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Summary for the Product *VIRMEL*

VIRMEL is a product from Zuf Globus which aims at strengthening the immune system acting as an adaptogen with strong antioxidant and anti-inflammatory activities. The product is recommended for healthy people who want to strengthen the body systems and fight agents that cause stress.

In herbalism, Adaptogenic is a term used to reflect the ability of a plant to work as a biological response modifier. To be considered as an adaptogen, the plant should not cause any harm or additional stress on the body, it should help the body adapt to many and varied environmental and psychological stresses and to have a nonspecific action on the body, supporting all the major systems.

The design behind this unique blend of herbs which comprise the bees' feed used to produce *VIRMEL* is long recognized for their biological activities on the different body systems. These biological activities are recorded on the WHO monographs and are corroborated by numerous peer-reviewed scientific publications.

The main biological activities of *VIRMEL* related to its herbal components is listed below:

1) *Uncaria tomentosa*

Major classes of compounds identified in *Uncaria tomentosa* include oxindole and indole alkaloids (0.15-4.60%), pyroquinovic acid glycosides, organic acids, proanthocyanidins, sterols, and polyoxygenated triterpenes (WHO, 2007; Gonzales and Valerio, 2006). There are some conditions reported to be improved by *Uncaria tomentosa*, including arthritis, viral infections and cancer (acting as a non-specific immunomodulation agent). In addition, these compounds may also have potential as an immunomodulating adaptogens in cellular aging.

2) *Echinacea purpurea*

Echinaceae Purpureae immune-stimulation activity has been widely described in the scientific literature. Oral administration has been reported as a supportive therapy for colds and infections of the respiratory and urinary tract. These beneficial effects are generally thought to be brought about by stimulation of the immune response mainly by activation of phagocytosis and stimulation of fibroblasts.

3) *Beta vulgaris*

Beta Vulgaris displayed potent antioxidant, anti-inflammatory and chemo-preventive activity *in vitro* and *in vivo*. In addition, as a source of nitrate, it can be beneficial in increasing nitric oxide (NO) availability in pathologies such as hypertension.

4) *Medicago sativa*

There are numerous reports from *in vivo* studies showing that *Medicago sativa* can lower blood cholesterol levels. In addition, it may relieve menopause symptoms.

5) *Sambucus nigra*

Flavonoids represent the major characteristic constituents, mainly kaempferol, astragalin, quercetin, rutin, isoquercitrin and hyperoside. In addition, triterpenes, sterols and phenolic acids are also present. These components have strong anti-inflammatory and diuretic activity. A recent study reports an anti- influenza activity (the common flu virus)

6) *Polygonum aviculare*

This component of the formula has shown to have diverse biological functions including hepato-protective effects, anti-inflammatory and platelets and anti-aggregatory effect. In addition, recent study reports the *Polygonum aviculare* may reduce fatigue by suppressing neuroinflammation.

7) *Eleutherococcus senticosus*

Eleutherococcus senticosus, also called Siberian ginseng, was reported to have adaptogenic/ anti-stress activity and may boost mental performance. In addition, it may stimulate the immune system. *Eleutherococcus senticosus* also shows anti-microbial activity.

8) *Punica granatum*

The pomegranate fruit main chemical compounds include flavonoids, ellagitannins and proanthocyanidin. The fruit is also rich in minerals such as calcium, magnesium, phosphorus, potassium and sodium. These phytochemicals show potent anti-oxidant effect, as well as anti-Inflammatory and analgesic effects. In addition, anti-bacterial, anti-viral and anti-fungal effects have also been reported.

9) *Mentha piperita*

The two major constituents of this herb are the monoterpenes menthol (30–55%) and menthone (14–32%). Both compounds are known for their biological activity on gastric and digestive discomfort. There are some reports that the essential oil can have analgesic effect as well improving cognitive performance.

10) *Thymus vulgaris*

The main phytochemical components of this herb are thymol carvacrol. Others include linalool, p-cymol, cymene, thymene, α -pinene, apigenin and luteolin.

These terpenes are known for their ability to ease gastrointestinal discomforts. In addition, these chemicals exert anti-microbial and anti-viral effects.

11) *Harpagophytum procumbens*

The major active constituents in this plant are harpagoside and the related iridoid glycosides, harpagide and procumbide. These compounds exhibit anti-inflammatory and analgesic activity, as well as antidyspeptic activity.

Bibliographic References in addition to the WHO monographs regarding the herbal substances in the formula.

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