



Immunity-Boosting role of medicinal-Plants

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Abstract

Immunity booster” topic is trending during the pandemic COVID-19. The concept of “immunity booster” is misleading scientifically and used to often market and their unproven products. This paper represents the analysis of popular immune-booster activity. All promoted “immunity booster” as beneficial, nearly commercial interests and many used scientific and medical messaging. It is important to maintain the capacity of immunity for the body area. Their components hold their immune-modulating properties.

Medicinal plants are being used since very ancient –times whose knowledge we add in previous literature and from the experience of old peoples. It is necessary to increase the immunity of some medicinal plants (Tulsi, Ginger, Moringa, Aloe-Vera, Lemon, Raspberry, Passion Fruit, Kiwi, Lavender, Neem, Parsley, and Peppermint & Garlic). The Modes of their actions include boosting and functioning of the immune system, activation, and suppression of immune specialized cells, interfering in several pathways that eventually led to improvement in immune responses and defense system. Some of these plants carry free anti-inflammatory activities that are helpful against various diseases. Different types of chemical quantities are found in medicinal plants, it is a very important point in our current study. We got this work in our previous research. The study reviews medicinal plants that grow whose antioxidant, antiviral, anti-inflammatory, and immune-modulatory characteristics are already known, also in the framework of the prevention and treatment of pneumonia of various etiologies. The need for a comprehensive approach to maintaining immune defenses, including functional foods and positive emotions, is emphasized. In the period of Pandemics, it is to research various areas that allow to us accumulate a critical mass of information and cope with the next global disease. The present work has been done especially on the corona pandemic. I have selected a few plants.

Keywords: medicinal-Plants, immunity-Booster covid-Pandemics plant-Survey

Introduction

There's no shortage of supplements claiming they can stimulate your immune system — but be wary of these Promises. Unlike medications, supplements aren't regulated or approved by the FDA. And there's no evidence that supplements actually help improve your immune system or your chances of fighting off an infection or illness. For instance, if you think a mega dose of vitamin C can help you keep from getting sick, think again. If you're looking for ways to help boost your immune system, consider keeping up with the lifestyle habits above, rather than relying on claims on a label. With the 2019 COVID-19 pandemic, it's especially important to understand that no supplement, diet, or other lifestyle modification other than physical distancing, also known as social distancing and proper hygiene practices can protect you from COVID-19. Currently, no research supports the use of any supplement to protect against COVID-19 specifically. Fast paced living, changing lifestyles, eating habits can have some unexpected results. We eat too many processed foods. We miss meals. Some of us smoke and/or drink alcohol. All these factors can rob us of the multi mineral and multivitamins we need to meet our daily nutritional requirements. Amway Nutrilite Daily is one of the helps you meet your daily requirements of multivitamin and multi mineral nutrition along with a regular diet. Covid season has definitely made immunity the buzz word. After health supplements, vitamin tablets and Kadha to boost immunity during the pandemic, the latest entrants in the field are immunity-booster sarees. In this process, herbs and spices are traditionally crushed using iron, mortar and hands as experts believe that grinding spices in machines destroys their benefits^[1]. The spices are later tied in a cloth and left soaked in water for 48 hours so that water absorbs all the medicinal properties. This water with medicinal values is boiled in a furnace and the bag of spices is also kept in the pot. Then the clothes are treated for an hour with its steam before they are packed in airtight bags to retain freshness. Officials said immunity-booster sarees keep bacteria at bay even after four to five washes. The treated clothes increase skin's capacity to fight viruses.

Methodology

Covid-19 or Coronavirus was declared as a global pandemic by the World Health Organization. And while the countries are grappling with imminent dangers that this virus poses to humanity, there are few key measures that individuals can take to fight this pandemic.

While it is crucial to mention hygiene standards like washing your hands frequently, especially if you have travelled by public transport.

Using an alcohol sanitizer, in case you are travelling to disinfect your hands, wearing a mask (cover your nose and mouth) and avoiding touching your hand or mouth.

There are also certain methods to improve your immunity which is paramount at this juncture. Individual illnesses like diabetes, hypertension, cardio vascular disease, and respiratory issues are at a higher risk of having Covid 19 complications, it also aggravates with age as the general immunity reduces as you get older.

In the younger generation with no underlying illnesses, Covid 19 can result in a minor infection, provided you have a robust immunity and do not engage in activities like smoking or vaping to combat the onslaught of the virus.

Flow-Chart Showing Medicinal-Plants Collection and Authentication

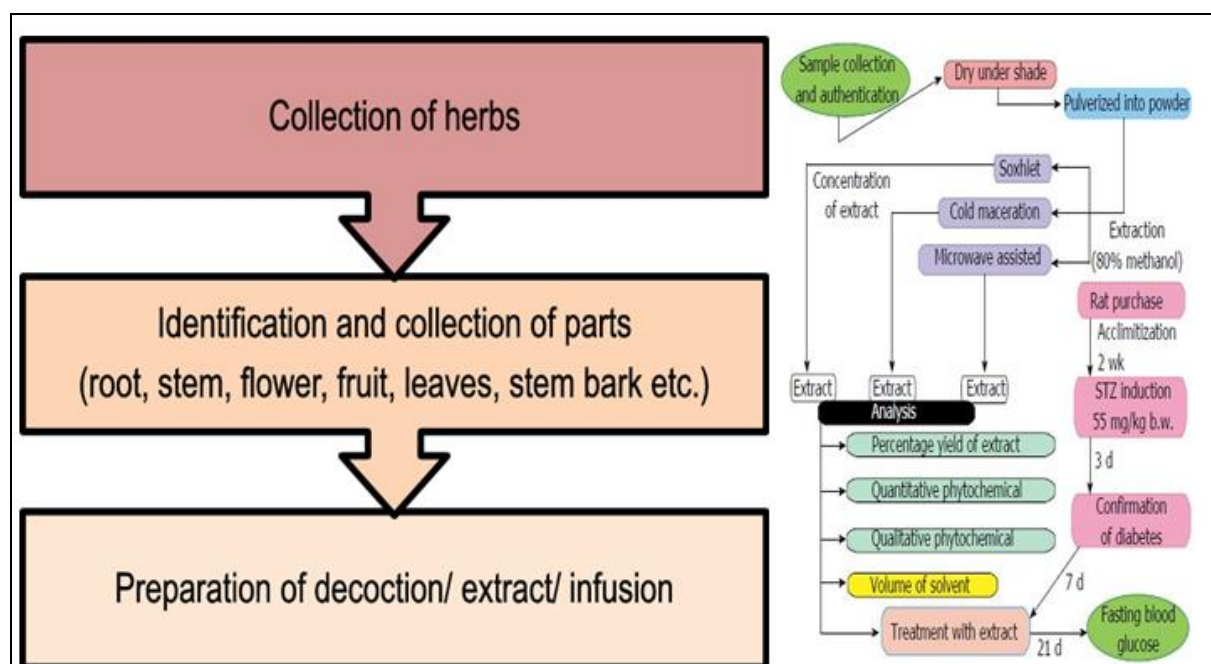


Fig 1

Concerning the global deficiency of vitamin D, particularly in the Northern Hemisphere populations during the winter, dietary vitamin D supplementation (5,000 IU daily) could have positive outcomes for high-risk groups of individuals (diabetes and obesity), but also during quarantine (38). The occurrence of adverse effects is rare in vitamin D, and modestly high amounts, 2,000–5,000 IU daily, can be consumed for an extended period (39). High amounts of vitamins C and E were found to be ineffective in increasing the immune response, except for vitamin E for viral hepatitis [40, 41]. Before the dietary supplementation of vitamin D, it is important to test for possible deficiencies of micronutrients. According to local guidelines, insufficient patients must administer vitamin D at therapeutic doses (39). Other vitamin deficiencies have to be also treated. In patients with infections caused by viruses, the MVM (1 × RDI) supplementation has been suggested [29]. In several countries in South Asia, the deficiency of micronutrients, especially vitamin D and B₁₂, has been reported [42].

They reported an increase in zinc concentrations in serum, which was associated with peripheral T cell numbers [35]. High intracellular concentrations of zinc with zinc ionophores such as pyrithione can harm the replications of several RNA viruses [26]. Concerning the global crisis of the COVID-19 pandemic, the use of zinc as possible supportive treatment in COVID-19 patients could be attributed to its immune enhancement effect and direct antiviral activity [44].

Guideline for the role of dietary function

The majority of the guidelines state that the diets should predominately consist of fruits, vegetables, and starchy carbohydrates. The diet should consist of meat or a protein-rich equivalent for vegetarians, at least two portions per day [18]. Due to the possible economic and logistical difficulties regarding such protein diets, the supplementation with MVM should be mandatory during the pandemic period. In particular, malnourished individuals and those belonging to risk groups should continuously monitor their nutrient status and should be very careful when composing meals [29].

It would be advisable to consult a nutritionist regarding the diets, but due to the current socio-economic situation, this could be difficult.

In addition to hygienic measures and lifestyle behaviors, dietary guidelines are crucial in preventing and treating viral diseases, such as COVID-19.

Every patient should follow the dietary recommendations given by the governing bodies [17].

Role of Rich Food in Protein

Protein metabolism has been reported to have important functions in formation of both natural and acquired immunities against different infectious agents. The idea that deficiency of proteins could decrease immune functions may be due to the deficiency of essential amino acids connected with the regulation of the immune system [12]. Therefore, some amino acids with beneficial immune modulatory effects have been used for fortifying foods such as “immunity regulators” to enhance the immune system functions [22]. Protein-rich foods such as meat, milk, egg, bioactive peptides, and others are important for enhancing the immune systems and the body health. Proteins represent the framework of body cells, defense system, hormones, and enzymes that control the functions of the different body systems [20]. Proteins are important nutriment, and their chemical structure is composed mainly of nitrogen, hydrogen, carbon, and oxygen. Protein metabolism has been reported to have important functions in formation of both natural and acquired immunities against different infectious agents.

Probiotics Activity

The intention of consuming probiotics is to harness their benefits in a symbiotic or commensal relationship with the intestinal microbes. Initially, probiotics were defined as contributors to host's intestinal microbial balance [2]. The modern consensus definition of probiotics is that they are living microorganisms, which when administered in adequate amounts can confer health and well-being to the host [22]. Thus, probiotics benefits are beyond the mediation of gut microbiota based on associated mechanisms.

A paramount criterion for obtaining effective probiotics is their ability to adhere to the gastrointestinal tract (intestinal mucosa and epithelial cells), in order to avoid being passed out *via* gut motility, and thus multiply, colonize and modulate the immune system of the whole body by competitively suppressing pathogens [21, 23].

Importance of Some Herbs with Their Medicinal Values

- Many herbs are used as blood purifiers to alter or change a long-standing condition by eliminating the metabolic toxins. These are also known as 'blood cleansers'. Certain herbs improve the immunity of the person, thereby reducing conditions such as fever.
- Some herbs are also having antibiotic properties. Turmeric is useful in inhibiting the growth of germs, harmful microbes and bacteria. Turmeric is widely used as a home remedy to heal cut and wounds.
- To reduce fever and the production of heat caused by the condition, certain antipyretic herbs such as *Chirayta*, black pepper, sandal wood and safflower are recommended by traditional Indian medicine practitioners.
- Sandalwood and Cinnamon are great astringents apart from being aromatic. Sandalwood is especially used in arresting the discharge of blood, mucus etc.
- Some herbs are used to neutralize the acid produced by the stomach. Herbs such as marshmallow root and leaf. They serve as antacids. The healthy gastric acid needed for proper digestion is retained by such herbs.
- Indian sages were known to have remedies from plants which act against poisons from animals and snake bites.
- Herbs like Cardamom and Coriander are renowned for their appetizing qualities. Other aromatic herbs such as peppermint, cloves and turmeric add a pleasant aroma to the food, thereby increasing the taste of the meal.
- Some herbs like aloe, sandalwood, turmeric, sheetroaj hindi and khare khasak are commonly used as antiseptic and are very high in their medicinal values.
- Ginger and cloves are used in certain cough syrups. They are known for their expectorant property, which promotes the thinning and ejection of mucus from the lungs, trachea and bronchi. Eucalyptus, Cardamom, Wild cherry and cloves are also expectorants.
- Herbs such as Chamomile, Calamus, Ajwain, Basil, Cardamom, Chrysanthemum, Coriander, Fennel, Peppermint and Spearmint, Cinnamon, Ginger and Turmeric are helpful in promoting good blood circulation. Therefore, they are used as cardiac stimulants.
- Certain medicinal herbs have disinfectant property, which destroys disease causing germs. They also inhibit the growth of pathogenic microbes that cause communicable diseases.
- Herbal medicine practitioners recommend calmative herbs, which provide a soothing effect to the body. They are often used as sedatives.
- Certain aromatic plants such as Aloe, Golden seal, Barberry and Chirayata are used as mild tonics. The bitter taste of such plants reduces toxins in blood. They are helpful in destroying infection as well.
- Certain herbs are used as stimulants to increase the activity of a system or an organ, for example herbs like Cayenne (Lal Mirch, Myrrh, Camphor and Guggul).
- Honey, turmeric, marshmallow and liquorice can effectively treat a fresh cut and wound. They are termed as vulnerary herbs.

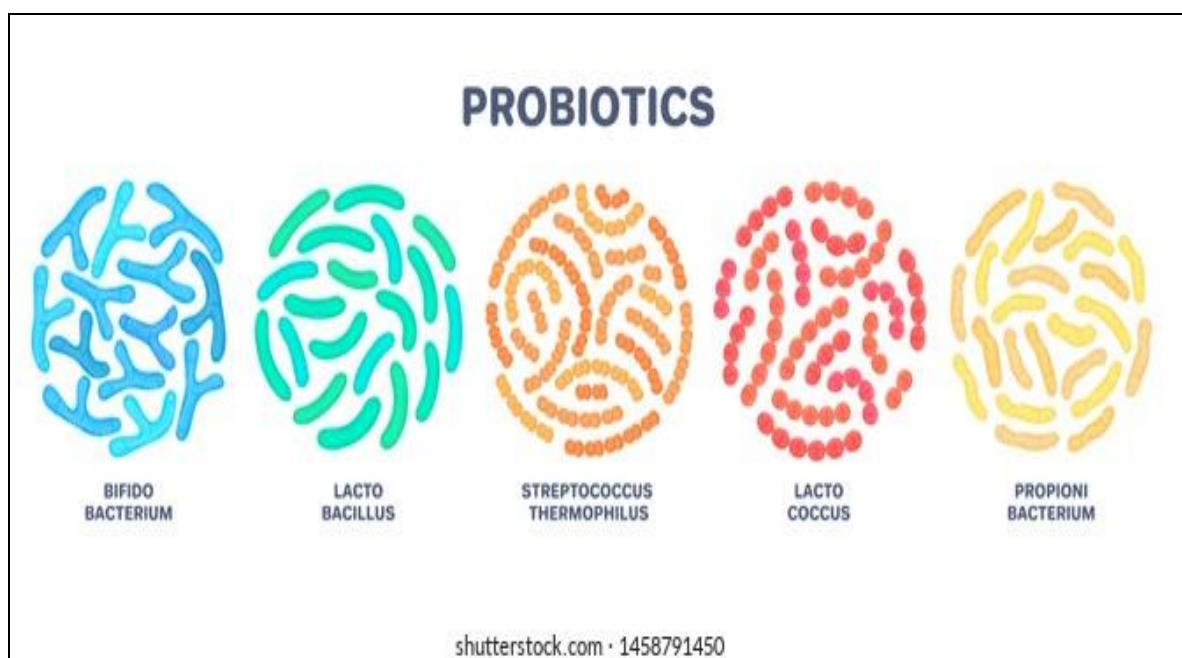
Table 1: Popular immunity boosters and their key features

Immunity booster	Key features
Dabur Chyawanprash- 2X Immunity	Apt for the entire family
Baidyanath Amla Juice	Can even help you manage weight
Dabur Honitus Hot Sip Ayurvedic Kadha	Made from a mix of 15 natural ingredients
Jolly Tulsi 51 Drops Natural Immunity Booster	Made from 5 types of tulsi leaves
Immunity booster	Key features

Immune Boosting and Mechanisms of Action

The action mechanisms of probiotics interfere with the gut epithelial and immune cells composition and functions.

Several insights into the mechanisms of probiotics are deduced from *in vitro*, animal, cell culture or *ex vivo* human studies, and not all mechanisms have been confirmed in every probiotic strain or humans because a probiotic cell may exhibit several mechanisms simultaneously, further complexed by diverse factors [2]. There is a probiotic inherent immunomodulatory property which varies from strain to strain. For instance, a probiotic strain significantly reduced sepsis in a study, but upon reformulation allowed enterocolitis in infants [43, 44]. There is a colonization resistance concept, which is possibly the sum outcome of the functioning of many of the different immune-boosting mechanisms of probiotics action in concert; it is described as the occupation of host tissues by the native gut microbiota in order to exclude potential pathogenic infections [2, 45].

**Fig 2**

A booster shot is meant to increase levels of immune responses after these have naturally waned. A booster tricks the immune system into thinking that it is again seeing a pathogen, so antibody producing cells, and other immune cells, are recalled into gear. The quantity and quality of antibodies that are produced can increase. Through a process called antibody affinity maturation, our immune system learns to do a better job at recognizing a pathogen and making antibodies that bind more tightly to their target. For the SARS-CoV-2 virus, for example, affinity matured antibodies can be more effective at recognizing variants with multiple mutations.

Benefits of Seeing a Dietitian Include

- Improved diet
- Improved mood
- Improved confidence
- Increased independence
- Increased food range for fussy eaters or people with Autism Spectrum Disorder
- Structured dietary advice
- Education and a support network
- Weight loss management
- Improved fluid intake
- Improved life expectancy

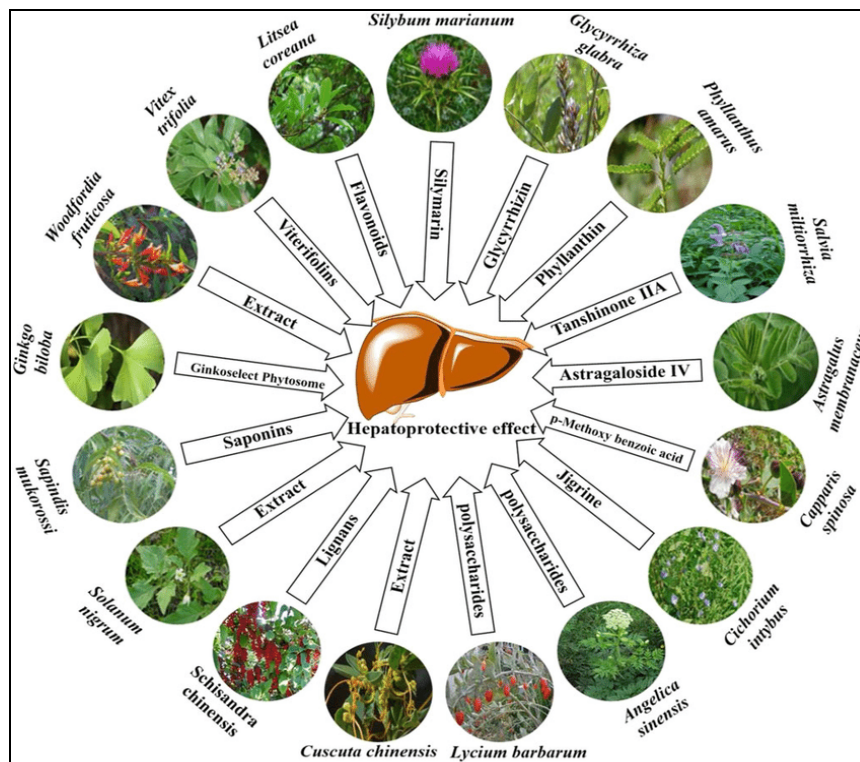


Fig 3

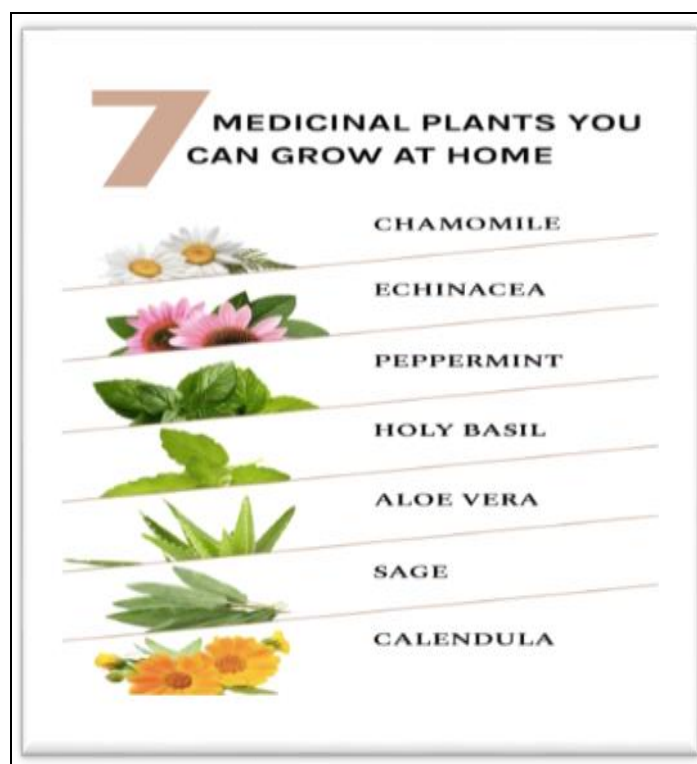


Fig 4

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