

# Do you need to boost your immunity? Do you need to reinforce your immune system?

## VIDYA HERBS HAS THE NATURAL ALTERNATIVE SOLUTIONS



### Immunity, our first line of natural defences

Immunity could be defined as the natural capacity of our organism to defend itself against foreign substances and infectious agents like bacteria, viruses, and parasites. Immunity is one of our main lines of biological defences. It is mobilized to fight infection and infectious diseases, or any undesirable biological intrusion, while presenting a certain necessary immunological tolerance to avoid allergy and autoimmune disease and allow the non-rejection of the embryo / foetus by the mother's body.

The immune system has two main components:

- The innate system is programmed to recognize foreign substances and react by killing and / or removing them from the body. Its response is said to be non-specific because it acts as the first line of defence by eliminating a wide range of pathogens without considering their antigenic specificity.
- The adaptive system has a certain capacity for learning and memory, and its response is said to be specific or "acquired", because its cells are programmed to recognize substances without reacting itself. It is pathogen-specific immunity and used for vaccination.

The very recent corona virus epidemic showed us how stimulating our immunity should be a key factor of our own healthy lifestyle. It also showed us how co-factors like obesity, diabetes and others could aggravate a health situation already considered as serious.

Epidemics due to viruses have paved the Human history, conducting humanity round the world to identify plants to fight against it.

Modern sciences showed how these plants are useful by boosting our immunity and for some of them, by fighting against viruses. Like a fortified tea composed of *Withania somnifera*, *Glycyrrhiza glabra*, *Zingiber officinale*, *Ocimum sanctum* and *Elettaria cardamomum* that demonstrated immunostimulatory properties in a clinical trial<sup>1</sup>.

Inspired by Ayurveda, Vidya herbs, that promotes the traditional medicinal plants through modern science is offering a complete range of plant extracts dedicated to immunity and the related aggravating factor associated to epidemics.

### Curcuma longa (Turmeric)

Turmeric is no doubt the most known plant from Ayurveda. Its main component is Curcumin which is well-known for its anti-inflammatory properties, in addition to this it has been shown to be a potent

immunomodulatory agent that can modulate the activation of T-cells, B-cells, macrophages, neutrophils, natural killer cells, and dendritic cells. Interestingly, however, curcumin at low doses can also enhance antibody responses<sup>2</sup>. In vitro and in vivo experiments showed that anti-inflammatory and immunomodulatory effects are combined by curcumin to sustain the immune system and all the curcumin health properties<sup>3</sup>.

It is very interesting to notice that turmeric or curcumin are not only stimulating the immune system, they also have anti-virus activities. Curcumin demonstrated in vivo activity against Dengue<sup>4</sup>, Influenza A<sup>5</sup>, Hepatitis B<sup>6</sup> and Herpes Simplex<sup>7</sup> viruses.

Vidya Herbs, the biggest manufacturer of turmeric extract in India with more than 50MT input/day offers a wide range of turmeric extracts in different forms like powder, granule, SFT, oil, emulsion, ... the standard one contains 95% curcuminoids.

### Andrographis paniculata (Kalmegh)

*Andrographis paniculata* is known as King of Bitter due to its very strong bitter taste. In addition to its antioxidant and anti-inflammatory activities, it must be noticed that the activity of andrographolides, the active principles of *Andrographis paniculata*, seems to be related to their capacity to upregulate Human  $\beta$ -defensin-2. Human

$\beta$ -defensin-2 is an inducible antimicrobial peptide that plays an important role in innate immunity<sup>8</sup>. It was also reported that andrographolide was able to modulate the innate immune response by regulating both classical and alternative activation of macrophages and by regulating specific antibody production.

Different type of *Andrographis paniculata* extracts demonstrated virucidal activities against Herpes Simplex virus 1, inhibition of the expression of Epstein-Barr virus, or anti-influenza activity assessed on animal cell-lines infected by H1H1, H9N2 or H5N1. It has also been demonstrated that andrographolide and their derivatives displayed anti-HIV activity in vitro<sup>9</sup>.

Due to the virucidal and immunostimulant activities of andrographolide, *Andrographis paniculata* extracts have been tested on uncomplicated infections like the upper respiratory tract infection. *Andrographis paniculata* shortened the duration of cough, sore throat and sick leave/time to complete resolution when compared versus usual care. No major adverse events were reported, and minor adverse events were mainly gastrointestinal<sup>10</sup>.

Vidya Herbs is able to offer natural *Andrographis paniculata* extracts, that should be differentiated by synthetic andrographolides (1 pic by HPLC), from 5% to 30% andrographolides.

### Ocimum sanctum (Tulsi)

*Ocimum sanctum* is also known as Holy Basil. Its Indian name is "Tulsi" which means the "Matchless One" due to its health benefits. Earliest references of Tulsi were found in Rigveda (3500-1600 BC). The immunomodulatory action of Tulsi has been assessed in a double-blinded randomized controlled trial, shows that alcoholic extract of Tulsi modulates immunity<sup>11</sup>. The immunity participant was significantly improved as demonstrated by the significantly improvement of markers like IFN- $\gamma$  and IL-4 levels, percentages of T-helper cells and natural killer cells. Tulsi extracts have also been positively clinically tested against viral encephalitis and hepatitis<sup>12</sup>.

Vidya Herbs manufactures holy basil leaf extracts with a standard at 2.5% ursolic acid in powder, granule or SFT forms.

### Emblia officinalis (Amla)

Amla are widely used in the Indian system of medicine and believed to increase defence against diseases. The bioactive tannins and polyphenols responsible for im-

munomodulatory properties of amla have been demonstrated to regulate the immune system via various mechanisms like inhibition of the NF- $\kappa$ B signalling pathway. Inhibition of the NF- $\kappa$ B signalling pathway is necessary to control the immune response and avoid over response that could be harmful. It has also been shown the ability of the compounds to enhance natural killer cells and cytotoxic T lymphocytes activities, two types of immune system cells are responsible for killing pathogens<sup>13</sup>. Antiviral activity of amla has been studied in vitro and showed inhibitory potential for Coxsackie virus, effective for Herpes Simplex viruses (HSV) 1 and 2, inhibition of Influenza virus replication, inhibition of HIV transcriptase enzyme<sup>14</sup>. Nowadays, Vidya Herbs extracts tannins from Amla and also extracts Vitamin C that is directly implicated in the immune system.

### Salacia reticulata (Kothala himbutu)

*Salacia reticulata* extracts are known to be used for prevention or remedy of diabetes by inhibiting sugar absorption, but this ayurvedic plant exerts a more specific immune activity. In a human trial, it has been demonstrated that *Salacia reticulata* can change the gene expression of peripheral blood cells as well as the proportion of intestinal microbiota together with a shift toward younger phenotype with upregulation of IFN-induced genes and a prominent change in the composition of intestinal microbiota, via an increase in *Bifidobacterium* and *Lactobacillales* together with a decrease in *Clostridium* groups<sup>15</sup>. Indicating a reinforcement of the intestinal barrier including its capacity to resist and control pathogens.

The antiviral activity of *Salacia reticulata* has been demonstrated in H1N1 infected mice, showing a mechanism of action dealing with natural killer cells activity<sup>16</sup>. Also, for *Salacia reticulata*, Vidya Herbs extracts the tannins with a standard extract at 20% tannins content.

### Withaniasomnifera (Ashwagandha)

Ashwagandha is another famous ayurvedic plant. It is very well-known as an adaptogen and is very used for its anxiolytic and sleep trouble improvement properties<sup>17</sup>. This type of property could be very useful during pandemic days to reduce stress and insomnia. One of the mechanisms of action by which the extract of *Withania somnifera* is stimulating the immune system is by enhancing the proliferation of T lymphocytes and to increase NK cell activity, two types of immune system cells are responsible for killing pathogens<sup>18</sup>.

Vidya Herbs developed Viwithan™ clinically studied for its adaptogen properties and offers a range of extracts from 2.5% to 5% Withanolids.

### Zingiber officinale (Ginger) and Piper longum (Pippali)

Another class of plant extracts could be very interesting in association with the above described ones, is the bioenhancers. Ginger and Piper longum are parts of a large number of Ayurvedic formulations because of their property to increase active principles assimilation, apart from this, Piper longum has Influenza virucidal and antidepressant-like activities, while Ginger may exert anti-viral activities. Vidya Herbs offers Piper longum extract with 95% piperine and, also ginger extracts from 2% to 5% →





gingerols in powder, granule or SFT forms.

### **Psidium guajava (guava) and Brassica juncea (Indian mustard)**

Minerals like Zinc and Selenium also play important role in the immune system. Zinc affects multiple aspects of the immune system, from the barrier of the skin to the gene regulation within lymphocytes. Zinc is crucial for normal development and function of cells mediating nonspecific immunity such as neutrophils and natural killer cells. Its deficiency affects development of acquired immunity by preventing both the outgrowth and certain functions of T lymphocytes leading to a deficient immunity<sup>19</sup>. Our immune system is also impacted by dietary selenium levels, that is incorporated into selenoproteins involved in the regulation of immune system<sup>20</sup>.

Zinc is now available at Vidya herbs as 4% Zn guava leaves extract, and Selenium as 0.5% Se Indian mustard extract.

### **Aggravating co-factors**

The COVID-19 taught us that co-factors like overweight, obesity, diabetes could aggravate the consequences of the virus attack. To help people to cope with these metabolic factors Vidya is also proposing ingredients like SUNCA™ (weight loss clinically demonstrated), Banaba (Diabetes, Rhinovirus) or even Terminalia bellirica used to fight against anxiety and that possesses immunity boosting activities.

For any help, or to discover all Vidya Herbs' ingredients, please contact our sales team.

### **Conclusion**

With a complete offer of dedicated ingredients validated by historical uses and modern science, Vidya Herbs will help consumers to accomplish what should be our own first barrier act that is stimulating our immune system and reducing aggravating co-factors. By its complete range of innovative ingredients with total traceability and guaranteed botanical variety, Vidya Herbs provides alternative natural solutions to formulators to help them developing efficient products for the benefits of their consumers. ●

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