Chewable DGL

Relief of Gastrointestinal and Respiratory Symptoms

Available in **60 chewable tablets**

Chewable DGL is a great-tasting chewable tablet providing a clinically effective concentration of deglycyrrhizinated licorice in a convenient tablet dosage form. Licorice relieves a broad range of gastrointestinal and respiratory symptoms.

- Clinically effective 400mg dose of deglycyrrhizinated licorice per tablet.
- Formulated to enhance absorption by the gastric mucosa for improved efficacy and to prevent adverse symptoms associated with licorice.
- Great tasting chewable tablets naturally sweetened with xylitol and stevia for improved compliance.
- Suitable for vegans and vegetarians.

AUSTL – 321100

Active Ingredients

Each chewable tablet contains:

Licorice *(Glycyrrhiza glabra)* extract	400 mg
Equivalent to dry root	4 g

Directions for use: Adults: Chew 1 tablet 20 minutes prior to each meal or as directed by a health care practitioner.

Key Features & Benefits

Chewable DGL provides a clinically effective concentration of deglycyrrhizinated licorice, the form associated with the most significant gastric mucosal absorption and clinical efficacy. The anti-inflammatory, mucoprotective, demulcent and expectorant actions of licorice supports its therapeutic effects for the relief of symptoms of gastrointestinal inflammation, abdominal bloating, pain and heartburn, clearing of excess respiratory tract mucous and soothing irritated mucous membrane tissues.

Clinical Evidence

Licorice has been used as a food and medicine since ancient times in Greek, Roman, Chinese, Ayurvedic and Egyptian traditional systems, with the earliest record of its use being in 2100 BC.[1-4] Traditional therapeutic applications for licorice in such paradigms included as a demulcent, expectorant and antitussive for gastrointestinal (gastritis, peptic ulcers, parasites, diarrhoea, dysentery, stomach-ache, gastric ulcers and vomiting) and respiratory issues (cold, influenza, throat and bronchial infections).[1-4]

Constituents present in licorice include flavonoids, phenolic compounds, saponins, triterpenes, tannins, alkaloids, volatile oils, sterols and nutritional compounds (carbohydrates, pectins, lipids, amino acids, mineral salts [calcium, magnesium, selenium, manganese, zinc and copper]).[1-3] The removal of glycyrrhizin from licorice minimises the effects associated with high-dose and chronic use of non-deglycyrrhizinated licorice (i.e. elevated blood pressure and fluid retention),[3] and increases gastric mucosal absorption of licorice, enhancing clinical efficacy.

Gastrointestinal ulceration and inflammation

The beneficial effects of licorice for gastrointestinal tissue inflammation and gastric and duodenal ulceration is attributed to several mechanisms.

Such mechanisms demonstrated by licorice and its constituents include antioxidant and anti-inflammatory (inhibition of nitric oxide, interleukin (IL)1β, -6, -12, major histocompatibility complex class I and II, tumour necrosis factor α, prostaglandins-2, COX-2 and nuclear factor kappa-β) and probiotic effects; increasing gastric mucous synthesis and secretion and blood supply to damaged mucosal tissue; prolonging the lifespan and healing of gastric mucosal and GIT epithelial cells by increasing cell mitotic activity and reducing pepsin concentrations.[1,3,5,6-10]

Along with the capacity to support gastric healing, licorice has also been shown to inhibit the formation and growth of gastric lesions, promote healing of ulcered tissues and increase eradication of Helicobacter pylori in the presence of peptic ulcer disease.[3,7,11,12] The German Commission E approves licorice for the treatment of gastric and duodenal ulcers, and preliminary and clinical trial data have demonstrated the efficacy of deglycyrrhized licorice for gastric, peptic, duodenal and colonic ulcers.[3,9,13]

In vitro evidence has demonstrated that licorice has prebiotic properties, increasing Bacteroides spp. concentrations and reducing relative abundance of opportunistic pathogens Enterococcus faecalis and Klebsiella pneumoniae.[8]

Respiratory tract infections

Licorice has a long history of use for respiratory tract symptoms and infections, and current evidence demonstrates the well-established clinical benefits for such conditions are due to anti-inflammatory, antibacterial, antiviral, expectorant and antitussive mechanisms of licorice and its constituents.[1,3,16-20]

Licorice has exhibited antiviral activity against influenza (stimulating T-cell interferon-gamma synthesis, inhibition of endocytotic activity and viral particle uptake) and human respiratory syncytial virus (inhibits cellular attachment and penetration into airway epithelial host cells).[3,18,19,20]

It has also demonstrated significant antibacterial and antimicrobial activity against Gram-positive and Gram-negative bacteria associated with respiratory infections, pneumonia and acute pharyngitis (Staphylococus aureus, Streptococcus pyogenes, S. mutans, S. pneumoniae, K. pneumoniae, Enterobacter aerogenes).[3,17]

Other effects of licorice supporting its use for respiratory infection and symptoms include promotion of tracheal mucous secretion and relaxation, expulsion of upper respiratory mucous, stimulating mucosal cell interfon-β secretion and modulating immune leukocyte response to tissue antigens.[1,3,16]

Functional dyspepsia

Licorice has been shown to be beneficial in subjects with functional dyspepsia improving clinical symptoms.[12,14,15]

In a randomised double blind, placebo-controlled multicentre trial, the efficacy of deglycyrrhizinated licorice when used for 30 days was investigated in subjects with functional dyspepsia.[15] The primary outcomes were changes to the severity of symptoms (i.e. upper abdominal fullness and pain, belching, bloating, early satiety, nausea, vomiting, regurgitation, heartburn and loss of appetite) and global assessment of efficacy (short-form Nepean Dyspepsia Index [NPI]). Deglycyrrhizinated licorice resulted in significant improvements in the severity of symptoms scores on days 15 and 30 ($p<.05$) and the NPI compared with placebo ($p<.05$), demonstrating significant efficacy of DGL for the management of functional dyspepsia symptoms.

WARNINGS: Consult a health care practitioner if symptoms persist or worsen. Products containing xylitol may have a laxative effect or cause diarrhoea.

References

1. Pastorino G, Cornara L, Soares S, Rodrigues F. Liquorice (Glycyrrhiza glabra): a phytochemical and pharmacological review. Phytother Res 2018; doi: 10.1002/ptr.6178.
2. Pandey S, Verma b, Arya P. A review on constituents, pharmacological activities and medicinal uses of Glycyrrhiza glabra. Univ J Pharma Res 2017; 2 (2): 6-11. Braun L, Cohen M. Herbs and natural supplements: an evidence-based guide, 4th edn. vol 2. Elsevier: Australia, 2015.
3. Braun L, Cohen M. Herbs and natural supplements: an evidence-based guide, 4th edn. vol 2. Elsevier: Australia, 2015.
4. Al-Snafi E. Glycyrrhiza glabra: a phytochemical and pharmacological review. J Pharm 2018; 8 (6): 1-17.
5. Asha MK, Debraj D, Prashanth D, Edwin JR, Srikanth HS, Muruganantham N et al. In vitro anti-Helicobacter pylori activity of a flavonoid rich extract of Glycyrrhiza glabra and its probable mechanisms of action. J Ethnopharmacology 2013; 145 (2): 581-586.
6. Vibha JB, Choudhary K, Singh M, Rathmore MS, Shekhawat NS. A study on pharmacokinetics and therapeutic of Glycyrrhiza glabra: a miracle medicinal herb. Bot Res Int 2009; 2 (3): 157-163.
7. Bahmani M, Rafieian-Kopaei M, Jeloudari M, Eftekhari Z, Delfan B, Zargaran A et al. A review of the health effects and uses of drugs of plant licorice (Glycyrrhiza glabra L.) in Iran. Asian Pac J Trop Dis. 2014; 4 (Suppl 2): S847-S849.
8. Peterson CT, Sharma V, Uchitel S, Denniston K, Chopra D, Mills PJ, Peterson SN. Prebiotic potential of herbal medicines used in digestive health and disease. J Altern Complement Med 2018 Jul; 24 (7): 656-665.
9. Jeon YD, Bang KS, Shin MK, Lee JH, Chang YN, Jin JS. Regulatory effects of glycyrrhizae radix extract on DSS-induced ulcerative colitis. BMC Complem Altern Med 2016 Nov 16; 16 (1): 459.
10. Thiyagarajan P, Chandrasekaran CV, Deepak HB, Agarwal A. Modulation of lipopolysaccharide-induced pro-inflammatory mediators by an extract of Glycyrrhiza glabra and its phytoconstituents. Inflammopharmacology 2011 Aug; 19 (4): 235-241.
11. Jalilzadeh-Amin G, Najarnezhad V, Anassori E, Mostafavi M, Keshipour H. Antiulcer properties of Glycyrrhiza glabra L. extract on experimental models of gastric ulcer in mice. Iran J Pharm Res 2015 Autumn 14 (4): 1163-1170.
12. Hajiaghamohammadi AA, Zargar A, Oveisi S, Samimi R, Reisian S. To evaluate the effect of adding licorice to the standard treatment regimen of Helicobacter pylori. Braz J Infect Dis 2016; 20 (6): 534-538.
13. Bone K. A clinical guide to blending liquid herbs. Churchill Livingstone: Australia. 2003.
14. Asha MK, Debraj D, Dethe S, Bhaskar A, Murugananthan N, Deepak M. Effect of flavonoid-rich extract of Glycyrrhiza glabra on gut-friendly microorganisms, commercial probiotic preparations and digestive enzymes. J Diet Suppl 2016; 14 (3): 323-333.
15. Raveendra KR, Jayachandra, Srinivasa V, Sushma KR, Allan JJ, Goudar KS et al. An extract of Glycyrrhiza glabra (GutGard) alleviates symptoms of functional dyspepsia: a randomised double-blind placebo-controlled study. Evid Based Comp Altern Med 2012; Article ID 216970.
16. Pleskanovskaya SA, Mamedova M, Ashiraliyeva MA, Altay V, Ozturk M. Glycyrrhiza glabra (licorice) in Turkmenistan: medicinal and biological aspects. Plant Hum Health 2019; 3: 23-35.
17. Siriwattanasatorn M, Panthong S, Itharat A. Antimicrobial activities of medicinal plants mostly used for acute pharyngitis treatment. J Med Assoc Thai 2016 Jul; 99 Suppl 4; S144-52.
18. Grienke U, Braun H, Seidel N, Kirchmair J, Richter M, Krumbholz A et al. Computer-guided approach to access the anti-influenza activity of licorice constituents. J Nat Prod 2014 Mar 28; 77 (3): 563-70.
19. Mousa HAL. Prevention and treatment of influenza, influenza-like illness and common cold by herbal, complementary and natural therapies. J Evid Based Comp Altern Med 2017 Jan; 22 (1): 166-174.
20. Feng Yeh C, Wang KC, Chiang LC, Shieh DE, Yen MH, San Chang J. Water extract of licorice had anti-viral activity against human respiratory syncytial virus in human respiratory tract cell lines. J Ethnopharmacol 2013 Jul 9; 148 (2): 466-73.

isura™
NON-GMO · MASS SPEC
Documentation ✓ Lab Tested ✓

Bioclinic Naturals® Australia: Unit B, 10-16 South Street, Rydalmere, NSW, 2116 **1300 422 339**