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Utilization of herbs and spices as conventional medicine in COVID-19: A study

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Abstract A study was conducted to investigate the utilization of herbs and spices as conventional medicine for COVID-19. Despite ongoing efforts to contain and treat the pandemic, the persistence of COVID-19 and the emergence of new variants, such as the Delta variant, have raised concerns. In order to counteract and treat the disease effectively, it is crucial to explore traditional medicine approaches. A strong emphasis on a robust immune system is vital to combat and restrict the entry of disease-causing microorganisms into the body. Implementing preventive measures is crucial during such times. Traditional spices and herbs commonly found in kitchens have not only added flavor to our meals but also played a role in addressing various common ailments such as influenza, the flu, stomach issues, and headaches. Research has indicated that spices and herbs can contribute to boosting the immune system. This study aimed to examine the perceptions and usage of herbs and spices for illness prevention, including COVID-19. Primary data was collected through a questionnaire-based study utilizing Google forms, employing a convenience sampling technique. The respondents consisted of 100 residents of Maharashtra, spanning across all age groups. All responses were thoroughly analyzed, interpreted, and summarized. Ginger emerged as the most widely used spice, followed by turmeric (26%), garlic (13%), and cloves (10%). *Aloe vera* (29%) was identified as the most significant medicinal herb, followed by Neem Patta (27%), Mint (15%), and Holy Basil (14%). The study's key findings suggest that a wide range of traditional medicinal plants has demonstrated potential benefits, including potential antiviral properties. Hence, it is crucial to raise awareness among the younger generation regarding these age-old remedies..

Keywords: herbs, spices, immunity, consumer mindset, coronavirus

1. Introduction

The exceptional medical systems of each religion are significantly rooted in their history and guided by their faith throughout life. Our country is socially and etymologically diverse, and we have developed various forms of traditional medicine based on practices, skills, and traditional knowledge derived from different cultures' beliefs, theories, and experiences. Traditional medicine systems such as Ayurveda, Ancient Egyptian medicine, and Sowa Rigpa, based on the principle of panchmahabhutas, remain the oldest and still-practiced approaches (Lam et al 2021).

Nevertheless, several studies and research have proven a widespread trend of using a variety of spices for religious and cultural purposes, both therapeutically for common ailments and as ingredients in food preparations based on specific events and seasons. In the face of the Covid-19 crisis, while the world considers modern medicine as the solution, many individuals prefer using spices and herbs for enhancement (Johns 2021; Swati 2021).

Dry spice powder, such as Garam Masala, is an indispensable component of every cuisine, especially in Maharashtrian food. Natural Indian spices form the foundation of Indian cuisine, and no dish can be prepared without these flavors. We use a variety of spices in our daily cooking, including popular ones like cumin, black pepper, turmeric, and coriander seeds (dry spices), as well as garlic, ginger, onion, and coriander leaves as wet ingredients. Additionally, we regularly incorporate ingredients such as pudina, broccoli, Brussels sprouts, cauliflower, cabbage, amaranth, grain, buckwheat, and millet in our salad preparations. Each of these ingredients has its own health benefits. When we experience a headache, cold, or cough, we often rush to a doctor or pharmacist who may prescribe painkillers to provide overall relief. However, even experts agree that prolonged use of pain relievers and antibiotics can lead to severe side effects, such as liver and kidney damage (Kessler et al 2013). Furthermore, it can increase acidity levels, affecting our stomach and digestive system and sometimes increasing the risk of stroke. Therefore, turning to natural remedies to treat minor illnesses is always a sensible choice. Ayurveda has been exclusively using plants and spices for centuries to address a wide range of diseases. However, the younger generation, unlike our elders, lacks patience and prefers allopathic pills that offer immediate relief over natural remedies. We have witnessed heartbreaking losses and thousands of deaths due to the coronavirus, which has made us realize the value of life (Disha and Sughosh 2021).

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Instead of waiting for such unexpected times to arise, it is wise to prioritize our well-being by safeguarding ourselves against various diseases. The question is whether allopathic medication is the only option to ensure our health. Various research has revealed that now is the time to return to our roots. Developing a habit of utilizing certain magical flavors that possess profound healing properties is not only more beneficial but can also strengthen our overall well-being. There is no need to search elsewhere for this magic; one simply needs to go to the kitchen instead of the medicine cabinet. Different herbs and spices have always been valued for their medicinal properties, aiding in the fight against infections and promoting health long before modern medicine. Both food and medicine have relied on herbs and spices. Spices like clove and cardamom were used in Ayurvedic treatments in India about 3,000 years ago (Nugraha et al 2020; Khadka et al 2021).

The traditional healing system has significantly contributed to the prevention and reduction of various communicable and non-communicable diseases for centuries. There is ample evidence supporting the use of numerous herbal therapies, and the knowledge passed down through generations has led people torely on herbal remedies and simple home cures for common ailments, even among individuals with lower levels of literacy (Dhar et al 2019).

Self-care and home remedies are the most common treatments for various illnesses because they possess neuroprotective and antiviral properties, leading many people to be optimistic about their potential use. The traditional system also encompasses immunomodulation along with antiviral medications, specifically targeting the Covid family of viruses.

The objectives of the study are to investigate the utilization of various spices and herbs as home remedies for preventing Covid-19, explore people's attitudes and intentions regarding the use of herbs and spices in medicine to enhance understanding, and examine the notable benefits of herbs and spices as medicinal resources.

2. Literature Review

The importance of herbs and spices in various diseases has been demonstrated through the following examples. The basil, a holy plant found in every Indian household and considered a goddess, is commonly utilized in tea and sweet foods. It possesses antiviral and anti-inflammatory properties, making it useful in the treatment of viral infections. A study has shown that basil, which contains apigenin and ursolic acid, is beneficial against herpes, hepatitis B, and enter viruses (Al-Maskari et al 2012).

Giloy leaves, known in Ayurvedic medicine, are rich in vitamin C and minerals, while guduchi satva (starch from the stem) is high in calcium and iron. Digestion is promoted and diabetes and arthritis are controlled by the stem extract. Additionally, it boosts the immune system (Rizvi et al 2023).

Neem, easily found in the surrounding environment, possesses antibacterial, antiviral, antimalarial, antioxidant, antifungal, antimutagenic, anticarcinogenic, contraceptive, and antiulcer properties. Various formulations of neem derived from different parts have been discovered to suppress viruses such as poliovirus, HSV influenza virus, HIV, and coxsackie B group virus. Neem leaf juice, known as a proven medicine, can be given to infants to protect them from viral infections. The juice of the inner bark is useful in treating bone fever and jaundice with no side effects (Eze et al 2022).

Cloves have long been used in traditional medicine and the kitchen. The essential oil derived from cloves has been utilized for food flavorings, traditional medicine, and perfume manufacturing. Cloves possess anesthetic, stimulant, antibacterial, antifungal, antiviral, and antiseptic characteristics. Immediate relief from functional abdominal bloating and distention can be achieved by consuming cloves with black salt (Vicidomini et al 2021).

Fresh ginger possesses antiviral characteristics and is used to treat various ailments such as headaches, menstrual pain, and the common cold. It is commonly used by the elderly to relieve arthritic pain. Dry ginger is also beneficial for nausea, stomach sickness, dizziness, colds, and coughs. Additionally, it has been used as a cosmetic agent (Wang 2020).

Garlic is rich in calcium, copper, potassium, phosphorus, iron, and vitamin B1, and exhibits antiviral properties against a wide range of human, animal, and plant pathogenic viruses by blocking viral entry into host cells. Several studies have shown that consuming garlic cloves in advance can help prevent viral infections and strengthen the immune system (Khubber et al 2020).

Cinnamon, in various forms such as bark, bark powder, extracts, or isolated components, has been shown to have multifunctional health-promoting properties. Unlike therapeutic medications, cinnamon can be consumed daily without causing harm. It may be beneficial in preventing lifestyle-related diseases such as metabolic syndrome. Furthermore, using cinnamon as a supplementary medicine for treating viral hyper-inflammation can reduce reliance on chemical drugs and their negative effects (Yakhchali et al 2021).

Turmeric, with its spicy and bitter flavor, is commonly used to flavor and color curry powders. It belongs to the ginger family and has a long history of use and a proven safety record. It has shown promise in fighting against influenza and can be used as a wound healer when applied topically. Regular use of turmeric, as advised by medical practitioners, can lower blood sugar levels, prevent gum disease, and protect against numerous illnesses (Gupta et al 2020).

Black pepper, known for its health benefits, is usedin home remedies as well as cooking. It is revered as the "lord of spices" in cuisines worldwide and has been utilized as a medicinal agent since ancient times. Black pepper can aid in the relief of coughs and colds, and when consumed with a spoon of honey, it promotes digestion. It is also effective against viruses that

cause respiratory infections. However, excessive consumption may cause a burning sensation in the stomach and eyes (Gautam et al 2022).

In their paper, the natural component of black pepper was investigated by Ahmed et al (2013). The antiviral properties of black pepper have been demonstrated, particularly against respiratory tract infections. Essential alkaloid components, such as piperine, found in black pepper, have been identified as potentially useful phytochemicals in the fight against COVID-19, a respiratory tract disease.

Due to the extensive use of its dried unripe fruit in cooking worldwide, black pepper is renowned as the "King of Flavors." This plant also contains lignans, alkaloids/amides, terpenes, neolignans, and others, all of which possess various biological and medicinal effects. The antiviral, antibacterial, anti-inflammatory, antipyretic, antioxidative, antithyroid, anticancer, immune-enhancing, and antibody bioavailability enhancing qualities are among the many significant organic functions of peppercorn and other secondary metabolites present in black pepper.

In their comprehensive study, resistance-boosting properties were discovered in many medicinal plants/herbs, including *Allium sativum* (garlic), *Tinospora cordifolia* (Giloy), *Ocimum basilicum* (Tulsi), and others, as highlighted by Singh et al (2016).

According to Srivastava et al (2020), several spices such as cloves, cinnamon, ginger, black pepper, and turmeric possess antiviral properties and can boost the immune system. They have emphasized that cumin, cinnamon, ginger, cloves, black pepper, garlic, neem, Giloy, and basil can be used against COVID-19 due to their antiviral capabilities.

In clinical trials, a safe dosage of turmeric for human use without any adverse effects has been found, as Gupta et al (2013) have indicated, provided that it is done under the guidance of medical practitioners.

As per Shrivastava (2020), turmeric doses ranging from 2,500 to 8,000 mg per day for three months have shown no harmful qualities, suggesting that turmeric may act as an active antiviral agent inhibiting virus reproduction.

Agrahari et al (2015) conducted research on the use of ginger and discovered that ginger, also known as Sunthi in Ayurveda (Dry Ginger), is mentioned in ancient documents such as Charaka, Sushruta, Vagbhatta, and Chakra-Dutta.

According to Lavaee et al (2020), ginger leaves (*Zingiber officinale*) are a well-known indigenous medication in the traditional Unani pharmaceutical system (Jafarzadeh et al 2021). They examined the effects of cinnamon hydroalcoholic extract on curing the simplex virus-1. The findings of their study indicated that the hydroalcoholic extract of cinnamon was effective in reducing the viral titer of HSV-1 by preventing viral entry into the cells (Yusuf et al 2018).

Clove contains main phenolic components, such as flavonoids, hydroxycinnamic acids, hydroxybenzoic acids, and hydroxyphenylpropenes, as stated by Neveu et al (2010). Eugenol is the most bioactive component of cloves.

Numerous studies have concluded that the aqueous leaf juice of basil and its seed oil enhance the immune response by increasing natural killer cells, lymphocyte count, phagocytic activity, neutrophil count, antibody titer, and so on against various infections as a defense mechanism (Jamshidi et al 2017; Pattanayak et al 2010).

According to Alam et al (2016), garlic exhibits a wide spectrum of pharmacological properties with low toxicity, including anthelmintic, anti-inflammatory, antioxidant, antifungal, and others.

Cordfolia has been widely used for commercial purposes and as an effective medicine for therapies against several diseases such as jaundice, urinary disorders, skin diseases, diabetes, anemia, inflammation, allergic conditions, and more, as stated by Sagar (2020) and Sonkamble et al (2015).

It is widely known that certain plants and herbs are more effective than others in treating various diseases, and that there is no need to visit a doctor when miraculous remedies are readily available in our homes and kitchens. During the COVID-19 pandemic in December 2019, when proper allopathic treatments were not available, various traditional medicinal plants and herbs were utilized as remedies, resulting in beneficial health outcomes among COVID-19 patients.

3. Research Methodology

A structured set of questions was used as the instrument for primary data collection. This set of questions was prepared by referring to previously studied literature through an extensive literature review. The prepared set of questions was shared with individuals through social media sites, and Google forms were created and circulated to collect the primary data. Convenience sampling was employed as the sampling method.

For the study, participants who were unknown but well-educated were selected based on this criteria, which justified the use of convenience sampling method. The target population consisted of 100 individuals from different age groups across Maharashtra. The rationale behind selecting this target population was to ensure a fast and accurate study. By including individuals from different age groups, a mix of knowledgeable responses and fresh perspectives could be obtained.

To maintain the reliability and validity of the collected data, irrelevant responses were discarded, and new responses were obtained. All necessary ethical clearances were obtained from the appropriate authorities. After confirming the authenticity of the sources, secondary data from books, articles, and journals were examined. The collected responses were then analyzed, interpreted, and followed by a conclusion.

3.1. Research statement

The use of traditional medicines (herbs and spices) as an immunity booster is observed among the public, and a sense of protection from various diseases is felt by them.

4. Results and Discussion

To examine the consumption pattern of herbs and medicine among people during the COVID-19 pandemic (Silveira et al 2020), a total of 100 responses were collected, and the demographic information is presented in Table 1.

Table 1 Demographic Information of the Respondents who participated voluntarily in the study.

Demographic Information of the Respondents				
Age	20-25	25-30	30-40	40 and Above
	64	10	12	14
Gender	Male		Female	
	56		44	
Qualification	Graduate	Post Graduate	Masters	Ph.D
	37	41	18	4

Figures 1 and 2 depict the utilization of various spices and herbs as traditional remedies for the prevention of Covid-19 based on the obtained data. It is observed from Figure 1 that ginger is the spice with the highest usage, accounting for 29 percent of all use, followed by turmeric with 26 percent, garlic with 13 percent, and cloves with 10 percent.

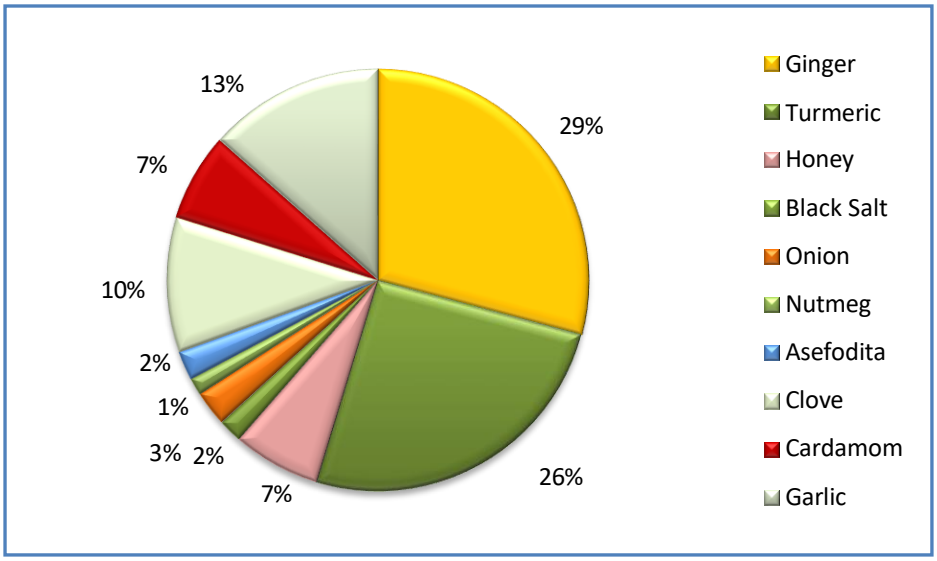

Figure 1 Species as Traditional Remedy along with Utilization Percentage.

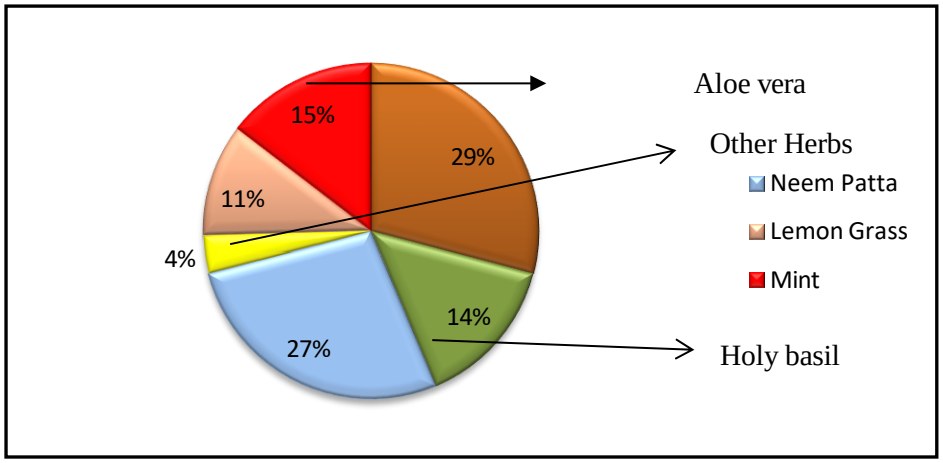

Figure 2 Herbs as Traditional Remedy along with Utilization Percentage.

Regarding herbs, Aloe vera is deemed the most significant in medicine, accounting for 29 percent, Neem Patta at 27 percent, Mint at 15 percent, and Holy Basil at 14 percent.

The respondents were queried about their motivation for consuming traditional medicine in the form of herbs and spices. They were asked if their intention was solely to prevent corona (Vicidomini et al 2021).

As a result, it was found that 85 percent of respondents have been doing so for years, aiming not only to prevent corona. However, it is one factor that also maintains excellent health and boosts the immune system. Fifteen percent of people who have used herbs and spices have prevented Covid-19. Surprisingly, according to a survey, 21 percent of people are unaware of 'kadha' (Nugraha et al 2020).

According to respondents, herbs and spices possess numerous remarkable medicinal characteristics effective in various diseases. Users reported the following significant advantages:

1. Herbs and spices are excellent in numerous therapies, making traditional medicine preferable over allopathy.
2. Haldi milk can improve the immune system and minimize the effects of diseases, but it is only beneficial to health if consumed under medical supervision. It also heals wounds without leaving scars or causing infection.
3. It strengthens the cardiac muscle and assists with congested arteries and kidney issues.
4. Camphor purifies the air and aids in the inhalation of pure air. Due to the consumption of herbs and spices, Covid-19 could not cause as much harm as anticipated.
5. Basil and neem leaves consumed in the morning, along with hot water steam and kadha, boost immunity.
6. Coughing is cured using onion juice with a bit of honey for a few days.
7. Traditional medicine can address skin cleansing, burns, and stomach-related issues.
8. Ginger and honey kadha are helpful for cold lung congestion and maintaining stable health against diseases. It is a simple and inexpensive home remedy.
9. Giloy, an herb used to treat fever or chikungunya, has shown exceptional results (Rizvi et al 2023).

Herbs can address issues at their root, but they require professional advice, which many Ayurveda medicine companies offer for free. Many respondents mentioned a few well-known herbs and spices that were not included in the survey questions. Asparagus, *Aloe vera*, safed musali, Shatavari, Ashwagandha, sanaleafs, and fennel seeds are some prominent herbs and spices commonly used by people for minor ailments, owing to India's ancient and rich culture (Srivastava et al 2020).

5. Conclusion

Although some viral illnesses can be treated with regular medication, many remain fatal and/or incurable. Unfortunately, due to financial constraints, many impoverished individuals cannot access proper medical treatment, as the cost of medicine is beyond their means. Given the seriousness and urgency of these conditions, research is imperative to discover affordable medicines for the underprivileged. Despite the vast tradition of Ayurveda, many people are unaware of the applications and value of ancient treatments. Numerous plants and spices with antiviral properties are often overlooked as natural and potent remedies. In situations where science falls short, traditional medicine may potentially save lives. The key findings of this study demonstrate the existence of a wide range of traditional medicinal plants that have been proven beneficial, thereby suggesting the presence of antiviral components. Consequently, raising awareness of these ancient treatments among the younger generation is crucial.

6. Limitations of the Present Work

The study population size is not extensive as we have recently emerged from the pandemic. There is a potential for these questions to evoke unpleasant memories in the respondents, which they may prefer to suppress.

Ethical considerations

The ethical guidelines for studies involving human subjects were adequately adhered to in this study, and the consent of all participants was obtained. All survey participants were fully informed about the study. If requested, I agree to provide Multidisciplinary Science Journal with copies of the consent or proof of obtaining such consent.

Conflict of Interest

The author declares no conflict of interest.

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