

**A Simple Way To Improve Immunity During New Normal Through Changing Food Habit With Low Cost Plant Parts Or Products**

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**Abstract**

Covid-19 is a serious pandemic disease spread worldwide and seriously hampered daily life and lower health and mental conditions of affected as well as unaffected persons. This disease is too much infectious and humans are the main host of the SARS Cov virus. Therefore we have to stay at home and need to build our immunity power to combat with the disease. So we need easily available fresh, cost effective healthy diet to boost our immunity against the corona virus. Healthy food means the food which provides nutrients to sustain body's well being and retain body's energy as and when required. Vitamin and minerals are the most important components of the healthy diet. Healthy food means fresh, green, disease free vegetables and whole grains (may be germinated), fruits, nuts, seeds etc. Healthy food protects us from several chronic and non communicable diseases, heart diseases, diabetes and many co-morbidity symptoms. Healthy diets also improve our mental support with body's strength and work ability. During new normal we have to combat with post Covid era which affects us physically, mentally and economically. So, we need to enrich us physically and mentally through good food and dietary habits with cost effective way. In this communication 37 easily available plant based immunity boosters have been placed to manage the serious disease before and during new normal for better management of people and community.

**P**lant products used everywhere from dawn to dusk as they provide immense items like food, shelter, clothes, medicine, cosmetics, fuel, fodder, even for aesthetic purpose. All plants are useful in terms of environmental aspects though some are important to improve our health system during Covid -19 pandemic. A large variety of plants and their various parts are used by large group of people round the globe. A tiny bacteria, blue green algae and

red giant trees are important for their ecological view points but direct benefit is also comes from plants of our neighboring areas which are very useful. Due to Covid-19 pandemic situation, whole world is facing a great threat of extinction and every day people are combating against the tiny SARS COV particle. Even though safe and effective vaccination programme is going on worldwide but it still it is facing significant obstacles for different reasons<sup>5</sup>.

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India is able to vaccinate 100 crore people at least for first dose till 21<sup>st</sup> October 2021. As per report from WHO, Covid 19 vaccines are not fully protective for vaccinated people and it has not 100% guaranteed against transmitting viruses to other persons (WHO report 14<sup>th</sup> July 2021)<sup>6</sup>. That's why during new normal though we got vaccine we need to be aware for all type of safety measures as well as improve our body immunity power. Emerging infectious diseases like pandemics and epidemics has the potentiality of giving shape our future history. To manage this threat we have to maximize the potential of our sophisticated immune system in the service of human health<sup>4</sup>. Most immune cells are produced from bone marrow and begin from the childhood. Early infection can be detected by person's own innate immune system cell. So we need to make our immunity system stronger and stronger to cope up with the new normal situation. During infection from pathogenic organisms individual's immunity system enhanced and need energy sources, substrates for biosynthesis and regulatory molecules which one can derive from the diet only<sup>2</sup>. So we need not only proper diet but also good food habit also from our childhood. Several vitamins and micro elements have the property to support human immunity system as well as reducing the risk of pathogenic infections. Vitamins like A, B6, B9, B12, C, D, E and micro nutrients like Zn, Cu, Fe, Se are recommended for this purpose.

In our India, all doctors prescribing immunity booster drug to the disease infected persons viz. A-Z immune, Immune C-Z and so on. These drugs contain Immunity boosting vitamins like Vit.-A, Vit.-B1, Vit.-B2, Vit.-B3,

Vit.-B5, Vit.- B6, Vit.-B9, Vit.-C and Vit.-E. Similarly minerals like Copper, Manganese, Selenium and Zinc are also present within the drugs.

In this communication I am trying to emphasize on some common plants that are using every day as vegetables, fruits, spices, masticatory and mouth freshener but they are good source for supply of vitamins and minerals. These are important as immunity booster as well as fighter for immune deficiency disorders. According to some authors, total force fitness is a holistic health approach to enhancing warrior health and resilience<sup>1</sup>. Therefore, general information is giving here to combat against such serious disease like COVID -19 in India and abroad. Researchers argued that nutritional fitness is an essential component of total force fitness as poor nutrition degrades several mission due to variety of health disorders. Therefore, people are aware regarding their health and consciousness during the whole life and try to adjust with their environment to be healthy, wealthy and sound. Good nutrition is an important part for leading healthy and happy life style for all. So, we try to use plants, animals and similar products in our diet to make our body fit for present and future activities. From our school days we came to know that plant and animal proteins, fats and carbohydrates are essential for our balance diet. Plant based nutrition is better than animal based one because there is less risk factors for physical disorders and diseases. The same opinion was coined by Hever and Cronise<sup>3</sup>. They stated that health promoting whole food plant based diet delineate macro and micro nutrition emphasizing specific

geriatric concerns and offer guidance to physicians and health care practitioners to support patience in successfully utilizing nutrition to improve their health. To emphasize the importance of plant based nutritional formulations on human beings; the present case study was conducted in West Bengal with reference to daily based practice in different families under different districts.

*Study Area :*

Study area includes districts like Malda, Uttar Dinajpur, Dakshin Dinajpur, Murshidabad, Midnapore West and East including Jhargram of West Bengal.

Doctors from these areas prescribed immunity boosting vitamins and mineral through medicines. But the Gangetic plains and coastal areas of Bay of Bengal are prone to use valuable plants available in the gardens, kitchen garden, and nursery and from wild which are potentially important and rich in Vitamins and minerals. The present study was made through literature review, study on daily use of plants by local people and market survey during new normal.

Indian people are fond of vegetables and like to buy fresh and cheap one from market. They also love to grow several leafy vegetables, fruit vegetables and corms in their gardens. Easily available plants, for daily diet and source of several immunity boosting vitamins and minerals are given here after market survey. These are Vit.- A, found in mango (A single Mango with 112mcg); Sweet Potato (A single sweet potato with 1403 mcg); Boiled spinach ( $\frac{1}{2}$  cup with 573mcg); Pumpkin 1 Pc (250 g with 488 mcg); Tomato juice ( $\frac{3}{4}$

cup with 42 mcg); Ginger, Ocimum, curry leaf, and cinnamon. Vit.-B1 found in Banana, Orange, Ajwain, breakfast cereals like Oat and sprouting wheat. Vitamin B2 found in Yoghurt, Vit.-B3 found in Wheat flour, ajwain, Vit.-B5 in Potato, Oat, Broccoli, Curd and brown rice. Vit. B6 found in Banana and turmeric. Vit.-B9 found in in Banana, spinach, broccoli and wheat. Vit.- C in Citrus fruits, Green chili, turmeric, ginger, curry leaf, and in margosa. Vit.- E in nuts and seeds, plant oils like rapeseed, sun flower, ginger, curry leaf, soya and olive oil.

Easily available vitamins from daily diet and easily available plants in Indian market are important during new normal after Covid 2019. Several minerals are associated with it. These are copper, manganese, selenium and zinc. Copper found in whole grains, beans, potatoes, ginger, black pepper, curry leaf and leafy green vegetables mainly *paan leaf* (*Piper betle*). Manganese found in rice, tea, ginger, leafy green vegetables, black pepper, fenugreek, turmeric, clove and whole grains. Selenium found in cereals, broccoli, spinach, green pea, beans, ginger and in clove. Zinc in nuts, spinach, garlic, onion, ginger, watermelon seeds and in basil leaf.

Botanically following are the information of various plant parts and their products and uses other than vitamins and minerals availability.

*Pan* leaves are scientifically called *Piper betle* of Piperaceae. It helps in treating diabetes, aids in weight loss, prevent a carcinogen that leads to cancer, and heal of wounds, cure headache. In Bengali it is called '*paan* or *tambul*'.

Table 1. Distribution of major minerals and Vitamins in pant products and availability in market

Sl. No		Vit A	Vit B1	Vit B2	Vit B3	Vit B5	Vit B6	Vit B9	Vit C	Vit E	Zn	Cu	Mn	Se	Availability
1.	Mango	+			+				+						4 months
2.	Sweet Potato	+													12 months
3.	Spinach	+						+			+			+	Winter
4.	Pumpkin	+	+				+						+		12 months
5.	Tomato	+						+							12 months
6.	Ginger	+							+	+	+	+	+	+	12 months
7.	Ocimum Leaf	+									+				12 months
8.	Curry leaf	+								+		+			12 months
9.	Cinnamon	+					+								12 months
10.	Banana		+					+							12 months
11.	Orange		+						+						6 months
12.	Oat		+			+							+		12 months
13.	Wheat		+	+	+			+				+	+	+	12 months
14.	Ajwan		+		+										12 months
15.	Potato					+						+			12 months
16.	Broccoli					+		+						+	3 months
17.	Rice					+						+	+	+	12 months
18.	Turmeric						+		+				+		12 months
19.	Citrus fruit						+	+	+						12 months
20.	Green chilli	+					+		+			+			12 months
21.	Margosa leaf								+						12 months
22.	Nut									+	+				12 months
23.	Rapeseed									+					12 months
24.	Sunflower									+					12 months
25.	Soybean			+						+					12 months
26.	Fenugreek												+		12 months
27.	Black pepper											+	+		12 months
28.	Clove												+	+	12 months
29.	Green pea								+	+	+			+	6 months
30.	Bean											+		+	4 months
31.	Garlic						+		+		+		+	+	12 months
32.	Onion						+		+		+				12 months
33.	Water melon	+							+		+				4 months
34.	Betle leaf	+	+						+			+			12 months
35.	Tea									+			+		12 months
36.	Carrot	+					+		+						12 months
37.	Guava	+			+		+		+	+			+		12 months

Note: + sign indicates presence, mcg-microgram, Beng.-Bengali.

## Photo plates:



Fig. 1. Betel leaves, Fig. 2 Ajwain- Cumin boiled water and Cumin, Fig. 3 Tomato, Fig. 4 Pumpkin, Fig. 5 Sweet potato, Fig. 6 Ripe mango, Fig. 7 Lemon (2 types), Fig. 8 Turmeric and Fig. 9 Guava

Black pepper is scientifically called *Piper nigrum* (Beng.-Golmorich) under Piperaceae. It is used as spices and flavoring agent in curries. It has anti oxidant, anti-inflammatory and anti-cancerous properties. It has beneficial activities like brain cell's

stimulant. It controls blood sugar and lower cholesterol level, boost absorption of nutrients and promote to increase gut health. Garlic is also an important plant and used as spice. Scientifically it is called *Allium sativum* (Beng.-Rasun) under the family Liliaceae. It

has medicinal properties to treat common cold, reduces blood pressure, and improves cholesterol level which may lower the risk of heart diseases. It has antioxidant activity to prevent Alzheimer's disease and dementia. It also helps to improve liver health, helps to detoxify heavy metals of the body and improves bone health including athletic performance. Onion plant of the same family Liliaceae is commonly used in cooking purpose. Scientifically it is called *Allium cepa* (Beng.-Piyaj). It improves heart health. It has anti-oxidant activity, anti-cancer property and controls blood sugar, boost bone density, antibacterial property and boost digestive health. Ginger is botanically called *Zingiber officinale* (Beng.-Ada) of Zingiberaceae. It treats many forms of nausea specially morning sickness. It reduces muscle pains and soreness. It has anti-inflammatory property that helps to cure osteoarthritis. It also drastically lowers blood sugar and improves heart disease risk factors. It improves digestive power and helps to fight against several types of infections. Powder of Ginger significantly reduces menstrual pain, lower cholesterol level. It has anti-cancerous property and improves brain function and protects against Alzheimer's disease. Cinnamon is scientifically called *Cinnamomum verum* under the family Lauraceae. Bark is important and used widely as spices and condiment. It improves digestive power. It lowers blood cholesterol and triglycerides hence decrease risk of heart disease. It has anti-oxidant, anti-inflammatory activity. It also reduces blood sugar level. Clove is scientifically it is called *Syzygium aromaticum* (Beng.-Labanga) under the family Myrtaceae. Flower bud is widely used as spices. It kills bacteria, promote bone health, reduce blood

sugar, improve liver health and protect cancer, relief toothache.

Present study revealed that nearly 37 common and easily available plants have immense medicinal properties with abundant vitamin and mineral sources to improve immunity. These are essential components to improve the health of a Covid-infected person as well for uninfected persons to boost up their immunity. These plants also have properties to cure digestive problems, diabetes, toothache, skin disease, gum problem, wounds, cancer, pathogenic infections, liver disease and hypertension. Plants also lower blood pressure, obesity, dysentery, osteoarthritis, menstrual cramps, ulcer, nerve problems, dandruff, respiratory problem, heart disease, wounds and constipation. Some of the plants have the properties to act as brain cell booster, antioxidant, anti-inflammatory. Some plants help to stop bleeding during injury. They also provide vitamins and minerals. So, to improve our immunity and fitness we can use all the above plants in regular basis and proper way to combat serious disease during Covid-19 pandemic situations and also during new normal also. During morning one can use overnight pre-soaked mango leaf water in empty stomach followed by eight ingredients like holy basil, guava leaf, turmeric, garlic, germinating gram, germinating fenugreek, ginger and curry leaf as breakfast. Most of the above mentioned plants are available round the year but others are confined for three to four months in a year at a reasonable cost. One can use fruits of 4 different types up to 650g before lunch. After lunch one can take betel leaves with cinnamon and fennel as digestive. After lunch and dinner valuable carminative may be used as cumin

and ajwain boiled water. Bed time one should positively use black pepper and clove to protect oral infections.

*Remarks :*

Plants are used widely among the people who are very sound about the use and applications of plants. They use plants not only during Covid-19 and also in new normal period but since time based practice from their forefathers. The readily available plants and plant products enhance their body power and keep body to fight against such serious disease situations. Hope that all people of Indian origin would be accustomed to use the practice of Indian culture and get benefit from these plants.

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*Conflict of Interest :*

None

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