

IMMUNE PLUS DROPS™**NPN: 80119358****1 mL (32 Drops) of Oral Tincture contains:****Myrrh** (527.7mg DHE*– *Commiphora myrrha* gum)**Goldenseal** (263.9mg DHE*– *Hydrastis canadensis* root & rhizome)**Cayenne** (4.4mg DHE*– *Capsicum annuum* fruit)**Vitamin C** (3.0mg–ascorbic acid)**Non-medicinal ingredients:**

purified water, ethanol USP, glycerin, spearmint flavour.

*DHE = Dry Herb Equivalent.

Directions of Use:

Adults take 1 ml, 3 times per day on an empty stomach.

May take up to one week to produce beneficial results.

For prolonged use, consult a health care practitioner.

Indication:

Helps to maintain/support immune function. Goldenseal, myrrh, and cayenne are Traditionally used in Herbal Medicine to aid digestion and stimulate appetite, and to help alleviate mild infectious and inflammatory conditions of the digestive tract such as gastritis, and digestive upset such as dyspepsia, and of the upper respiratory tract, including colds, cough, and non-acute bronchial and nasal congestion and catarrh.

Detailed Information:

Immune Plus Drops™ is an hydroethanolic tincture licensed as a Natural and Non-prescription Health Product (NNHP) in Canada that contains ascorbic acid and extracts of myrrh, goldenseal and cayenne. This combination of ingredients not only helps to support immune function, but the herbal ingredients are Traditionally used in Herbal Medicine to aid digestion and stimulate appetite; to help alleviate mild infectious and inflammatory conditions of the digestive tract such as gastritis, and digestive upset such as dyspepsia; and to help alleviate mild infectious and inflammatory conditions of the upper respiratory tract, including colds, cough, and non-acute bronchial and nasal congestion and catarrh.

Myrrh, the main ingredient of **Immune Plus**, is the hardened, resinous exudate from trees of *Commiphora myrrha* that are native to southern Arabia and northeast Africa. Constituents of its main resin, gum and essential oil fractions are all considered to contribute to its therapeutic properties. **Myrrh** is used in Traditional Ayurvedic, Chinese and Herbal Medicines as a stomachic

carminative, astringent, anthelmintic, stimulant, expectorant, anti-inflammatory, diaphoretic, anti-catarrhal, emmenagogue, local antiseptic, antimicrobial, and vulnerary^{1,2,3,4,5}. It is Traditionally used orally, alone and in combination products, mainly as a tincture or liquid extract, at a dosage of 0.3-3.0 g/day^{3,4} for treatment of indigestion, dyspepsia, stomatitis, ulcers, gingivitis and pharyngitis, and non-specific intestinal infections, as well as for colds and flu, respiratory catarrh, cough, asthma, bronchial congestion, and various other types of infection^{1,2,3,5}.

While clinical trials substantiating the Traditional uses and effects of myrrh are generally lacking⁴, a substantial amount of field and clinical evidence is accumulating for myrrh's antiparasitic and anthelmintic effects. When given at a dose of at least 600mg/d over 6-8 consecutive days. Myrrh is as effective or more-so than the standard antiparasitic medication praziquantel, and without side effects^{6,7}. The effectiveness of myrrh against parasites is at least partially immunologically mediated, as evidenced by suppression of interleukin-1 and of total IgE in treated patients^{7,8}. The anti-inflammatory action of Myrrh can be at least partially attributed to several of the herb's astringent constituents. For example, several triterpene constituents of myrrh have demonstrated potent anti-inflammatory effects¹⁰, substantiating Traditional use of the herb in the treatment of various inflammatory conditions. Consider that myrrh's anti-inflammatory action in the treatment of gingivitis and periodontitis is due to constituent sesquiterpenes that directly inhibit prostaglandin E2 in gingival fibroblasts and transcription factor NF-κB in epithelial cells, thereby attenuating the production of proinflammatory cytokines¹¹.

Several other sesquiterpene constituents of myrrh have also demonstrated Significant analgesic or pain-relieving effects.^{12,13}

Coupled with their local anesthetic activity, sesquiterpene fractions of myrrh also have potent antibacterial and antifungal effects against standard pathogenic strains of *Escherichia coli*, *Staphylococcus aureus*, *Pseudomonas aeruginosa*, and *Candida albicans*¹⁴. In addition to its antimicrobial effect, the resin fraction of myrrh has been reported to stimulate macrophages¹⁵, supporting the possible immunopathogenic response to microbial infection. In animal studies, myrrh has demonstrated a significant protective effect against mucosal damage, attributable to antioxidant, thyroid-stimulating and prostaglandin-inducing activity¹⁶. Myrrh's mucilage

component also plays a key role in its anti-acid/anti-peptic, gastroprotective and anti-ulcer effects¹⁷. And the herb also stimulates smooth muscle contraction and peristalsis¹⁸, further contributing to its therapeutic benefits.

Goldenseal (*Hydrastis canadensis*) root & rhizom contains a group of isoquinoline alkaloids, mainly hydrastine and berberine, with lesser amounts of canadine, canadine, hydrastidine, berberastine and several others^{19,20}, that are together responsible for the herb's therapeutic action²¹. Goldenseal is used in Herbal Medicine at dosages of 0.6-3.0 g/day to aid digestion and help alleviate infectious and inflammatory conditions of the digestive tract, such as gastritis, and digestive upset, such as dyspepsia²². Its digestive stimulant action may involve both spasmolytic and contractile effects with direct action on the stomach and duodenum²⁵. Its main constituent, berberine, has been shown to slow intestinal motility²⁴, and to have choleric effects²⁵. It has been clinically shown to decrease elevated tyramine levels commonly associated with liver cirrhosis by inhibiting tyrosine decarboxylase produced by flora in the gut²⁵. Direct exposure of goldenseal to mucous membranes induces an immediate secretory response²³. However, its astringent action counters excessive mucous flow²⁶. It has been suggested to work best internally in small doses and for relatively short periods of administration, to reduce the incidence of secondary effects that arise with high dosages and prolonged use, including membrane irritation, ulceration and exhaustion and destruction of the glandular sources of the mucous^{26,27}. Its stimulation of healthy mucous secretion/flow contributes to its immunomodulatory action: mucous contains various immune factors, including Ig antibodies²⁶. Goldenseal treatment does not increase maximum antibody levels, but does increase the rate of antibody production²⁸. Its antimicrobial action is likely to be mostly topical, rather than systemic, since alkaloids are generally poorly absorbed across the small intestine, especially berberine²⁹. The antimicrobial and antiseptic action of any (quantity of) alkaloids that are absorbed would be of benefit in the treatment of kidney and/or urinary tract infections, conditions for which goldenseal was traditionally indicated by early American physicians²⁶. Goldenseal alkaloids have exhibited strong activity against a broad range of bacteria, fungi, yeasts, and parasites^{20,26}. This antimicrobial action, combined with its effects on mucous membranes, contributes to its traditional use

also in the management of minor infectious and inflammatory conditions of the upper respiratory tract, including nasal congestion and catarrh, and allergic rhinitis^{20,22,30,31}. The multiple actions of goldenseal, including antiseptic, antimicrobial, anti-catarrhal, astringent, stomachic, and diuretic^{1,20,32,33}, make it one of the most useful and powerful of all traditional herbal remedies^{15,34,35}.

Cayenne (*Capsicum annum*) fruit is recognized for its traditional use in Herbal Medicine as a digestive aid³⁶ (Health Canada 2018). It is also, among other uses, traditionally indicated for flatulent dyspepsia, constipation, gastric ulcer, hemorrhoids, sore throat, laryngitis, colds and flu, fever, and catarrh of all types^{37,38,39}. Cayenne is a sialagogue stomachic, carminative, stimulant, antispasmodic, analgesic, alterative, rubefacient, astringent, hemostatic, and antiseptic^{1,34,37,38}. It is commonly used with other herbs for all types of catarrhal afflictions, including colds, coughs, and asthma³⁸. In cases of dyspepsia, flatulence, and constipation, cayenne promotes digestive secretions and stimulates peristalsis³⁹. The therapeutic action of cayenne is attributed to constituent capsaicinoids occurring in dried fruits, and especially to capsaicin which can represent almost 50% of the total capsaicinoid content. Both gastric and duodenal mucosae are thought to contain capsaicin-sensitive areas that provide protection against acid- and drug-induced ulcers when stimulated by hydrochloric acid or by capsaicin: stimulation increases mucosal blood flow and/or vascular permeability, inhibits gastric motility, and activates duodenal motility. In a small placebo-controlled study of healthy volunteers, oral administration of chili was shown to protect against aspirin-induced gastroduodenal mucosal injury. In clinical trial, capsaicin has been shown to increase gastric acid concentration and stimulate exfoliation of epithelial cells in both control patients and those with duodenal ulcers⁴³. The effective treatment of functional dyspepsia with red pepper powder involves desensitization of gastric nociceptive C-fibers by capsaicin. The anti-inflammatory action of red pepper arises from capsaicin-controlled inhibition of the release of inflammatory mediators, including eicosanoids and hydrolytic enzymes secreted by macrophages. Capsaicin has also been shown to increase the permeability of epithelial cells of the gastrointestinal tract to ions and macromolecules, thereby aiding digestion by facilitating the absorption of nutrients and of other co-administered

therapeutic agents. Cayenne and its constituents have also demonstrated significant antimicrobial activity. Its bactericidal action against *Helicobacter pylori* may be responsible for the protective effect of cayenne against *H. pylori*-associated gastroduodenal disease. While included in the Immune Plus formulation in subtherapeutic dosage, i.e. <15mg/day, the actions of cayenne are additive to the myrrh and goldenseal ingredients when the product is taken as recommended.

To boost the immune support offered by the combination of herbal ingredients of Immune Plus, ascorbic acid, a source of Vitamin C, was added to the formulation. Vitamins play key roles in the metabolic processes that regulate growth, tissue replacement and repair, and general cellular activity in the body. They are therefore essential factors in the maintenance of good health. When provided at an adult oral dosage of 6 2,000mg/day, Vitamin C helps to provide antioxidant, tissue formation, growth and repair, wound healing, and immune function support⁴⁹.

Cautions and Warnings:

Keep out of reach of children. Consult a health care practitioner if symptoms persist or worsen; before use if you have a kidney disorder or blood pressure problems, cardiovascular disease, diabetes, or stomach ulcer or inflammation.

Contra-Indications:

Do not take if you are pregnant or breastfeeding, are experiencing excessive uterine bleeding, or within 1 hour of other herbal or medicinal preparations. Avoid taking with alcohol, other medications and/or natural health products with sedative properties.

Known Adverse Reactions:

Hypersensitivity/allergic reactions are known to occur, in which case discontinue use.

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