

## COVID-19 MANAGEMENT: AN AYURVEDIC APPROACH

Shankar Saradagi<sup>1</sup>, Shweta Sirasangi<sup>2</sup>

<sup>1</sup>PG Scholar, Department of PG studies in *Kaumarabhrithya* Shri. JGAMC, Koppal, Karnataka, India

<sup>2</sup>PG Scholar, Department of PG studies in *Prasootitantra and Streeroga* Shri. JGCHAMC, Ghataprabha, Karnataka, India<sup>2</sup>

Email: [saradagishankarss@gmail.com](mailto:saradagishankarss@gmail.com)

### ABSTRACT

In human and in animals also the main cause for the spreading of diseases are virus, bacteria and fungus. These are microorganisms and they can cause epidemic and pandemic diseases. Among these, viral infections are very common in human being. COVID-19 is a type of viral pandemic infection caused by the corona virus. In present day this virus is spreading rapidly all over the world and making humankind to suffer a lot. This is air borne disease which is spreading through droplet infection. This virus is mainly going to affect the respiratory system by doing immunosuppression in human being. There is no particular treatment for this virus and in the initial stage it can be managed by symptomatic treatment only. Number of scientists are trying to find the vaccine for the COVID-19 all over the world but still there is no result. For the management of this virus, the immunomodulators and antioxidants plays a major role as the virus is directly affecting the immune system. *Ayurveda*, a science of life, it has abundant knowledge within it. Many medications, procedures, precautionary measures are explained here. Concept of *Sankramika Vyadhi (Janapadodhwamsa)* also explained in detail in our *Ayurvedic* literature. Many drugs which are having antioxidant property, immunomodulatory property are also explained. Among such drugs, *Jayanti Veda* (*Tridox Procumbens*) is also one type of drug which helps in antioxidation and immunomodulation in human being. So here an effort made to explain about the properties of this *Jayanti Veda* drug and its benefits in the management of COVID-19 i.e. corona virus.

**Keywords:** *Ayurveda, Sankramika Vyadhi, Jayanti Veda, COVID-19, Corona Virus*

### INTRODUCTION

Viruses are micro-organisms and are the most abundant organisms of the world that are dependent on another living organism. They are made up of genetic material (either DNA or RNA) inside of a protein coating. Viral infection is a proliferation of a harmful virus inside the body. Viruses are like hijackers. They depend on the organism they infect (host). They invade living normal

cells, use them as their host and get multiplied into number of viruses. Viruses can damage or kill the host cell and make the person sick. Different viruses attack certain cells of our body such as respiratory system, kidney, blood, etc. They can cause familiar infections like common cold, flu, etc. and also chronic infections like HIV/AIDS, smallpox, Ebola.

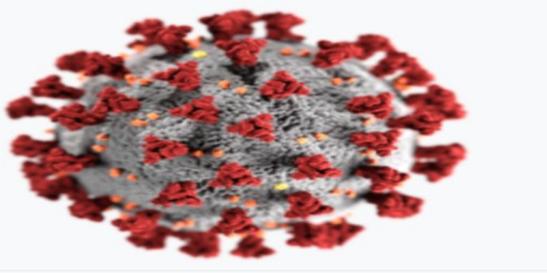
Viruses can be transmitted in many ways, like through skin contact, air, saliva, sexual contact, etc. Respiratory viral infections are more prone to spread very rapidly as they spread through air, droplet, etc. These affect the nose, throat and lung.

Corona is a type of virus of family *Coronaviridae*, sub-family-*Orthocoronaviridae*. Now a days this virus is spreading throughout the world and is bothering the human being very badly. Corona virus cause acute, mild upper respiratory infection<sup>1</sup>.

#### Structure Corona Virus-

Spherical or pleomorphic enveloped particle containing single stranded RNA associated with nucleoprotein within a capsid comprised of matrix protein. The envelop bears club-shaped glycoprotein projections which are responsible for attachment to the host cell<sup>1</sup>.

#### Pathogenesis-



Transmission of this corona virus is usually via airborne droplets through nasal mucosa. Corona viruses are fastidious and grow only in differentiated respiratory epithelial cells. Infected cells become vacuolated, show damaged cilia. Cell damage triggers the production of inflammatory mediators, which increase nasal secretion and cause local inflammation. These responses in turn stimulate sneezing, obstruct the airway, and raise in temperature of the mucosa. The red blood cells of our body carry the oxygenated blood from alveoli to all other body parts. This RBC contains a type of protein called “haeme”. Haeme contain a special kind of iron ion within it which is normally quite poisonous in its free form. This iron ion is caged within the haeme and in this way, the iron ion is carried safely by haemoglobin all over the body. When haemoglobin reaches the lungs the iron ion is used to bind with the oxygen molecule. This corona virus will break the bond between the haeme and iron ion and by that the free iron ion starts to move freely in the blood

stream. This type of iron ion is highly reactive and causes oxidative damage. Without iron ion haemoglobin fails to bind with the oxygen molecule and the body cells fails to get enough oxygen and because of this there will be drop of spo2 level in the patient and decreased blood oxygen saturation.

#### Clinical Signs and Symptoms-

Corona viruses invade the respiratory system through nose. After the incubation period of 3 days, they cause the symptoms of common cold, including running nose, nasal obstruction, sneezing, tiredness, rarely cough. The disease resolves in a few days, during which virus is shed in the nasal secretions. In later stages patient will develop breathlessness and death.

**Diagnosis-** The Corona Virus can be cultured from swabs of nasal secretion, saliva, throat swab. The virus is detected by electron microscope.

#### Prevention-

- Practice social distancing
- Cover nose and mouth while coughing and sneezing
- Wash hands often with soap
- Avoid touching nose, mouth, eyes

#### Ayurvedic Concept and Management-

*Ayurveda* is considered as pioneer of all medical sciences. Many *Samhitas* are available in Ayurveda which explain about the *Vyadhis*, *Nidana*, *Laxana*, *Chikitsa* etc. Many *Sankramika Vyadhi*, their mode of transmission, prevention, treatment is also explained in detail in *Japapadodhwamsaneeyavimana Adhyaya*. It is told that the diseases which produce destruction of large population is *Janapadodhwamsa*<sup>1</sup>. *Chakrapani*, the commentator of *Charaka Samhita* told that even though the *prakriti*, *aahara*, *deha*, *bala*, etc. of individual person is different, still there are such factors which are common to all individuals and the vitiation of these factors will leads to formation of diseases leading to the destruction of human being<sup>2</sup>. So it is an effort to know the effect of the drug *Jayanti Veda* in the management and control of Corona Virus in its early stage as this drug has antioxidant and immunomodulatory effect which is very necessary for the treatment of this virus.

### **Jayanti Veda:**

- Kingdom: Plantae
- Subkingdom: Tracheobionta
- Division: Magnoliophyta
- Class: Magnoliopsida
- Subclass: Asteridae
- Order: Asterales
- Family: Asteraceae
- Genus: *Tridax*
- Species: *Procumbens*

### **Plant Morphology:**

*T. Procumbens* is a semi prostrate, annual, creeper herb with stem ascending to 30-50cm in height, branched, sparsely hairy and rooted at nodes. Leaves are simple, opposite, serrate, acute, fleshy, pubescent, lanceolate to ovate in shape with 3-7cm in length, irregularly toothed margins with wedge shaped base, shortly petioled and hairy on both surfaces. Flowers are tubular in nature, yellow in colour with hairs having a capitulum inflorescence<sup>3,4,5</sup>. Fruit is a hard achene covered with stiff hairs and having a feathery, plume-like white pappus at one end, which assists in aerial dispersal<sup>4,5,6</sup>.



**Part Used:** Leaves, Whole plant

**Medicinal Properties:** Antioxidant, Immunomodulator, Antibiotic, Anti-inflammatory, Anticoagulant, Antifungal, Antidiabetic, Wound healing.

### **Chemical Composition:**

*T. procumbens* has high moisture content of 88.30% in the stem and 90.05% in leaf. It is rich in protein with 37.44% dry weight in the stem and 34.57% dry weight in leaf. The total lipid and carbohydrate content in the stem are 0.85% dry weight and 41.03% dry weight respectively, and that of leaf is 6.03% dry weight and 51.26% dry weight respectively<sup>7</sup>. The plant is rich in iron, copper, manganese, sodium, zinc and other trace

minerals such as magnesium, potassium, selenium and calcium<sup>8</sup>. The aqueous extract contains phytochemicals such as alkaloids, steroids, flavonoids, saponins and tannins<sup>7,9,10,11</sup>.

**Swarasa (Leaf juice):** Dexamethosone, Methyl 14-oxooctadecanoate, Methyl 14-oxononacosanoate, Hep-tacosanylcyclohexane carboxylate, Arachidic, Behenic, Lauric, Linoleic, Linolenic, Myristic, Palmitic, Palmitoleic and stearic acids.

### **Mode of Drug Administration:**

- The fresh leaves of the *Jayanti Veda* are collected, pounded and the *Swarasa* is extracted. The extracted *Swarasa* is given for drink twice daily.
- Raw leaves of *Jayanti Veda* are collected, cleaned can directly give orally.
- The leaves are dried under shade, make into powder and give with *Madhu* (honey) daily.

### **Antioxidant Activity:**

The oxygen free radicals generated from phagocytes activates transcription factor NF- $\kappa$ B inducing the formation of inflammatory cytokines and activation of cyclooxygenase-2(COX-2).

This initiates tissue damage cascade mechanism which needs to be neutralized. *Jayanti Veda* (*T. procumbens*) shows antioxidant activity. This was validated by DPPH<sup>12</sup>[2,2-azinobis (3-ethyl benzothiazoline-6-sulphonic acid)] method. Chloroform and ethyl acetate fractions of ethanol extract showed maximum activity in DPPH method with IC<sub>50</sub> values of 37.39micro gm/ml. In addition, methanol extract also showed antioxidant activity in DPPH method. Flavonoids and alkaloids of the extracts are mainly responsible for the activity<sup>13</sup>.

### **Immunomodulatory Activity:**

The ethanolic extract of *T. procumbens* has immunostimulatory property as it enhance the uptake of particulate matter by phagocytes<sup>14</sup>. This stimulates a cell mediated immune response by increasing the number of leukocytes, plasma cells and splenic leukocytes in turn increasing the phagocytic index. The active component 'sesquiterpene lactone', majorly present in the ethanolic extract, is known to induce delayed type hypersensitivity reaction. The extract prevents BSA sensitized anaphylactic reaction by producing IgG

antibodies blocking the BSA. IgE interaction, thereby inhibiting mast cell degranulation<sup>4,10,14,15</sup>. This was observed in pseudomonas aeruginosa infection<sup>16</sup>.

## DISCUSSION

Viruses are micro-organisms which always dependent on their host. Viruses can spread easily through water, air, etc., and controlling them is very difficult. The Corona Virus is first seen in China in the month of November-2019 and now it is spread all over the world and declared as pandemic disease by WHO. This virus is life threatening and already cause number of deaths in the world. All the countries are struggling to control and prevent the infection of corona. As we know there is no treatment for this virus till today. Number of scientists are trying to find a solution for this virus. Now doctors are giving only symptomatic treatment for the infected patients. In the initial stage it can be controlled and cured. But in later stages it cannot be controlled and ultimately patient will lead to the death only. So, it is better to avoid the infection in its initial stage. The *Jayanti Veda* (*Tridox Procumbens*) is the drug which is available in all over the India. People will get it near their houses, in their streets, etc. this drug is having Antioxidant and Immunomodulatory properties which are very much necessary in the treatment of Corona Virus. So, there is a need of study on this drug for the betterment of human life and also for the treatment of corona virus infection.

## CONCLUSION

*Ayurveda* is the most Ancient Science in which there are all the solutions for every question. Number of Herbal Drugs, Mineral preparations are explained in *Ayurveda* by our *Acharyas*, in that *Eka Moolika prayoga* (single drug therapy) concept is very nicely explained. *Jayanti Veda* is a small creeper which is having antioxidant and immunomodulatory effect on human body. So, there is a need of study about this drug in the management of the virus corona.

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