

APPLICATIONS

- Antioxidant Support
- Inflammatory Support
- Microbial Support
- Gastrointestinal Support



INTRODUCTION

Enula is a hydro-ethanol extract from the roots of *Inula helenium* and *Ipomoea purga*. *I. helenium* belongs to the Asteraceae/Compositae family and is commonly known as Elecampane.¹ *I. helenium* 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.^{2,3,4} 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-O-beta-glucopyranoside, ferulic acid-4-O-glucoside, and kaempferol-7-O-dipentoside).⁶ The roots also include dietary fiber from fructooligosaccharides and inulin.⁷ *I. helenium* root has been used in traditional Chinese health practices for gastrointestinal support, where it is known as *tu mu xiang*.^{8,9}

Ipomoea purga is commonly known as jalap root and belongs to the Convolvulaceae family. Synonyms for *I. purga* include *Ipomoea jalapa*, *Ipomoea schiedeana*, *Convolvulus officinalis*, *Convolvulus purga* and *Exogonium purga*.^{8,9,10} *I. purga* is a climbing vine that is native to southern Mexico.¹⁰ The root has been used in traditional health practices to support gastrointestinal regularity,¹¹ with other potential benefits under current investigation.¹² Constituents of *I. purga* root include convulvulin, jalapine, caffeic acid, scopoletin, valeric acid, starch, and tiglic acid.^{12,13}

Enula is made at our U.S. manufacturing facility and 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.

ANTIOXIDANT SUPPORT

I. helenium root extract may help with antioxidant support, as determined by DPPH, phosphomolybdenum, beta-carotene bleaching, ABTS, FRAP, and CUPRAC assays.^{7,14} Flavonoids are found in all plant parts, and the relevant phenolic compounds, concentrated in the inflorescence, leaves, and root, are highly soluble in ethanol.¹⁵ The constituent alantolactone may help to support levels of quinone reductase, glutathione S-transferase (GST), and glutathione reductase already within the normal range, in a dose-dependent manner.¹⁶ The antioxidant support of *I. helenium* is attributed to effects on PI3K and JNK signaling pathways, with support of Nrf2 already within the normal range.¹⁶

INFLAMMATORY SUPPORT

Isoalantolactone, a sesquiterpene lactone found in *I. helenium*, may help with healthy inflammatory support.¹⁷ In vitro research has shown that isoalantolactone may help to maintain NF-kappa B already within the normal range.¹⁷ Alantolactone and isoalantolactone may help to maintain levels of IgE, TNF-alpha, and IFN-gamma already within the normal range.¹⁸ They may also help to maintain IL-4, IL-5 and IL-13 already within the normal range.¹⁸ Additionally, the sesquiterpene lactone igalan may help with healthy inflammatory support.¹⁹

OTHER USES

Microbial Support

I. helenium may help with microbial support, as determined by the agar-well diffusion method.^{14,20} It may also help with mycelial support.²⁰

Gastrointestinal Support

I. purga has a long history of traditional use for supporting gastrointestinal health and regularity,^{8,12} supporting healthy peristalsis.¹¹


SAFETY AND CAUTIONS

Information on the adverse effects of *Inula helenium* is limited. *I. helenium* may cause allergic reactions in those with allergies to other plants in the Asteraceae/Compositae family, such as ragweed.²¹ Cases of contact dermatitis have been reported, which may be attributed to the sesquiterpene lactones alantolactone and isoalantolactone.^{22,23} *I. helenium* may have additive effects with CNS depressants.²¹ Large amounts of *I. helenium* may cause vomiting and diarrhea.²⁴ Rarely, large amounts of *I. helenium* root may cause spasms or symptoms of paralysis.²⁴

I. purga may cause purgative effects, which are contra-indicated in pregnancy.^{25,26} It is also contraindicated in gastrointestinal inflammation or infection.²⁷ *I. purga* contains cathartic gluco-resins which may intensify peristalsis, increasing water elimination.^{11,28} Consequently, it is contraindicated in those taking stimulant laxatives as it may have additive effects, leading to dehydration and electrolyte imbalance.²⁹ In addition, *I. purga* may have additive effects with diuretic-induced potassium loss.²⁹ Fluid and electrolyte imbalance may theoretically increase INR and risk of bleeding in those taking warfarin.⁸ Electrolyte imbalance may also worsen the toxicity of cardiac glycosides.³⁰


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.**


NutraMedix 

SHAKE WELL BEFORE EACH USE:
Put 1 to 30 drops in 4 oz (120 mL) of water and wait one minute before drinking. Start with 1 drop (30 min. before meals) increasing slowly up to 30 drops; 2-4 times per day or as directed by your physician. Do not use if pregnant or nursing. Stop use if adverse reactions develop. Keep out of reach of children.

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.



7 28650 02657 6



ENULA

IMMUNE/MICROBIAL SUPPORT †

Dietary Supplement

1 fl oz. (30mL)


Supplement Facts

Serving Size 30 drops
Servings Per Container 20

Amount Per Serving	
Proprietary Blend	1.5 mL†
Elecampane root extract, Jalap root extract	

*Daily Value not established

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

NutraMedix 

Jupiter, Florida 33458 USA
www.nutramedix.com
561-745-2917

V000000
Lot #
Exp.

REFERENCES

- ¹ Lunz, K., & Stappen, I. (2021). *Molecules (Basel, Switzerland)*, 26(11), 3155.
- ² Brinker, F. (2001). *Herb contraindications & drug interactions* (p. 85). Eclectic Medical Publications.
- ³ Eastland Herb. (2018). Eastland Herb - Chinese herbal medicine: Materia medica and formula & strategies (4.3). [mobile app]. App store. <https://apps.apple.com/us/app/eastland-herb-chinese-medicine/id737380894>.
- ⁴ Stojakowska, A., Malarz, J., & Kisiel, W. (2004). *Zeitschrift für Naturforschung. C, Journal of Biosciences*, 59(7-8), 606-608.
- ⁵ Konishi, T., Shimada, Y., et al. (2002). *Biological & Pharmaceutical Bulletin*, 25(10), 1370-1372.
- ⁶ Spiridon, I., Nechita, C. B., et al. (2013). *Central European Journal of Chemistry*, 11(10), 1700-1710.
- ⁷ Petkova, N., Vrancheva, R., et al. (2015). *Journal of Bioscience Technology*, 4(1), 101-107.
- ⁸ Natural Medicines. (2021, July 10). Jalap [monograph]. <http://naturalmedicines.therapeuticresearch.com>
- ⁹ Ipomoea purga (Wender.) Hayne. Worldfloraonline.org. (2021). Retrieved 10 July 2021, from <http://www.worldfloraonline.org/taxon/wfo-0001296675#description>.
- ¹⁰ Ipomoea purga (Wender.) Hayne | Plants of the World Online | Kew Science. Plants of the World Online. (2021). Retrieved 10 July 2021, from <http://powo.science.kew.org/taxon/urn:lsid:ipni.org:names:269627-1>.
- ¹¹ Pereda-Miranda, R., Fragoso-Serrano, M., et al. (2006). *Journal of Natural Products*, 69(10), 1460-1466.
- ¹² Ipomoea purga (Convolvulaceae). Dr. Duke's Phytochemical and Ethnobotanical Databases U.S. Department of Agriculture. (2021). Retrieved 10 July 2021, from <https://phytochem.nal.usda.gov/phytochem/plants/show/1081>.
- ¹³ Meira, M., Pereira da Silva, E., et al. (2012). *Brazilian Journal of Pharmacognosy*, 22(3): 682-713.
- ¹⁴ Albayrak, S., Korkmaz Cinar, A. E., et al. (2015). *Iranian Journal of Science & Technology*, 39A4, 473-483.
- ¹⁵ Zlatić, N., Jakovljević, D., & Stanković, M. (2019). *Plants (Basel, Switzerland)*, 8(6), 179.
- ¹⁶ Seo, J. Y., Lim, S. S., et al. (2008). *Phytotherapy Research: PTR*, 22(11), 1500-1505.
- ¹⁷ Ding, Y. H., Song, Y. D., et al. (2019). *Acta Pharmacologica Sinica*, 40(1), 64-74.
- ¹⁸ Wang, Q., Gao, S., et al. (2018). *Phytomedicine: International journal of phytotherapy and phytopharmacology*, 46, 78-84.
- ¹⁹ Dao, T., Song, K., et al. (2020). *Inflammation Research: Official Journal of the European Histamine Research Society*, 69(3), 309-319.
- ²⁰ Deriu, A., Zanetti, S., et al. (2008). *International Journal of Antimicrobial Agents*, 31(6), 588-590.
- ²¹ Natural Medicines. (2021, July 10). Elecampane [monograph]. <http://naturalmedicines.therapeuticresearch.com>
- ²² Lamminpää, A., Estlander, T., et al. (1996). *Contact Dermatitis*, 34(5), 330-335.
- ²³ Aberer W. (2008). *Journal der Deutschen Dermatologischen Gesellschaft = Journal of the German Society of Dermatology: JDDG*, 6(1), 15-24.
- ²⁴ Gardner, Z., & McGuffin, M. (2013). *American Herbal Products Association's botanical safety handbook* (pp. 474-475). CRC Press /Taylor & Francis.
- ²⁵ Brinker, F. (2001). *Herb contraindications & drug interactions* (p. 274). Eclectic Medical Publications.
- ²⁶ Chen, J., Chen, T., & Crampton, L. (2004). *Chinese medical herbology and pharmacology* (pp. 1145). Art of Medicine Press.
- ²⁷ Brinker, F. (2001). *Herb contraindications & drug interactions* (p. 218-220). Eclectic Medical Publications.
- ²⁸ Ono M. (2017). *Journal of Natural Medicines*, 71(4), 591-604.
- ²⁹ Brinker, F. (2001). *Herb contraindications & drug interactions* (p. 234-235). Eclectic Medical Publications.
- ³⁰ Gardner, Z., & McGuffin, M. (2013). *American Herbal Products Association's botanical safety handbook* (pp. 477-478). CRC Press /Taylor & Francis.