



A Survey on the Effect of Indian Herbs and Spices in Boosting Immunity Against Covid 19 on Bhopal Population

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ABSTRACT

At present, SARS-CoV-2 disease, commonly called Corona Virus (Covid-19) has evolved into pandemic and has led to dramatic loss of human life worldwide. It has unrivalled challenged human health, public food system and habits. In India, more than 11.6 Million people have been affected by this deadly disease. The pandemic has affected the immunity of entire population leading to weak immune system. The immune system protects against various viruses and diseases by producing antibodies. The Ministry of AYUSH, Government of India, has provided "Ayush Kwath" to improve immune system and stable the situation. Use of herbs and traditional medicinal products are recommended to strengthen immunity among people and build their livelihood. Herbal kadha and chawanprash protects public health by boosting immunity, perhaps refusing the viral attack in body. In this survey, we have tried to understand the views of Bhopal, MP, India population about the usage of herbs and spices like tulsi, turmeric, ginger, giloy, ashwagandha, cinnamon etc. to boost their immunity during this pandemic attack. A total of 220 responders have filled the google form successfully. In this study we have found that majority of Bhopal responders has shown their interest in Indian herbs and spices and thought that it can be an effective way in controlling the spread of the novel Covid-19 by boosting their immunity.

Keywords: Corona Virus, Pandemic, Immunity, Herbs, Spices

1. Introduction

The world was attacked on November 2019 by very new group of viruses SARS-CoV-2, which today we know as Corona Virus (Zhou et al., 2020). It appeared for the first time in Wuhan, city of China. At present there is no true evidence to tell from where it came and spread to the world. Initially the human-to-human spreading of virus was confirmed when two patients detected positive from SARS-CoV-2 which had no travel history except their visit to Wuhan. Later, Covid-19 strengthens the human-human spread when 14 hospital staff turned positive when came in contact of patients. Movement of people with their previous history of visit to Wuhan or cities that contacted the patients was the main reason for the spread of these viruses into the different parts of the world and turning it into a pandemic (Wall et al., 2020).

People are dying throughout the world due to no registered treatment or vaccine or drug of this disease. Starting from just a viral disease, now Corona Virus has turned into a pandemic. More than 123 Million people are suffering from this novel Covid-19 worldwide and about 2.71Millions have lost their lives. In India, at present more than 11.6 Million have tested positive from Covid-19 and led to loss of more than 160 thousands people's life. However, there are also people being treated and recovered like in India more than 11.1 Million have fully recovered without permanent medication. There's no permanent cure available to world till date. Various works are carried out in process of vaccine production in all parts of world at very high speed, but a vaccine takes time to be complete cure of diseases.

This Covid virus directly attacks the immune system resulting weakening of immunity (Ghosh et al., 2020). The most prominent signs of Covid-19 patients were fever, cough, pneumonia, chest pain, shortness of breath and in severe cases it results in respiratory failure. People with pre-medical history and elderly are at most risk of being positive with this virus, just as this group of viruses directly attacks the immunity and these people are already facing

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low immunity due to their specific diseases or disorders (Ahkam et al, 2020). In a study, susceptibility of Covid-19 in young and older patients was evaluated, and it showed that elder patients had higher pneumonia severity index (PSI) score than young. The severity of Covid-19 symptoms ranges from mild to severe. Some people may show few symptoms while some do not symptoms at all. Virus affected takes few weeks to experience symptoms; few suffer from worsened symptoms like shortness of breath, and It takes 14 days to turn symptomatic. The risk of catching the virus increases with age and history of chronic medical illness like Diabetes, Asthma and Serious Heart Diseases etc.

Although there is no preventable cure or drugs or vaccines available right now, the only way to reduce the risk of infection is booting immunity. Government had given measures to control the spread of virus by avoiding public gathering, maintaining social distancing, using alcohol-based hand rubs or sanitizers and washing hands with soap and water on regular intervals. The Ayush Mantralay, Govt. of India, is providing "Ayush Kwath" or an herbal 'kadha' to its people to build immune boosters. Commercial antiviral medicines like hydroxychloroquine, remdisivar, remdisivar with chloroquine, are found to show some potential against SARS-CoV-2 infection. Dozens of vaccines are under development in all parts around the world and 3 vaccines are under trail in India only but seeing present scenario in lack of any proven medicine/vaccine, the potential antiviral (Mairet et al., 2016) and immune boosters, herbal medicines extraction and formulations can turn good remedy lowering the spread and risk of attack of Covid-19 virus (Ghosh et al., 2015).

According to WHO, around 80% of world's population uses herbal medicines as their primary self-treatment against Covid-19. Coronavirus directly attacks the immune system of a person, resulting in weakening a person's ability to fight against a normal flu also, which in turn weakens B and T helper cells, an overall damage of person's fight back immune response (Srivastava et al, 2020). So, the only solution till any permanent treatment comes, people are relying on herbs for primary self-care, building immunity and preventing them from attack of this deadly virus. In this course, different and varied types of herbs are consumed by people not only in India but worldwide. Our immune system consists of a complex collection of cells, processes, and chemicals that constantly defends body against invading pathogens, including viruses, toxins, and bacteria. Keeping immune system healthy year-round is a key to preventing infection and disease. Making healthy lifestyle choices by consuming nutritious foods and getting enough sleep and exercise are the most important ways to boost the immune system. In addition, research has shown that supplementing with certain vitamins, minerals, herbs and other substances can improve immune response and potentially protect against illness. Ayurveda have made a significant contribution in the prevention and alleviation of various communicable and non-communicable diseases for thousands of years and a long history of using many herbal remedies and experiences passed from generation to generation has resulted in people relying on herbal remedies and some simple home remedies for common diseases (Liu et al., 2020). In one observational study found that the prevalence between the total number of COVID-19 cases per million population and the grams of spice supply per capita per day is clearly interrelated, most nations with lower spice intake per capita reported more COVID-19 cases per million population and vice versa (Sharma et al., 2017).

Herbs have immune modulatory and antiviral properties, so they can turn effective in prevention and control of Covid-19 (Li Q et al., 2020). Herbs and spices are used to cure long stand diseases and boosts immune system naturally (Peterson et al., 2018; Singh et al., 2020). WHO says that around 80% of the world's population is using herbal medicine as primary health care as herbs do not have any negative side effect and can be trusted (Liu et al., 2020). Indian Ayurveda is thousands of years practice system and has so much potential in its 'jadibutti'. Also, patients treated with combination of Ayurvedic medicine were able to relieve some symptoms when compared to congenital allopathic treatment. The main objective of this survey is to identify the effect of Indian herbs and spices in boosting immunity among Bhopal population through a questionnaire.

2. Methodology

A survey on use of Indian herbs and spices during Covid-19 to build the immune system was conducted in October-December 2020 through Google forms and circulated in Bhopal, M.P., India. The questionnaire was designed to know public perceptions about herbs and their usage of different herbs. The initial stage of construction of questions starts with the basic information about them including their name, age, weight, profession, number of family members etc. The next sections, of about 50 questions were selected about their views on Indian herbs, supplements and spices and how they use them at homes. The questionnaire also included questions about whether they had tested corona positive or any of their family member was affected by this virus earlier. The questions include if they had heard anyone close to them being treated with herbs and were able to fight the virus (Singh et al., 2016). Questions were asked on herbs they had generally used during this pandemic to build immunity against Covid-19. Further, whether they believe in treatment through Ayurveda or ancient herbs and do they think herbs are better than any other alternative medications or are they willing to use herbs to treat themselves during this pandemic. Adding to it, any symptoms or allergy which they may had experienced due to any specific herb or supplements. We wanted to know how Covid-19 bought changes in their lifestyle and was herbs able to provide them some relief through all the pressure which took over their mind and body. The main focus of our questionnaire was to know about different herbs which people were using and to know the source through which they were getting, so in that view, we asked them whether they planted any herbs at their kitchen gardens and if they did then which herbs they planted, or bought them from markets (Aboubakr et al., 2016). They were questioned if they consumed any sort of herbal supplements like chawanprash (Sharma et al., 2019), kadha or golden milk to build strong immune system and they were given list of herbs to know the herbs they used in their special drink or kadha. As elderly were at most risk to get affected through this virus, we wanted to know whether the families prepared different herbal drinks or kadha for their elders or children with increasing/decreasing quantities of herbs in drinks, and also, if they felt their immunity being stronger by intake of herbs. The google form was circulated and some forms were also filled on personal level by volunteers going door to door to public who did not use phones or any sort of internet activities but were regular users of herbs and had knowledge of Indian spices and herbs.

3. Results

Data collection

A total of 220 responses were collected with a random probability of public being eighteen years old and older. The responses were collected between October and December, 2020 through Google forms.

Sample demographics

More than half the responders to the survey were female (75%) and one-fourth were males (25%). Responders ranged from less than 15 yrs of age to above 55 yrs age, with age group 15-25 yrs being dominant (85%) and responses of age group above 55yrs were least (0.8%), 35-45 yrs (2.5%), age group 45-55yrs and less than 15yrs both with equal responders (3.3%) and 25-35yr (6%).

In terms of number of family members, more than half the responders have 3-5 family members (73.3%), then with families having 6-8 members (20%), then 2 or less members (4.2%) and then families with more than 8 members (2.5%). Responders were also checked for their weight as this is also an important criterion. The range varies from below 30kg to above 80kg, with 40-50kg (34.2%) dominant and above 80kg (1.7%) least. The responders were also categorized in terms of working, little less than quarter were working (10.8%) responders, a few were non-working (2.5%) and the majority belongs to students (86.7%) (Fig 1).

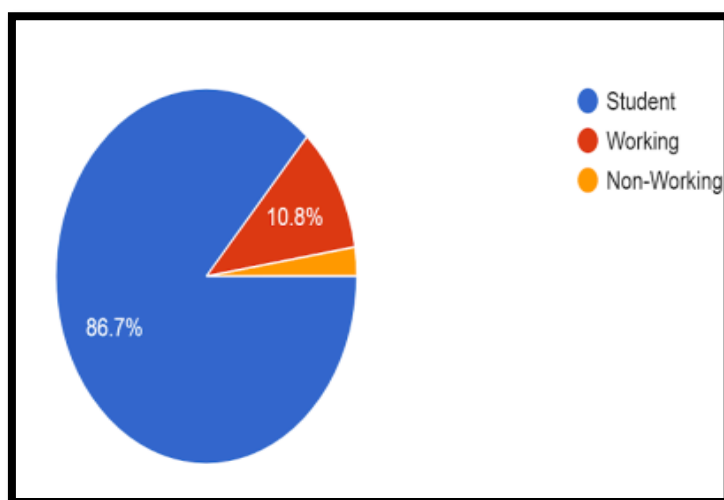


Fig1: Category of responders as working, non-working and students group.

Effect of Corona on Bhopal Population

Due to corona people had to suffer a lot, be in terms of health, money, or body. We found that about 13% of our responders or their families had tested positive with this 2020 virus and about 86% was tested negative. About 70% peoples life was majorly affected by Covid 19, while 15% of responders did not found any change and were not sure about the changes respectively may be because this proportion constitutes non- working females or men. Next, we got responses on how Covid 19 changed their lifestyles and we found that responders lifestyle was mostly affected mentally(51%), then physically(45%) and financially (35.7%), some people(20%) was affected in any other way which they didn't want to mention, while 11% did not had any effect.

Herbs and Covid 19

No treatment till now has been possible for cure from Covid-19, but people throughout the world are using herbs as primary preventive medicine against this virus (Ahmad et al., 2016). We found that about 84% of responders believe in Indian herbs and spices for treatment while a few responders (15%) couldn't. Immunity is key factor during this pandemic and being fit is only concern, so we wanted to know if intake of herbs and spices bought any sort of weight change along with immunity and found that nearly one forth responders gained weight (27.5%) , while 36.7% responders did not found any changes and 35.8% responders thought the weight gained or lost was not considerable, but very mild.

This pandemic situation was so sudden that people had to experience very new things with foods and drinks, and after observing results, about 3/4th the total people (75.8%) moved towards eating of home-made foods loaded with herbs, 12.5% responders did not bought any changes to their diet while to 11.7% responders, it did not moved them to consume herbal foods (Fig 2).

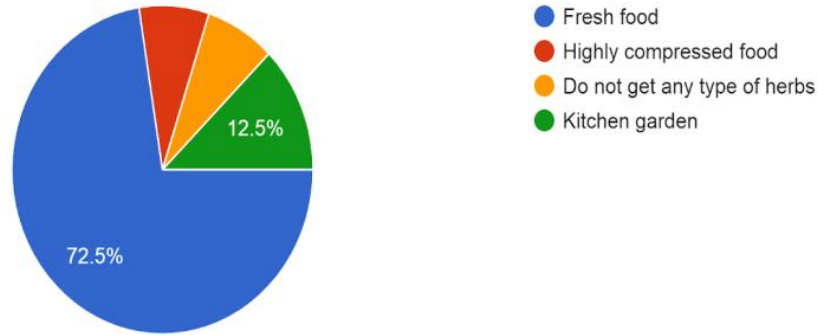


Fig2: Types of food consumed by the responders

Demand of herbs is growing because of which market value of herbs and spices increased drastically and for the same, it was difficult for every person to buy it from markets and we found that about 73.3% of our responders had planted a herb at their residence, while remaining 26.7% had not. To know better about their choices of herbs and spices which they planted, we checked the herbs and spices grown at home (Fig 3). Tulsi was maximum people's choice (95%), next to it was mint (32.5%), coriander (31.7%), ginger (23.3%), giloy (20%), turmeric (18.3%), garlic (15%), ashwagandha (9.2%), sage (4.2%), and hatjoda, chillies, onion, aloe vera (0.8%).

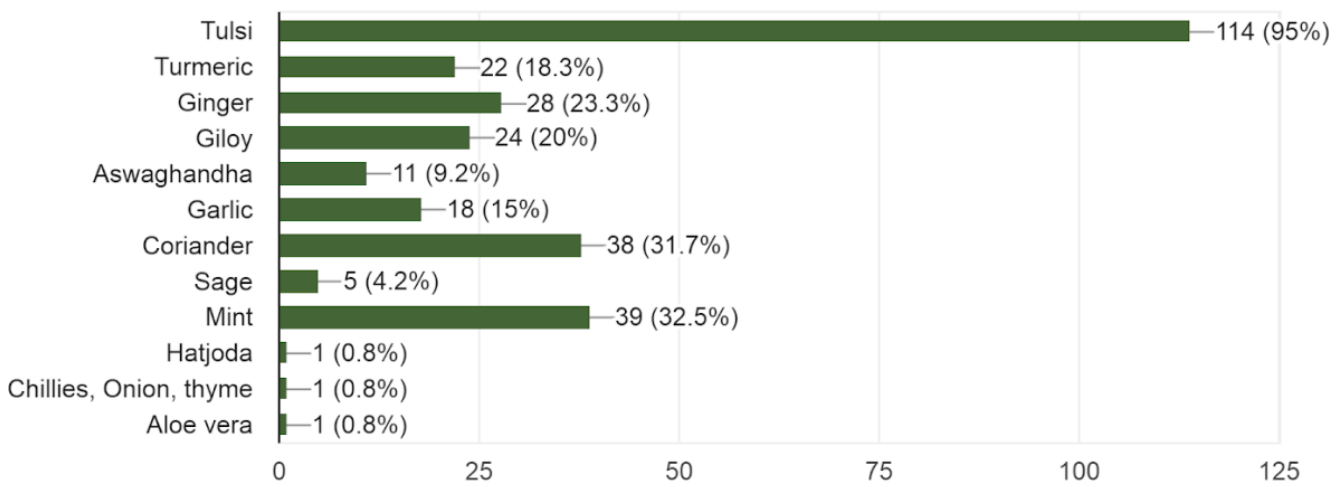


Fig3: Types of herbs and spices responders planted at home during Covid 19.

Next was question was to know whether the rare herbs and spices were easily available to people when the whole country was on lockdown, we concluded that giloy and ashwagandha was easily available to around 31% people, while 42% were not able to found, and rest 27.5% of people were not sure. People have different choices of herbs and similarly they have in style of intake, to that we asked whether they had them in raw form or in roasted form or mixed them in foods and drinks and results showed 16.7%, 12.5% and 70.8% respectively.

Consumption of Herbs and Spices

Indian people living in city, town or village all have a tendency of consuming herbs and spices in their daily routine. Here we have observed their choices of herbs which they take on regular basis in their food or drinks or as supplements in their body. The most favorite being Tulsi (75%), Turmeric (67.5%), Ginger (66.7%) and Garlic (51.7%) apart from these Cloves (44.2%), Cardomon (41.7%), Fenugreek (26.7%) and Mint (21.7) were also consumed by responders and a few responders also chose Sonth (8.3%), Triphala (7.5%), Kutki (5%) and Giloy (1.7%) (Fig4).

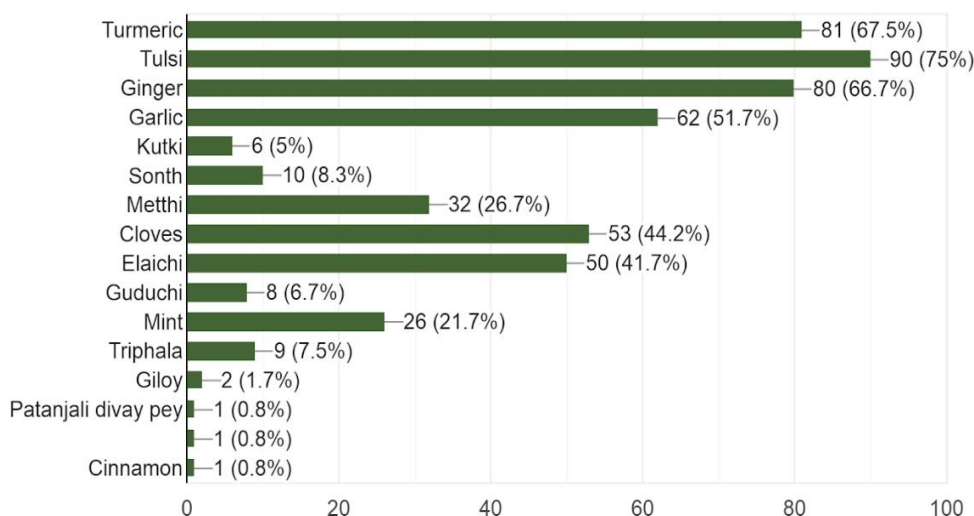


Fig 4: Types of herbs and spices consumed by the responders on regular basis during Covid 19.

Side Effects observed by responders

A sudden intakes of more herbs on regular basis, responders faced some health problems in various ways, we found that 72% of our responders have faced some sort of allergic reactions, while 17.5% of responders were not sure whether they had allergies from intake of herbs only and rest 11% did not suffer any allergies at all. To know about the kind of allergies they suffered, we suggested a list of symptoms for them to mark their type and through that we found most people were asymptomatic, i.e. they did not experienced any symptoms, vomiting was experienced by 14.2%, diarrhea 9.2%, bleeding from nose and boils in mouth 6.7%, acne 0.8%.

Besides herbs in original form, people also take other forms, and according to responses we found that 60% of people used it in herbal drink commonly called kadha, while other 22.5% used it in chawanprash, other 5.8% consumed it in herbal medicines, while rest 12.5% do not have herbs (Fig 5). People consumed herbs in any of the forms listed above majorly (34.2%) once a day and least (10%) was twice a day.

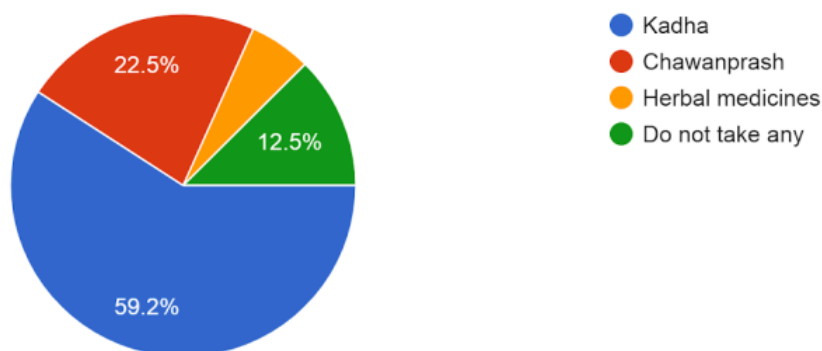


Fig5: Choices of responders on forms of herbs and spices.

Other Supplements as Immunity Boosters

'Golden milk' or 'Haldi doodh' (turmeric milk) is often been used in India when winter arises to prevent cold and cough, but this time situation is changed and 35.8% people are forced to take it once a day, 20.8% take it either alternate day or once a week, while 22.5% did not had it during Covid-19. Vitamin C is one of the main nutrients that our body needs to survive and stay healthy, and staying healthy is the only formula to protect against this virus, so according to survey results we found that about 65% of our responders use lemons/oranges for vitamin C in body, 60% use green veggies as vitamin C source, 24% use Vitamin C capsules, while 9.2% don't take Vitamin C.

Chewing a raw ginger is an Indian remedy for throat infections, our survey results showed that 65.8% people using ginger to curb their throat during pandemic while 34.2% did not used. Neem leaves are considered to have antimicrobial properties (Kumaret al., 2020) and people take neem leaves bath to avoid infection in body and to eliminate any harmful bacteria or virus which may stick to body (Borkotoky et al., 2020) and results show that 15.8% of responders take neem bath when they come from outside, 26.7% take after interval of few days, while 57.5% did not take neem bath, this maybe because they did not went out due to lockdown or they are not sure of it. We found that, 30.8% responders used neem leaves extracts orally to avoid throat infections and to clean gut or respiratory tract, while 69.2% did not had. Now-a-days herbs are included in some food preparations also, we found that about 27.5% people had desserts including herbs, 25.8% were not sure, while 46.7% did not had it.

People's Choices of Herbs and spices in their immunity boosters preparations

Due to rise in demand of herbs and spices, availability and shortage of herbs has become an ordinary problem which people are facing all around the country, and to know the herbs and spices which our responders are unable to get due to unavailability because of many reasons, oregano (44.2%) being most unavailable herb, while unavailability of chives or young onion leaves (42.5%), coriander and sage or tej patta (17.5%) respectively were also observed.

Kadha or herbal drinks are best immunity boosters and every individual has its own and different recipe of preparing it (Naget al., 2020). We found the ingredients or herbs/spices which people use for preparing their drink (Shree et al., 2020), tulsi being the most used herb by responders in their special immunity drinks with 80.8%, followed by black pepper (66.7%), ginger (64.2%), cloves (57.5%), dalcini and elaichi (40.8%), giloy (34.2%), mint leaves (29.2%), soonth or dry ginger (25.8%), ashwaghandha (18.3%), guduchi (10%), triphala (8.3%), kukti (5%) (Fig6) and also we have responders (0.8%) who never had kadha or herbal drink.

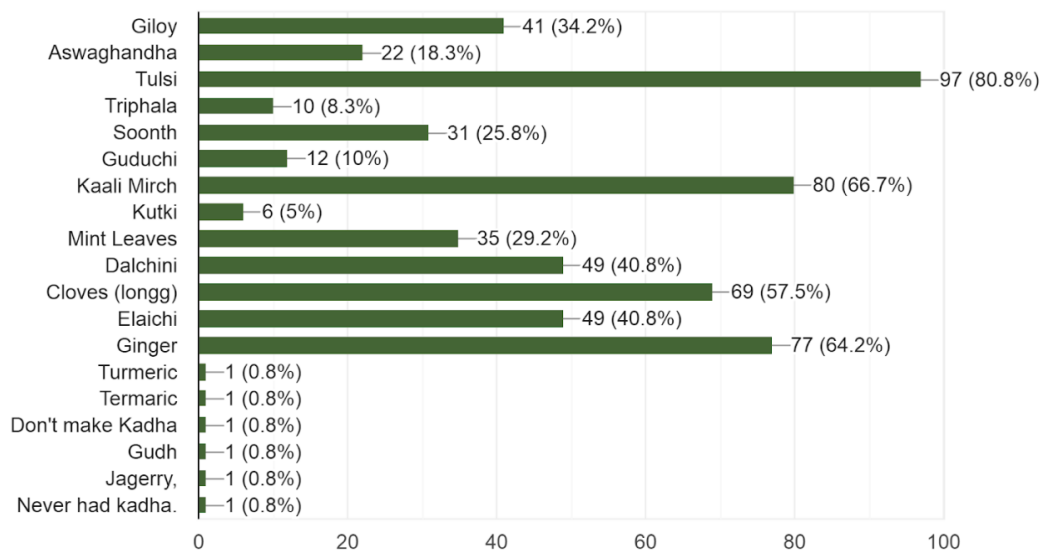


Fig 6: Choices of herbs and spices of responders in their immunity boosters preparations.

According to the responders the best immunity boosters they thought are giloy (36.7%), then ginger (23.3%), ashwaghandha (20.8%), kaali mirch or black pepper, cinnamon or dalchini and tulsi with 11.7%, 6.7% and 0.8% respectively (Fig7).

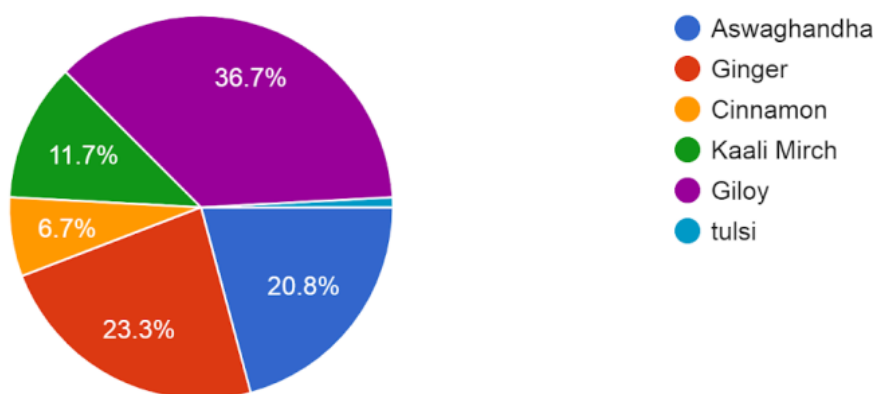


Fig 7: Choices of best immunity boosters according to the responders.

Health ministry has made it clear, children below 12 and adults above 60 are at most risk to get infected by coronavirus and it's important to take care of them and build strong immunity, and intake of herbs through kadha or herbal drinks is one of the best option, Questions related to quantity of herbs given to children and old family members showed that 45.8% responders give different amount of herbs and spices in foods and drinks, while 30% families did not give, and 24.2% families were not sure.

Comparative Analysis of Ayurveda, Allopathy and Homeopathy Medications

Questions related to people's belief on Indian herbs and spices and its potential in building immunity showed that 45% responders feel herbs are fully safe to use, similarly 43.3% were not sure about their safety, while 11.7% totally disagree on herbs being safe for use. In this series, we found that for 58.3% people strongly believe that Ayurveda and Indian herbs can help in controlling Covid-19, while 35% were not sure and only 6.7% people do not believe this.

People's perception on whether they feel allopathic, homeopathic or any other medication type better over natural spices and herbs (Newman et al., 2016), for building stronger and faster immunity showed that 56.7% responders thought that treatment via herbs and spices is better than any other medication, while for 7.5% responders thought herbs are not a better option, and 35.8% responders were not sure about this. In our study we found that 65.8% responders thought that their immunity is boosted by intake of herbs and spices, while for 25.8% responders can't surely agree their immunity being strong through herbs only and 8.3% responders totally disagree for being their immunity boosted by herbs.

4. Discussion

Due to the ongoing disaster of COVID-19, there is an urgent need for the discovery of alternative remedial measures. There is a wide scope of herbal medicines that have been used since traditional times (Sharma et al., 2017). Traditional plants have many beneficial properties to explore, conducting extensive research necessary for experimenting and development for the healthy society. The proper use of medicinal plants can heal and help people with many disorders and diseases (Sharma et al., 2019). During this COVID scenario all these are used as preventive agent and are being followed by common people. Many plants possess beneficial antiviral compounds which are now used regularly by people to treat COVID disease (Srivastava et al., 2020). The proper utilization of traditional medicines against COVID-19 would help people in many ways to safe guard and elevate the immune system (Lu et al., 2019; Abdulmir et al., 2020). Various studies based on the possible role of herbal plants and their sources in the treatment of COVID-19 infections due to its bioactive ingredients act as substantial warriors in this battle (Lin et al., 2014). Basically, these formulations are comprised of huge number of phytochemicals such as terpenoids, alkaloids, flavonoids, phenols, tannins, polyphenols, saponins, polysaccharides, proteins, lipids and peptides that possess specific functions against viral invasion, penetration, replication, expression, assembly and release (Shrivastava, 2020). Moreover, medicinal plants and their natural ingredients proved to be the most promising alternatives to prevent or cure the infection and spread of this disease since its outbreak (Shi et al., 2020). However, there is an urgent need to invest time on these studies for acquiring about appropriate doses and formulations of these herbal formulations (Rajagopal et al., 2020). Integration of this concept would certainly develop the drug therapy in the near future. The future possibilities uphold the fact that by combining these studies with effective technology and testing we can demonstrate their role in hindering the life-cycle of this virus, protein denaturation of receptor proteins.

5. Conclusion

Medicinal herbs and spices have been used by the Indian population from ancient times and they have an important role in traditional healing practices. Today herbal medicine is practiced in all parts of the World and it is still the primary healthcare system for a large fraction of the population, especially in rural communities. During this study, we identified number of Indian herbs, spices and herbal supplements that were used by Bhopal population during Covid-19 pandemic to protect themselves and build their immunity. The results of this survey and the information collected showed the belief of people in herbs and ancient Ayurveda. This survey concludes that Bhopal people used different herbs to enhance the body's natural defense system (immunity) and agree that strong immunity plays an important role in maintaining optimum health and prevention from unwanted infections. We all know that prevention is better than cure. While there is no medicine for COVID-19 as of now, it will be good to take preventive measures which boost our immunity.

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