

Use of Spices as Immunity Booster - A Preliminary Survey within the General Population

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Abstract

Immunity is the body's defence system to fight various pathogenic agents including bacteria, viruses and other infectious agents. Healthy people with a healthy immune system can fight infections better than those who are immune compromised. Studies have shown that diet plays a key role in improving the immune response. Also, the consumption of certain herbs and spices has been associated with health benefits. India is among the leading countries to consume significant amounts of spices. The consumption of spices in the form of a concoction increased further during the COVID-19 pandemic. This concoction is traditionally called Kadha. Over time, people have realized the benefits of Kadha not just in fighting infection but in overcoming various health conditions. The current study surveyed around 83 people from India to understand the use of Kadha within the general population in India as a source to boost immunity. It also aimed to understand their perspective on the most suitable spice. This preliminary survey highlights that among the surveyed population, the majority of the participants considered Kadha as an immune booster (75%) that helps in relieving colds and coughs (73%). The majority of participants selected turmeric (68%) and clove (66%) as spices that help to boost immunity and fight infections.

Keywords: *Spices, India, Immunity boosters, Infection.*

Introduction

The immune system plays a critical role in fighting pathogens including viruses, bacteria and other infectious agents. This defence mechanism includes the innate and adaptive immune response.¹ Recently, the COVID-19 pandemic highlighted the fact that the immune system may not work as required in all people.^{2,3} People with effective immune responses were able to deal with the infection without any complications. However, it was observed that immune compromised patients experienced severe infectious outcomes including death.³ It is said that consuming the right nutrition through diet helps in boosting the immune system and its response.⁴ Also, the gut is a major site of immunological activity and the production of antimicrobial proteins.⁵ Diet plays a large role in determining what kinds of microbes live in the intestines. Beneficial microbes within the gut stimulate immune cell activity and help to fight pathogens.^{5,6} Also, several herbal supplements have demonstrated a beneficial impact on the immune

system. Interestingly, many kitchen spices are said to be potent immunity boosters.^{5,6}

India is the largest spice producer, consumer and exporter of spices across the globe.⁷ In India, the COVID-19 pandemic led people to consume a concoction of spices called Kadha. This practice has allowed people to recognize the beneficial properties of species in fighting infections, treating several ailments and building immunity. The pandemic helped demonstrate these spices' wide range of medicinal properties. Spices commonly used in making Kadha include cloves, turmeric, cinnamon, black pepper, ginger, and cumin.⁸

The present survey-based study was conducted to understand the use of Kadha within the general population in India as a source to boost immunity. The study also aimed to evaluate people's understanding of the most suitable spice to help them fight infections and other conditions.

Methodology

A digital survey was conducted targeting the general public of India (October to December 2020). The survey questions were developed using Google forms. Any person who could understand the questions and could willingly answer them was allowed to participate. People over the age of 18 were allowed to participate. There were no exclusion criteria and people from any part of India could participate in the survey. Anonymity was maintained during data collection and analysis. The study results were analysed using descriptive statistics.

Results

Around 82 people participated in the survey. When asked about their understanding of the properties of the Kadha they consume, 75% of people highlighted that it acts as an immune booster. Around 73% of participants felt that it helps in relieving cold and cough, 42% felt it helps in digestion, and 41% stated that it helps them fight against flu. Around 43% of participants stated that Kadha helps in reducing inflammation; 44% felt it acts as an antioxidant (Figure 1).

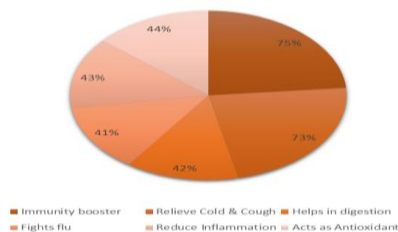


Figure 1 Participant's Perspective on the Role of Kadha

In kadha preparation, different herbs were used by participants. When asked about the most suitable spice to boost immunity and fight against infection, around 76% participants selected ginger, 68% of participants selected turmeric, 66% selected cloves and black pepper. Around 54% and 56% voted for cinnamon, and basil and 38% to 42% voted for cumin and cardamom. Around 26% voted for fennel seeds and 8% others. as the most suitable spice (Figure 2).

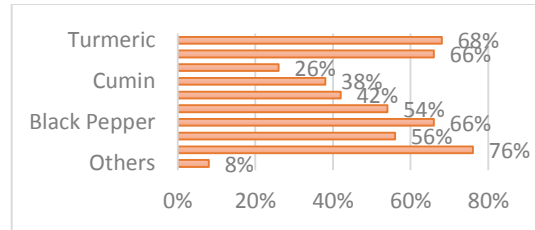


Figure 2 Participant's Opinion on the Routinely used Spices as Immunity Boosters

Discussion

Ever since the COVID-19 pandemic, the consumption of herbs and spices has gained a lot of importance. Although herbs and spices have been used in India since ancient times, there has always been a need to assess awareness of the same in the general population. There aren't many studies assessing the current status of herb or spice consumption as an immunity booster in the form of Kadha within the population of India.

EI-Ghorab AH (2010) reported that both ginger and Cumin can be useful as antioxidants. Similarly in our survey 76% of participants had given preference to ginger in Kadha preparation.

Ghosh S. (2015) and other scientists reported that Curcumin is isolated from turmeric and has antioxidant, hypoglycemic, anti-inflammatory and anti-cancer activities. Similarly, in our survey, 68% of participants reported that turmeric is useful in boosting immunity and fighting against infections.

According to the study of Nage et al. (2020), they found piperine as the main compound in the hexane extract of black pepper seeds (*P. nigrum*) also reported that piperine can inhibit the antiviral enzymes of Dengue and Ebola viruses, an in silico molecular docking study. Our survey showed a similar result, 66% of people reported that Clove and pepper boost immunity and 73% of people reported that they were relieved from cough and cold by consuming kadha on a regular basis in COVID-19 pandemic.

In our study 44% of people reported that Kadha has antioxidant properties, our findings are similar to the study of scientists DF Cortés-Rojas et.al (2015) who reported that the eugenin is antiviral compound isolated from Clove (*S. aromaticum*) and from *Geum japonicum*, was effective

against herpes virus strains and it has antibacterial, antioxidant activity and antinociceptive activity.

A study was conducted targeting the population of Bhopal by Chandurkar et.al (2021). It was a survey on the effect of Indian herbs and spices on boosting immunity against Covid 19. However, the choice of spices and herbs selected in this study was different from those considered in the present study. The overall study outcomes were comparable. The participants thought that herbs and spices could be an effective way of controlling the spread of infections by boosting their immunity.

Conclusion

Although the present study is a preliminary survey, it can act as a scaffold for a larger survey to assess the preference for spices among the general population. This will enable us to assess their understanding of the role of spices in boosting immunity and fighting infection.

Author's Contribution Statement:

Dr. Nilima Gajbhiye conceptualized the study. Ms. Manali Kamble designed the questionnaire, conducted the survey, gathered data, performed data analysis and wrote the manuscript under the continuous supervision of Dr Nilima Gajbhiye.

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