NUTRA-BBS+

APPLICATIONS

- Microbial Support
- Antioxidant Support
- Healthy Inflammatory-Response Support

INTRODUCTION

This product is a synergistic blend of Elecampane root (*Inula helenium*), Jalapa root (*Ipomoea purga*), Artemisia annua aerial parts (*Artemisia annua*), and Capirona bark (*Calycophyllum spruceanum*). It is designed to assist with comprehensive microbial support, with additional antioxidant support and healthy inflammatory response support.*

NutraMedix's liquid extracts are made at our U.S. manufacturing facility using a specialized proprietary extraction process that optimizes the constituents of the herbs in their original, unprocessed state to obtain broad-spectrum concentration. Because our extracts are made in our own facility, we control all aspects of quality, including stringent ID testing, microbial testing, and heavy metal testing. NutraMedix rigorously follows current good manufacturing practices (cGMP), as do our suppliers.

I. helenium belongs to the Asteraceae/Compositae family and is also known as elecampane.[1] The root includes volatile oils such as alantolactone, isoalantolactone, alantol, alpha- and beta-bergamotene, beta-pinene, and anethole; amino acids such as aspartic acid, serine, threonine, and glutamic acid; sterols such as stigmasterol and beta-sitosterol; and thymol derivatives.[2–4] Alantolactone and isoalantolactone are considered the main constituents.[3,5] The main phenolic compounds that may help with antioxidant support are the phenolic acids (caffeic, dicaffeoyl quinic, chlorogenic, and hydroxybenzoic); terpenes (alantolactone and isoalantolactone); and flavonoids (epicatechin, catechin gallate, dihydroquercetin pentosyl rutinoside, quercetin-3-0-beta-glucopyranoside, ferulic acid-4-0-glucoside, and kaempherol-7-0-dipentoside).[6] The roots also include dietary fiber from fructooligosaccharides and inulin.[7] Elecampane root has been used in traditional Chinese health practices for gastrointestinal support, where it is known as *tu mu xiang*.*[3] Elecampane root may help with microbial support, as determined by the agar-well diffusion method.*[8,9] It may also help with mycelial support.*[9]

I. purga belongs to the Convolvulaceae family and is commonly known as jalap. Synonyms for *I. purga* include *Ipomoea jalapa*, *Ipomoea schiedeana*, *Convolvulus officinalis*, *Convolvulus purga* and *Exogonium purga*.[10–12] Jalap root is a climbing vine that is native to southern Mexico.[12] The root has been used in traditional health practices to support gastrointestinal regularity,[13] with other potential benefits under current investigation.*[14] Constituents of jalap root include convolvulin, jalapine, caffeic acid, scopoletin, valeric acid, starch, and tiglic acid.[14,15] Jalap root has a long history of traditional use for supporting healthy gastrointestinal regularity and maintaining healthy peristalsis.*[10,13,14]

A. annua belongs to the Asteraceae/Compositae family and is commonly known as sweet wormwood or sweet annie.[16] *Artemisia annua* has been used in traditional Chinese health practices for centuries, with the first known written mention dating back to the *Shen Nong Ben Cao Jing* in the second century C.E.[17] In China, *Artemisia annua* is generally known as *qing hao*, though it is also called *huang hua hao*.[18] The main constituent of *Artemisia annua* is the sesquiterpene lactone artemisinin. Other constituents include monoterpenes, sesquiterpenes, flavonoids, and polyphenolic acids. Polysaccharides are other key constituents that may enhance artemisinin's bioavailability.[16,19,20]

C. spruceanum belongs to the Rubiaceae family and is commonly known as Capirona.[21] A synonym for this plant is *Eukylista spruceana*.[22] It is native to the Amazon rainforest and is sometimes called the "Tree of Youth."[23] It has been used in traditional health practices for healthy inflammatory response support.*[24] Constituents of Capirona bark include seco-iridoids 6'-O-acetyldiderroside, 7-methoxydiderroside, 8-O-tigloyldiderroside, kingiside, secoxyloganin, and diderroside, as well as iridoids loganin and loganetin.[25] Other constituents include gardenoside, cyanidin, 5-hydroxymorin, 5-hydroxy-6-methoxycoumarin 7-glucoside, and taxifolin.[23] Capirona bark may also help with antioxidant support.*[23,24]

MICROBIAL SUPPORT

Elecampane root (*I. helenium*) may help with microbial support, as determined by the agar-well diffusion method.*[8,9] It may also help with mycelial support.*[9]

Artemisia annua may help with a diverse range of microbial support.*[19,26] The essential oils alpha-pinene, beta-pinene, 1,8-cineole, and camphene; the sesquiterpenes artemisinin and arteannuin B; and the phenolic compounds caffeic acid, quercetin, rutin, apigenin, and chrysosplenetin may all help with microbial support.*[26] The flavonoids eupatorin, chrysoplenol-D, and cirsilineol may help enhance artemisinin's microbial support.*[20]

ANTIOXIDANT SUPPORT

Elecampane root (*I. helenium*) extract may help with antioxidant support, as determined by DPPH, phosphomolybdenum, beta-carotene bleaching, ABTS, FRAP, and CUPRAC assays.*[7,8] Flavonoids are found in all plant parts, and the relevant phenolic compounds, concentrated in the inflorescence, leaves, and root, are highly soluble in ethanol.*[27] The constituent alantolactone may help support levels of quinone reductase, glutathione S-transferase (GST), and glutathione reductase already within the normal range, in a dose-dependent manner.*[28] The antioxidant support of elecampane root is attributed to effects on PI3K and JNK signaling pathways, with support of Nrf2 already within the normal range.*[28]

Artemisia annua may help with antioxidant support.* This may be attributed to the constituent phenolic compounds, particularly chrysoplenol D.*[20,26,29,30] In an in vitro study using RAW 264.7 macrophages, researchers examined the effects of an ethanol extract of *Artemisia annua* (aerial parts), four fractions, and five specific compounds. Compared to the fractions and compounds, the researchers found that the crude extract had the strongest support for maintaining nitric oxide (NO) levels already within the normal range.*[29] In a mouse study, researchers found that an aqueous ethanol extract of *Artemisia annua* helped maintain serum levels of malondialdehyde already within the normal range.*[30]

Capirona bark (*C. spruceanum*) may also help with antioxidant support, as quantified by DPPH, ABTS, singlet oxygen, superoxide anion radical, and beta-carotene bleaching methods.*[23,24] In vivo antioxidant support was seen in *Caenorhabditis elegans* (*C. elegans*).*[23]

HEALTHY INFLAMMATORY-RESPONSE SUPPORT

Elecampane root (*I. helenium*) may help support a healthy inflammatory response, attributed to its sesquiterpene lactone isoalantolactone.*[31] In vitro research has shown that isoalantolactone may help to maintain NF-kappa B already within the normal range.*[31] Alantolactone and isoalantolactone may help to maintain levels of IgE, TNF-alpha, and IFN-gamma already within the normal range.*[32] They may also help to maintain IL-4, IL-5 and IL-13 already within the normal range.*[32] Additionally, the sesquiterpene lactone igalan may help with healthy inflammatory response support.*[33]

SAFETY AND CAUTIONS

Information on the adverse effects of Elecampane root (*I. helenium*) is limited. Elecampane root may cause allergic reactions in those with allergies to other plants in the Asteraceae/Compositae family, such as ragweed.[34] Cases of contact dermatitis have been reported, which may be attributed to the sesquiterpene lactones alantolactone and isoalantolactone.[35,36] Elecampane root may have additive effects with CNS depressants.[34] Large amounts of elecampane root may cause vomiting and diarrhea.[37] Rarely, large amounts of elecampane root may cause spasms or symptoms of paralysis.[37]

Jalap root (*I. purga*) may cause purgative effects, which are contra-indicated in pregnancy.[38,39] Jalap root is also contraindicated in gastrointestinal inflammation or infection.[40] Jalap root contains cathartic gluco-resins which may intensify peristalsis, increasing water elimination.[13,41] Consequently, it is contraindicated in those taking stimulant laxatives as it may have additive effects, leading to dehydration and electrolyte imbalance.[42] In addition, jalap root may have additive effects with diuretic-induced potassium loss.[42] Fluid and electrolyte imbalance may theoretically increase INR and risk of bleeding in those taking warfarin.[10] Electrolyte imbalance may also worsen the toxicity of cardiac glycosides.[43]

Artemisia annua is generally well tolerated, though gastrointestinal effects such as nausea are possible.[44] There is a potential for allergy in those sensitive to other members of the Asteraceae/Compositae family such as ragweed.[16] *Artemisia annua* may alter the plasma levels and therapeutic effects of drugs metabolized by CYP2B6 and CYP3A4 substrates.[16,45–47] When taken concurrently with hepatotoxic drugs, it may theoretically have additive hepatotoxic effects.[16] Individuals with liver disease or who are taking potentially hepatotoxic medications should avoid *Artemisia annua*.[16]

Data is currently limited for Capirona bark (*C. spruceanum*), which has shown no evidence of toxicity in mice.[48]

Safety not documented in breastfeeding or pregnant women, or in children under 3 years of age due to insufficient safety research.

*** This statement has not been evaluated by the Food and Drug Administration. This product is not intended to treat, cure, or prevent any diseases.**

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NutraMedix®

SHAKE WELL BEFORE EACH USE.

Put 2 to 60 drops in 4 oz (120 mL) of water and wait one minute before drinking. Start with 2 drops (30 min before meals) increasing by 2 drops with each dose up to 60 drops, 2 times a day or as directed by physician. Do not use if pregnant or nursing. Stop use if adverse reactions develop. Keep out of reach of children.
0.25 mL on calibrated dropper: approx. 5 drops.

†These statements have not been evaluated by the Food and Drug Administration. This product is not intended to diagnose, treat, cure or prevent any disease.

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NUTRA-BBS+

MICROBIAL SUPPORT †

Dietary Supplement
4 fl oz. (120 mL)

Supplement Facts

Serving Size 60 drops (3mL)
Servings Per Container 40

Amount Per Serving	% Daily Value
Proprietary Blend 3 mL*	
Elecampane root extract, Jalap root extract, Sweet Annie herb extract, *Calycophyllum spruceanum* bark extract	

*Daily Value (DV) not established

Other ingredients: mineral water, ethanol (20-24%)

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V361243

Lot #
Exp.

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