GI-Repair

190 g / Code FE3414

New Roots Herbal **GI-Repair** is a synergistic formula of key evidence-based nutraceuticals that may help promote gastrointestinal health. With plants that help maintain the health of the mucous membranes of the digestive system.

HEALTH CLAIMS (EU Regulation 432/2012): *Active substances of licorice help maintain normal function of mucous membranes in the stomach and small intestine. Slippery elm soothes the digestive tract, helps support the digestive system and is a source of mucilage which support the mocous membranes. Boswellia helps protect and shooth the digestive tract and may help maintain the lining of the digestive system. Ginger helps to support the digestion and contributes to the normal al function of intestinal tract.*

FORMAT: 190 g

FORMULA

Ingredients: L-Glutamine, apple pectin, *N*-Acetyl-D-glucosamine, natural fruit flavour, natural lemon flavour, licorice root extract (*Glycyrrhiza glabra*), marshmallow root (*Althaea officinalis*), slippery elm bark extract (*Ulmus rubra*), *Boswellia serrata* resin extract, quercetin, turmeric root extract (*Curcuma longa*), L-carnosine (from zinc), ginger rhizome extract (*Zingiber officinale*), sweetener (steviolglycosides from *Stevia rebaudiana*).

Nutritional information:	**1 measuring scoop (6,3 g)**
L-Glutamine	1 500 mg
Apple pectin	1 000 mg
N-Acetyl-D-glucosamine	1 000 mg
Deglycyrrhizinated licorice (Glycyrrhiza glabra)	400 mg
Marshmallow (Althaea officinalis)	325 mg
Slippery elm (Ulmus rubra)	250 mg
Boswellia (Boswellia serrata)	200 mg
(70% organic acids, 35% boswellic acid)	100 mg
Quercetin	100 mg
Turmeric (Curcuma longa)	75 mg
(95% curcuminoids**)	50 mg

**provides curcumin I, demetoxicurcumin and bisdemetoxicurcumin

Cautions: Consult a healthcare practitioner prior to use if you are pregnant or breast-feeding, if you are taking antiplatelet medication or blood thinners; or if you have gallstones, bile duct obstruction, stomach ulcers or excess stomach acid. Known adverse reactions: hypersensitivity, such as an allergy, in which case, discontinue use. Some people may experience gastrointestinal discomfort/disturbances.

Recommended daily dose: 1 measuring spoon (fill the spoon up to the 10 ml mark) one daily. Mix in water or juice. Take with food. Preferably Preferably take a few hours before or after taking medications. Do not exceed the stated recommended daily dose.

Indications and uses:

- Helps to improve intestinal permeability, reduces inflammation of the gastric and intestinal mucosa.
- Helps to improve peptic ulcers.
- Helps improve stool consistency, gastric emptying efficiency and peristalsis.
- Promotes beneficial intestinal flora.
- May help reduce gallbladder volume and promote gallbladder health.

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DETAILS:

The gut-brain axis is responsible for communication between the gut and the central nervous system, influencing cognition and emotional and mental health. Gastrointestinal disorders such as irritable bowel syndrome (IBS), dyspepsia, ulcerative colitis and Crohn's disease can severely affect quality of life and mortality. Natural therapeutic approaches provide a gentle recovery mode, with minimal side effects. Many of these ingredients, such as ginger, marshmallow, curcumin and liquorice, have been used in traditional medicine since ancient times for their gut-healing properties. New clinical studies have established their therapeutic potential for mitigating gastrointestinal disorders. Evidence suggests that these ingredients may reduce mucosal inflammation, improve gastric emptying and help promote beneficial gut microbial flora [(1)].

INGREDIENTS:

L-GLUTAMINE: it is the most predominant amino acid in the blood, skeletal muscle and free amino acid pool. It is a key nutrient for the gut, where 30% of total glutamine is utilised[(2,3)]. Tight junctions are dynamic structures comprising several proteins that seal the space between the cells forming the intestinal epithelium to create a physical barrier between epithelial and endothelial cells [(3,4)]. They are essential for regulating the transport of nutrients to mucosal cells by adjusting their tension in response to various stimuli and preventing the entry of potentially harmful substances[(3,4)]. In various intestinal pathologies, including inflammatory bowel disease (IBD) and coeliac disease, the maintenance of intestinal permeability by tight junction proteins has been shown to be essential for effective treatment[(3)]. Scientific evidence shows that glutamine supplementation is very useful in people with impaired intestinal permeability by improving the expression of tight junction proteins. It is well established that glutamine modulates the expression of tight junction proteins, in addition to its anti-inflammatory effect by influencing several inflammatory signalling pathways such as suppression of NF-kB pathway activation, inhibition of STAT activation and expression of inflammatory cytokines such as IL-6 and IL-8 in intestinal tissues[(3)]. In a systematic review article, glutamine-enriched diets were shown to significantly improve immunological aspects in trauma patients and alleviate mucositis in post-chemotherapy patients [(5,6)].

PECTIN: a soluble dietary fibre found in many fruits and vegetables, most commonly in apples, potatoes, sugar beets and citrus fruits. Structurally, pectin fibres consist of branched segments of rhamnogalacturonan and linear segments of homogalacturonan (1,4-D-galacturonan)[(7)]. Animal studies have demonstrated the protective effects of pectin on the intestinal barrier. Pectin supplementation reduced the production of pro-inflammatory cytokines such as IL-1β, IL-6 and TNF-α; as well as the positive regulation of proteins responsible for intestinal integrity, such as zonulin, occludin and antimicrobial β-defensin-1 (DEFB1) peptides[(8)]. These modulatory parameters, in turn, have been shown to reduce fat accumulation and improve weight gain in obese animal models[(9)]. A randomised controlled trial showed that administration of 24g pectin for 6 weeks to 46 patients with inflammatory bowel disease (IBD) showed reduced symptoms and improved faecal bacterial composition, indicating the prebiotic benefits of pectin[(10)]. Pectin supplementation (enteral formula: liquid pectin 2:1) for 4 weeks to 18 children with cerebral palsy significantly reduced gastric reflux and improved oesophageal pH[(11)].

N-ACETYL D-GLUCOSAMINE: Glycosaminoglycans are long linear polysaccharides that have various physiological functions in the body; especially when bound to mucin they help form a protective barrier that separates bacteria from the intestinal epithelium. Inflammation of mucosal surfaces causes breakdown of glycosaminoglycans, specifically in people with IBD. N-acetyl D-glucosamine (NAG) is a natural amino sugar precursor for epithelial glycosaminoglycan synthesis, directly incorporated into glycosaminoglycans and glycoproteins, as a substrate for tissue repair mechanisms[(12)]. This protective effect helps to mitigate several IBD symptoms, as demonstrated in an open-label clinical study. Patients with IBD (n = 64) receiving 6g NAG daily for 4 weeks reported significant improvement in symptoms and had a reduction in abdominal pain, diarrhoea with rectal bleeding and nausea[(13)]. NAG also shows potential for improving other inflammatory bowel conditions, such as Crohn's disease and ulcerative colitis. Administration of 3 to 6g daily of NAG to 12 children with Crohn's disease and ulcerative colitis showed symptomatic improvement in eight of them, with an increase in intracellular glycosaminoglycans and NAG in histological evaluations[(14)].

DEGLYCYRRHIZINATED LIQUORICE (Glycyrrhiza *glabra*): liquorice roots and rhizomes have been used in the treatment of gastrointestinal disorders for centuries in traditional medicine. *Glycyrrhiza glabra* is known for its antimicrobial, hepatoprotective, antioxidant and laxative properties[15]. Animal studies have shown that, in addition to glycyrrhizin, certain flavonoids in DGL also have a bactericidal effect on *Helicobactor pylori*, which helps explain the mechanism of action behind its anti-ulcer properties. Deglycyrrhizinated liquorice may contribute to an increased number of mucus-secreting cells, thereby increasing mucin levels[16,17]. Supplementation with 75mg twice daily of deglycyrrhizinated liquorice for 30 days in 25 patients with dyspepsia showed significant improvement of dyspepsia symptoms and was well tolerated[15].

MARSHMALLOW (*Althaea officinalis*): Marshmallow root has been used in traditional medicine to relieve gastrointestinal disorders and treat ulcers[18]. Marshmallow is rich in pectins, mucilages (colloidally soluble polysaccharides, a mixture of arabinogalactans, galacturonoramnans and glucans) and flavonoids[18]. Supplementation with marshmallow extract (100mg/kg/day) for 14 days significantly improved the macroscopic, biochemical and histological condition of peptic ulcer in rats[19]. Clinical studies of marshmallow on gastrointestinal disorders are lacking and are warranted to evaluate its therapeutic potential given traditional and pre-clinical evidence.

RED ELM (*Ulmus rubra*): is a species of elm that has beneficial effects on gastrointestinal distress. In a pilot study that tested a herbal formulation containing red elm given to 31 patients with inflammatory bowel disease (IBD) for 3 weeks, the formulation appeared to alleviate some IBD symptoms[20]. Another specific in vitro study showed that red elm has a dose-dependent anti-inflammatory effect on colon cells isolated from patients suffering from ulcerative colitis. The effect of red elm was comparable to that of 5-aminosalicylic acid[21]. Further studies, especially human clinical trials, should help to fully elucidate the beneficial effects of red elm.

BOSWELLIA (*Boswellia serrata*): Boswellic acids are the therapeutically active constituents of *Boswellia serrata*, which has been used for its anti-inflammatory properties since ancient times. Several in vitro and animal studies have demonstrated boswellia's potential as an anti-inflammatory agent in the treatment of IBD[22]. Administration of 350mg three times daily for 6 weeks to patients with ulcerative colitis showed improvement in stool, rectal biopsy examination microscopy and histopathology[23]. The therapeutic effects of boswellia in the treatment of Crohn's disease (CD) were comparable with mesalazine (5-aminosalicylic acid derivative, the standard treatment for CD), when boswellia extract was administered to 44 patients with Crohn's disease and compared with 39 patients treated with mesalazine[24]. Another randomised, double-blind, placebo-controlled study showed that administration of 400mg of boswellia extract three times daily for 6 weeks to 25 patients with collagenous colitis appeared to show clinical improvement of collagenous colitis[25].

QUERCETIN: the antioxidant and anti-inflammatory effects of quercetin are well known. Recent studies have successfully established the gastroprotective benefits of these properties. In a randomised, double-blind clinical study of 60 participants over 8 weeks, supplementation with 500mg of quercetin and vitamin C significantly reduced oxidative stress and inflammatory biomarkers, including C-reactive protein and interleukin-6[26]. A population-based study of 505 patients in Sweden showed that high dietary quercetin intake was associated with a reduced risk of developing abnormal cell growth in the gastric lining; quercetin exerted a particularly protective effect against oxidative stress[27].

CURCUMIN (*Curcuma longa*): curcumin is known to promote colon health by playing a key role in modulating the pro-inflammatory cytokines NF-κB and the IL-6/STAT3 signalling pathway and could be therapeutically useful in several inflammatory diseases of the colon, such as IBD[28]. Two clinical studies have evaluated the use of curcumin in IBD in 99 patients with ulcerative colitis (UC) and Chron's disease (CD)[28,29]. As an adjunct to conventional therapy (sulphasalazine, mesalamine or corticosteroids), curcumin at a dose of 1,100 to 2,000mg/day for 2 to 6 months has been shown to significantly improve symptoms in patients with UC/C compared to placebo. and allowed a reduction in the dose of corticosteroids or 5-ASA derivatives[28,29]. The researchers reported that, in the small study of 10 patients, some patients even stopped taking corticosteroids or 5-ASA[28]. The researchers also found that curcumin had better clinical efficacy than placebo in preventing relapse and was well tolerated[29]. Based

on this evidence, curcumin may be a promising and safe therapy to maintain remission in patients with IBD and can be used for steroid tapering in mild to moderate colitis or as an adjunct to maintain remission in patients who do not respond to immunomodulators. An additional benefit of curcumin on gallbladder health and function has been observed. Supplementation with 20mg of curcumin showed a significant reduction in gallbladder volume observed by ultrasound 2 hours after administration, a positive indicator for promoting gallbladder health and preventing gallstones[30].

L-CARNOSINE (ZINC): zinc L-carnosine (ZnC) is a chelated compound containing L-carnosine and zinc. ZnC is perhaps best known for its approved use in Japan for the treatment of stomach ulcers. In a randomised, controlled, double-blind study, 258 subjects with confirmed stomach ulcers were randomly assigned to receive 150mg of ZnC daily, placebo, 800mg of cetraxate hydrochloride (a known mucosal protective agent) or placebo for 8 weeks. Endoscopy was performed before and after treatment and subjective measures of symptoms were collected. Symptoms improved by 61% in the marked improvement category in the ZnC group and 61.5% in the cetraxate group at 4 weeks. At 8 weeks, the ZnC group increased to 75% and improved markedly compared to 72% in the cetraxate group. The endoscopic cure rate was 26.3% in the ZnC group and 16.2% in the cetraxate group at 4 weeks and 60.4% in the ZnC group and 46.2% in the cetraxate group at 8 weeks. This suggests that ZnC may provide superior symptom relief and improvement of gastric ulcers compared to cetraxate[31]. Another study by the same group using 50, 75 or 100mg of ZnC twice daily showed an improvement in symptoms and endoscopic cure rate at all three doses [32].

GINGER (*Zingiber officinale*): has been used as a traditional herbal remedy since ancient times for its therapeutic potential against dyspepsia, flatulence and diarrhoea. Recent clinical trials also show the impact of ginger on gastric emptying and motility. When gastric emptying and antral contractions (contractions in the distal part of the stomach for emptying into the duodenum) were measured in 24 healthy individuals for 90 minutes after ingestion of 1,200mg of ginger in capsules, it was found that mean gastric emptying decreased significantly, accompanied by increased antral contractions(33). Similar results were observed in a randomised double-blind trial of 11 patients with functional dyspepsia, where intake of 1,200mg of ginger showed an increased rate of gastric emptying and improved antral contractions[34].

SYNERGY FOR OPTIMAL EFFECTIVENESS

GI-Repair contains ingredients specifically chosen to fight mucosal inflammation, control stomach ulcers, improve gastric motility and help beneficial intestinal bacteria thrive. Research evidence suggests that a combination of key ingredients such as red elm, liquorice, marshmallow and ginger can together provide a comprehensive approach to repairing the digestive tract and promoting good bowel function [19,20].

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