Compounds in cloves reduce cancer cell growth and promotes cancer cell death.
iv) Cloves have anti-microbial property so they can stop growth of microorganisms like bacteria.
v) Eugenol component of clove are beneficial for the lever.
vi) Cloves may help to promote insulin production and lower blood sugar.

6) Ginger- (Zingiber officinale) (Family- Zingiberaceae)

i) The bleed supply is boost towards fetus.
ii) Immune system becomes strong.
iii) It helps for providing relief from nausea and morning sickness.
iv) To consume Ginger helps for absorbing nutrients from food.
v) Ginger helps for keeping blood sugar at normal level.
vi) Taking ginger before bed time minimize indigestion, gas and bloating.
vii) Ginger is useful for fighting the acid which cause heartburn during pregnancy

7) Mint- (Mentha spicata) (Family- Lamiaceae)

i) For the morning sickness and nausea in pregnant women if the fresh mint leaves are chewed gives relief.
ii) Consumption of mint leaves are helpful to soothe the stomach and keep the digestive track in proper way and avoids acid reflex issue.
iii) Fresh mint leaves are used as a remedy on tiredness, it can soothe the mind reduced irritability and relives tiredness. It also helpful to keep insomnia and anxiety.
iv) It is useful to control vomiting.
v) It reduces the risk of preeclampsia.
vi) It reduces urinary tract infection.
vii) It controls cold, cough and respiratory tract infection.

8) Lemon-(Citrus limon) (Family –Rutaceae)

i) Lemons are high in vitamin C which lower cholesterol.
ii) Lemon juice is helpful to prevent formation of kidney stone.
iii) Vitamin C present in lemon and citric acid absorbs iron form plant which is helpful to prevent anemia.
iv) Lemon juice is helpful for improving digestion with the help of soluble fiber in lemon.
v) Lemon juice is to improve overall immunity.
vi) Vitamin C present in lemon fruit is C is useful for increasing immunity , it is required for preventing recurrent cold—cough,healing wounds,and maintaining skin,bones,teeth,.It is antioxidant that prevents developments of disea
vii) Lemon has laxative.thirst relieving,expectorant,astringent,digestive stimulant and immunity boosting action.
viii) Lemon juice is a boon for tiredness and during fatigue .
ix) Lemon juice contains flavonoids which protects lungs against cancer.
x) Lemon is having plenty of vitamin C is helpful for fighting cold and cough.
xi) It contains phytochemicals such as hesperetin and naringenin, these antioxidants helps to improve the immune system. The ingredients of lemon like citric acid , magnesium, calcium, limonele, pectin, vitamin C, bioflavonoids and phytochemicals are helpful in promoting the immune system

Results and Discussion-

In the beginning of Covid-19 pandemic situation there was no any perfect specific treatment to cure Covid-19 so the people in the community and researchers tried herbal medicines to cure and prevent the disease using herbal medicines. Herbal medicines has immunomodulatory effect, antimicrobial, antiviral, anti-inflammatory and immunostimulatory activities. Herbal medicines containing active compounds therefore they are believe to have beneficial effects on preventing or treating Covid-19.

These herbal medicines have the capability to regulate the production and relies of proinfflamatory cytokines, interfere with the development of virus in the host cells and modified certain molecular pathways related to the RAA system.

In my study during the Covid-19 crisis uses of spices and herbs paly a significant role against viral infections. It is analyzed Cinnamon, Black pepper, Turmeric, Tulsi, Mint, Lemon, Ginger, Cloves plays a vital role against

Covid-19. Research is also supported by some other research study. Spices and medicinal herbs are used from the ancient days, due to their antioxidant, antimicrobial, antiviral and immunity boosting properties these natural products are used by Indian Population to prevent Covid-19 and they have conferred immunity in the Indian population probably this is the main cause for low mortality in India.

Conclusion- In late 2019 a novel Corona virus threatened entire world , unfortunately there was no medication was available. This virus not only affects just health but also Economics, Politics and Social life of public. So the most important strategy is used by the common people to prevent the disease use of these herbal medicines as a boon. "Prevention is better than cure" for controlling the spread during the pandemic crisis.

References-

1. Namita Ashish Singh, Pradeep Kumar and Naresh Kumar "Spices and herbs: Potential antiviral preventives and immunity boosters during Covid-19".
2. Sunita Singh " Magical ayurvedic spices and herbs that can boost our immunity" MedCrave Journal Vol. 8,Issue -3, 2020.
3. Trivedi P.C.(2002) "Ethnomedicinal Plant Of India" Aavishkar Publ. Distributors, Jaipur.
4. District Census Handbook Nashik, Census Of India, The Maharashtra Census Directorate, 1995.
5. Almedida M. R. (2003) Flora of Maharashtra V. 4 (Orient Press, Mumbai)
6. Sharma B. D. & Laxminarsimhan P.(1986) Ethnobotanical Studies On The Tribals Of Nashik District. Maharashtra J. Econ. Tax. Bot. 8 (2) PP. 439-454.
7. Kirtikar, K.R. Basy, B.D. (1935) "Indian Medicinal Plants", Vol-1-4 Second Edition Lalit Mohan Basu Publ. New Delhi.
8. Jain S. K. (1991) "Dictionary of Indian Folk Medicine And Ethnobotany", Deep Publ. New Delhi.
9. Naik V. N. (1998) Marathwadyateel Samanya Vanaushdi, Amrut Prakashan, Aurangabad
10. Schultes R. E. (1962). The Lore of The Ethno Botanist In Search For New Medicinal Plants. Lloydia V. 25, PP. 257-366.
11. Jain S. K. (1981) Glimpses of Indian Ethnobotany, Oxford & IBH Publication, New Delhi.
12. Binu, S., Nayar T.S. and Pushpagandan, P.(1992): An outline of ethnobotanical research in India; Jour. Eco. Taxon. Bot (additional series) 10, 405-428.
13. Chaudhari, B.; Dasgupta, D. and Chatterjee (1989): Tribal Medicine, Regional Research and study centre, West Bengal.
14. Chopra, R.N.; Chopra I. C. &Verma B.S. (1956): Supplement to the Glossary to of Indian Medicinal Plants, Published and Information Directorate, CSIR, New Delhi.
15. González JA, García-Barriuso M, Amich F (2010): Ethnobotanical study of medicinal plants traditionally used in the Arribes del Duero, western Spain, J Ethnopharmacol. 2010 Sep 15; 131 (2):343-55.
16. Haile Yineger, Delenasaw Yewhalaw and Demel Teketay (2008):Ethnomedicinal plant knowledge and practice of the Oromo ethnic group in southwestern Ethiopia, Journal of Ethnobiology and Ethnomedicine 2008,4:11
17. Himanshu Sharma and Ashwani Kumar (2011): Ethno botanical studies on medicinal plants of Rajasthan (India): A review, Journal of Medicinal Plants Research Vol. 5(7), pp. 107-1112, 4 April, 2011.
18. Lenin Bapuji j. and S. Venkat Ratnam (2009): Traditional Uses of Some Medicinal Plants by tribals of Gangaraju Madugula Mandal of Visakhapatnam District, Andhra Pradesh, Ethnobotanical Leaflets 13: 388-98 , 2009.
19. Jain, S. K.(1991):Dictionary of Indian folk medicine and ethnobotany, Deep Publ., New Delhi.
20. Kirtikar, K. R. &Basu, B.D.(1935): Indian Medicinal plants, Vol.1-4 second edition, Lalit Mohan Basu Publ., New Delhi.

21. Kulkarni D.K. and Upadhye A.S. (2007):Human Resources Development in Tribal areas of Maharashtra through potential medicinal plants, Ethnomedicinal plants of India edited by P.C. Trivedi, Aavishkar Publ., Distributors, Jaipur pp. 255-267.
22. Madhuri Sharma and Pandey Govind (2009):Ethno medicinal plants for prevention and treatment of tumours, Int, Journ. Of Green Pharmacy, Year: 2009, Volume: 3 Issue 1, Page- 2-5 Maharashtra, Ethno Med, 4(1): 21-36 (2010).
23. Manabendra Dutta Choudhury, MeenakshiBawari, L. ShyamaliSingha (2010): some Antipyretic Ethno-medicinal Plants of Manipuri community of Barak Valley, Assam, India, Ethno botanical Leaflets 14: 21-28, 2010.
24. Meena K.L. and Yadav B.L. (2007): Some Ethnomedicinal plants of Rajasthan, ethnomedicinal plants of India edited by P.C. Trivedi, Aavishkar Publ., Distributors, Jaipur pp. 33-44.
25. Nath, Subhan C. and Borah, Tulsi (2007):Folklore medicinal uses of some plants in Golghat District of Assam, Ethnomedicinal plants of India edited by P.C. Trivedi, Aavishkar Publ., Distributors, Jaipur pp. 51-59.
26. Onrizal and MashhorMansor, (2010): Ethnobotanical Study of Medicinal Plants from Mangrove Forests in North Sumatra, Indonesia, WETECOL @ (Wetland Ecologist),
27. Patil D.A. (2007): Anti-inflammatory plants in Khandesh region of Maharashtra,Ethnomedicinal plants of India edited by P.C. Trivedi, Aavishkar Publ., Distributors, Jaipur, pp. 268-274.
28. Rastogi, R. P. and Mehrotra, B.N. (1993): Compendium of Indian Medicinal Plants, Vol. II, CSIR, New Delhi.
29. Survase S.A. and S.D. Raut (2011): Ethnobotanical Study of some Tree Medicinal Plants in Marathwada, Maharashtra, Journal of Ecobiotechnology, Vol 3, No 2 (2011).
30. Sarkar S. and Sarma C.M. (2007):Ethnomedicinal plants used by muslims of Barpeta District of Assam, Ethnomedicinal plants of India edited by P.C. Trivedi, Aavishkar Publ., Distributors, Jaipur pp.67-76.
31. Sharma, O.P., Pareek, Aparna; Sharma Neelu and PareekL.K.(2007):Medicoethnobotanically important plants of Jhunjhunu, Rajasthan, Ethnomedicinal plants of India edited by P.C. Trivedi, Aavishkar Publ., Distributors, Jaipur pp. 367- 391.
32. Sonowal C.J. (2010): Factors Affecting the Nutritional Health of Tribal Children in MaharashtEthno Med, 4(1): 21-36, 2010.
33. Trivedi, P. C. (2002): Ethnomedicinal plants of Rajasthan state, India, Ethnobotany, Aavishkar Publ., Distributors, Jaipur pp. 412-439.
34. Studies on plants used in traditional medicine by bhilla tribe of Maharashtra:-S.Y.Kamble, S.R.Patil, P.S.Sawant, Sangita Sawant, S.G. Pawar & E.A. Singh.
35. Rupali N. Agme, Vaishali N. Agme.: Study of tribal medicinal plants of Maharashtra
36. Dr. Ramesh Kumar Bhutya (2011) : Ayurvedic Medicinal Plants of India, Scientific publishers(India), Vol.- 2.
37. S.G.Joshi (2003): Medicinal Plants, Mohan Primlani for Oxford & IBH publishing Co. Pvt.Ltd. New Delhi.
38. P.C. Trivedi (2007) : Ethnomedicinal Plants of India , Avishkar Publishers, Distributors, Jaipur.
39. Dr. Nirmal Sharma, Dr. Yogeshwar Sharma, Mrs. Partibha Nand, Dr. Shanta Mehrotra (2010-11) : Medicinal Plants, Birla Publications Pvt. Ltd.
40. Dr. Malati H. Aher (2021) Medicinal plants used by Konkana tribals of Nashik District Maharashtra, During pregnancy, JETIR, Vol. 8,Issue 5 pp: c483-c492