

# Magical ayurvedic spices and herbs that can boost our immunity

## Abstract

Today world is facing an unprecedented pandemic COVID 19 caused by SARS COV 2. In present scenario it's become more important to build our defense system more strong against it as no evidence-based treatment for COVID-19 is developed yet. Since time immemorial, traditional spices and herbs have played a vital role as immuno-boosters in Indian cuisine. Herbs and spices were well known from ancient times for their medicinal properties. More than 80 spices are grown in different parts of the world, particularly in Asia. India is home to several spices that are used extensively in traditional medicine. Spices like turmeric, saffron, cloves, cinnamon, carom seeds, ginger and garlic are known to have a plethora of beneficial properties. Herbs like mint, tulsi (Holy Basil), leaves of neem, ashwagandha, giloy are said to have several health benefits. Herbs and spices are wonderful because, unlike drugs, we don't need to "take" them. Instead, we can add them to our favorite dishes for a kick of flavor and increased immunity.

**Keywords:** giloy, ashwagandha, garlic, turmeric, ginger

Volume 8 Issue 3 - 2020

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**Received:** June 29, 2020 | **Published:** July 30, 2020

## Introduction

Today worldwide, a novel corona virus disease (COVID-19) caused by Severe Acute Respiratory Syndrome Corona virus 2 (SARS-CoV-2) has emerged like a havoc to the humanity. The disease has unfolds globally and caused more than three lakh casualty. Worldwide many efforts and measures have been taken by the countries to control this pandemic but it is ceaselessly spreading. Now the dimension of pandemic forces us to explore the available options present in all knowledge systems practicing globally. A ray of hope has come from China wherever they used Traditional Chinese Medicine to treat COVID-19 cases and find better recovery results. This can also draws attention of scientific community to Ayurveda classics and its experimental knowledge to get explored for finding cure for this pandemic.

According to ancient Indian texts, "aushadham ucchyathe sarvam", which implies that food is the 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. In Ayurveda, spices and herbs are used to cure long standing health conditions by eliminating metabolic conditions and commonly termed as 'cleansers'. Traditionally, in Indian cuisine, herbs and spices are used in a dish according to their nutritional benefits and their ability to strengthen our immune system, which in turn, can protect us from ailments and infections. A strong immune system helps the body fight flu, disease-causing viruses, as well as bacteria. People with compromised immunity are more prone to falling sick and their symptoms for any disease are more severe as compared to others. That's why the need of strong immune system is extremely important because that will enable us to live a healthy life. And how the covid-19 is wreaking havoc, it's even more important to build our defenses against it.

According to the World Health Organization, around 80% of the world population uses herbal medicines for primary health care, particularly across South Asia and Europe. Research studies indicate

that along with building up the body's immunity, they also have anti-inflammatory properties and relatively have less side effects. This mini review discussed about some important herbs and spice that can be used as potent immunity booster. At a time when the world is reeling under the effects of COVID-19, these Ayurvedic herbs and spices should be added in our daily diet to boost your immunity:

## Giloy

(*Tinospora cordifolia*) commonly known as 'Guduchi' or 'Amrita', is a plant being used from centuries for its medicinal values. Many studies have reported the hypolipidemic, hypoglycemic, hepatoprotective, antibacterial, anti-inflammatory, antiosteoporotic, antiobesity, anticarcinogenic and antimutagenic properties of giloy.<sup>1-9</sup> Its antioxidant potentials were also investigated in many studies.<sup>10</sup> It is also very effective against lead toxicity, diabetic foot ulcers and diabetic neuropathy. It also improves learning and memory power.<sup>11-13</sup> The immunomodulator properties of giloy was studied in various models.<sup>14,15</sup>  $\alpha$ -D-glucan, the main chemical constituent of giloy stimulate natural killer cells, B cells, and T cells with simultaneous production of various immune-stimulatory cytokines.<sup>15</sup> It also reduces the total leucocyte count (TLC), neutrophil and eosinophil counts when its extract has been given to Human Immuno-deficiency Virus (HIV) positive patients.<sup>16</sup> In a study done on male wistar rats using alcoholic extract of giloy showed an increase in the white blood cell (WBC) counts, bone marrow cellularity, serum Ig concentrations which further validates the immunomodulatory potential of this plant.<sup>16</sup>

## Ashwagandha

(*Withania somnifera*) is a very revered herb of the Indian Ayurvedic system. It is used for various kinds of disease processes and especially as a nervine tonic. In Sanskrit Ashwagandha, means "the smell of a horse" because of its vigour and strength of a horse. Ashwagandha is an adaptogen which is a class of plants and herbs that help to bring the body's stress response to normal levels. Such herbs make us more

resilient at times of stress (physical /emotional) and restore a state of balance. The root of ashwagandha is regarded as tonic, aphrodisiac, narcotic, diuretic, anthelmintic, astringent, thermogenic and stimulant.<sup>17</sup> Studies show that withanolides,<sup>18</sup> the major constituent of ashwagandha is responsible for its antimicrobial, antitumor, and immunomodulating properties.<sup>19</sup> The antioxidants found in ashwagandha play a vital role in its ability in boosting the immune system.<sup>20</sup> Studies also showed that the body naturally increases nitric oxide production in the face of infection, which accounts for a part of the immune-boosting effects of the herb. Ashwagandha increases the production of nitric oxide which is responsible for activating the macrophage actions of the immune system and improves the ability to ingest invader foreign cells.<sup>21</sup> Ashwagandha also helps in lowering the inflammation by reducing the number of C-reactive protein in the body. This lowering effect of chronic inflammation helps our immune system to perform efficiently by improving the action of Natural Killer cells which are a part of the innate immune system, and thus play a vital role in host-rejection of both tumors and viral infected cells.<sup>22</sup> Research showed that ashwagandha helps to increase the natural killer cells in humans studies.

## Garlic

(*Allium sativum*) belongs to genus *Allium* which are known for their production of organosulfur compounds, which possess interesting biological and pharmacological properties. The compounds extracted and isolated from garlic exhibits a broad spectrum of beneficial effects against microbial infections as well as cardioprotective, anticancerogenic, and anti-inflammatory activity.<sup>23–27</sup> Recently, garlic has been suggested as a promising candidate for maintaining the homeostasis of the immune system. Several studies have been carried out in animal models to examine the effect of different garlic components and formulations on immunomodulatory activities.<sup>28–29</sup>

S-allyl-L-cysteine sulfoxide (alliin) and  $\gamma$ -glutamyl cysteine derivatives are the major constituents of garlic. When garlic is crushed or chewed, this compound turns into allicin, the main active ingredient in garlic responsible for its distinctive smell and taste.<sup>30</sup> However, allicin is unstable, so it quickly converts to other sulphur-containing compounds which exhibits medicinal properties.<sup>31</sup> These compounds have been shown to boost the disease-fighting response of white blood cells in the body when they encounter viruses, such as the viruses that cause the common cold or flu.<sup>32</sup> Aged garlic extract contains fructans (fructoligosaccharides) which selectively stimulate some beneficial bacteria in colon, modulating immune responses.<sup>33</sup>

## Turmeric

(*Curcuma longa*) the “Indian saffron” is a yellow orange spice and medicinal herb that has been used for thousands of years. It is one of the most well researched spice, explored for its therapeutic properties. Previous finding has proven that it has therapeutic potential as antifungal, antiviral, antioxidant, anti-inflammatory, and management of other pharmacological activities.<sup>34–38</sup> Curcumin, the major constituent of turmeric has been proven responsible for its clinical therapeutic properties Curcumin also shows pivotal role in the modulation of immune system. The prebiotic-like properties of turmeric has been explored which enable it to make changes in the gut microbiota and support the gut-immune connection.<sup>39</sup> Curcumin is capable of lowering cortisol levels which in turn help in maintaining balance in the immune system. It is important because all immune cells contain cortisol receptors; alteration in cortisol

levels causes impairment in immune responses.<sup>40–41</sup> The excessive pro-inflammatory activity of immune cells leads to suboptimal health conditions; however, studies also proved that turmeric may help in regulating hyperactivity of immune cells.<sup>42</sup>

## Ginger

(*Zingiber officinale*) is widely used spice around the world. In Chinese, Ayurvedic and Tibb-Unani herbal medicines it has been used for the treatment of catarrh, rheumatism, nervous diseases, gingivitis, toothache, asthma, stroke, constipation and diabetes.<sup>43</sup> The medicinal, chemical, and pharmacological properties of ginger have been extensively reviewed the evidence for the effectiveness of ginger as an antioxidant, anti-inflammatory agent, anti-nausea compound, and anticancer agent as well as the protective effect of ginger against other disease conditions are reviewed. Presence of ketones, especially the gingerols, which appear to be the primary component of ginger, is responsible for its spicy aroma.<sup>43</sup> The gingerols, paradols, sesquiterpenes, shogaols, and zingerone, are responsible for powerful anti-inflammatory and antioxidant properties.<sup>44–45</sup> Studies on various models showed that the ginger extract reduces inflammation in those with conditions like rheumatoid arthritis, inflammatory gut disease, asthma, and certain cancers. A clinical trial on human using ginger powder significantly reduced levels of inflammatory proteins like tumor necrosis factor alpha (TNF-alpha) and C-reactive protein (CRP).<sup>46</sup> In another study, male athletes who received 1.5 grams of ginger powder daily for 6 weeks had a significant reductions in levels of inflammatory markers, such as TNF-alpha, interleukin 6 (IL-6), and interleukin-1 beta (IL-1-beta), compared to athletes who received a placebo.<sup>47</sup>

## Conclusion

In the wake of the COVID 19 outbreak, entire mankind across the globe is suffering. Enhancing the body's natural defence system (immunity) plays an important role in maintaining optimum health. 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 in these times.

## Funding

None.

## Acknowledgments

The author is grateful to Department of Chemistry, Navyuganya Mahavidyalaya Lucknow for the support.

## Conflicts of interest

The author declares that there was no conflict of interest.

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