Aloe/200x™

designs for health®

*Concentrated aloe extract for gastrointestinal and digestive support**

By David Brady, ND, DC, CCN, DACBN & Caitlin Higgins, MS, CNS, LDN

Aloe/200x™ contains certified organically grown aloe vera (*Aloe barbadensis*) in a concentrated form to ensure efficacious results. The number reflected in the product's name refers to the fact that it takes 200 pounds of the aloe vera inner gel fillets to make one pound of this nourishing aloe extract.

The extract from the leaves of the succulent aloe vera plant has long been used as a natural topical first aid for burns, scrapes, and other skin irritations[1,4] Aloe not only cools and soothes damaged epithelial cells on the exterior of the body, but it also soothes inflammation internally in the stomach and middle and lower GI tract. Aloe also possesses antioxidant and antibacterial properties, which may account for its immune-modulating effects.* Research indicates that aloe may be a useful adjunct in helping combat gastrointestinal inflammation caused by high amounts of stress, medication or alcohol use, as well as providing symptomatic relief in irritable and inflammatory bowel disorders.[31-33]

Supplement Facts

Serving Size 1 capsule

Amount Per Serving	% Daily Value
Aloe Vera Extract (*Aloe barbadensis*)(leaf) (200:1) 500 mg	*

*Daily Value not established.

Other Ingredients: Cellulose (capsule), microcrystalline cellulose, stearates (vegetable source).

High Quality Aloe Extract Preparation

Designs for Health's aloe vera is prepared using a low-heat dehydration method with no filtering, which ensures that the long polysaccharide chains, and other compounds, remain intact and that as much of the plant's natural makeup is retained as possible. It is believed that the beneficial biological properties of aloe are a function of these polysaccharides contained in the extracted gel of the leaves.[5,6] Specifically, the mannan, glucomannan, and acetylated mannan (acemannan) fractions are believed to be the primary components responsible for the thick, mucilage-like texture of raw aloe leaf gel that is so soothing to inflamed tissue.[5,6] These biological effects are preserved in the manufacturing of Aloe/200x™.

Testing via High Performance Liquid Chromatography (HPLC) confirms that the polysaccharide chains present in Aloe/200x™ range in size from 140,000 daltons to over 1,000,000 daltons, retaining the large mucopolysaccharides found in the fresh unprocessed leaf. According to research, the longer chains (over 800,000 daltons) possess an immune-modulating action within the body, with the longest aloe polysaccharides (greater than 1,000,000 daltons) proving to be the most effective for stimulating the immune system.[7]

Gastrointestinal Protection

In a mouse-model of ethanol-induced gastric lesions, oral administration of a low molecular weight aloe vera gel fraction was shown to provide gastroprotection against lesion development, both in quantity and severity. This effect is primarily due to aloe's influence on mRNA expression of inducible nitric oxide synthase (iNOS) and neuronal nitric oxide synthase (nNOS), and matrix metalloproteinase 9 (MMP-9), three critical biomarkers for this type of gastric ulceration and all involved in tissue healing.[8] Treatment with aloe resulted in dramatically reduced ulcer index of 62%, compared to controls, and the number of MMP-9-expressing cells decreased to control level.[8] While nitric oxide is a known vasodilator, high levels are associated with gastric inflammation, ulceration, and runaway oxidative stress. A substance that attenuates the production of elevated amounts of nitric oxide, such as aloe, may have beneficial effects on protecting and healing the gastric mucosa.[9]

In another rat model of gastric lesions, aloe vera was shown to reduce markers of inflammation and facilitate healing. In the group treated with aloe, gastric inflammatory markers were reduced, and epithelial cell proliferation and repair were enhanced, compared to the non-treated group.[9] Aloe vera contributed to reduced levels of TNF-α, IL-18 expression, gastric MDA levels, and significantly decreased CINC-1 levels compared to the control.[10] According to this study, gastric erosion was reduced and stomach histopathology was improved due to a reduction in PMN leukocyte infiltration when compared to the IMN group.[10]

In other animal models of gastric ulcers, aloe vera has demonstrated gastro-protective effects by inhibiting gastric acid secretion,[11] which may be helpful in healing active ulcerations without the side-effects of more powerful pharmaceutical acid-reducing drugs.[11] A pilot randomized controlled trial found aloe vera to be a well-tolerated and safe treatment for reducing GERD symptoms with no adverse effects.[12]

Antibacterial and Antioxidant Activity

In animal models of *Helicobacter pylori (H. pylori)* infection, aloe vera was shown to reduce levels of TNF-α and leukocyte adhesion.[13, 14] The study authors noted that aloe vera exerts no known antibiotic effect on *H. pylori*, but rather, its healing properties come from its suppression of pro-inflammatory cytokines, TNF-α, IL-6, and leukocyte adhesion. However, other studies indicate that aloe does, in fact, have bactericidal properties against *H. pylori*, and might represent a novel therapeutic treatment option for the overgrowth of this organism, particularly in cases of antibiotic resistance.[15] Additional studies indicate that the complex array of polyphenols, indoles, phytosterols and other phytochemicals in aloe vera have antibacterial effects on organisms beyond *H. pylori*, including strains of *Mycobacterium smegmetis, Klebsiella pneumoniae*, *Candida albicans*, *Enterococcus faecalis, Staphylococcus aureus, Escherichia coli* and *Streptococcus mutans*.[16] An *in vitro* study testing the antimicrobial effects of Aloe vera on *Staphylococcus aureus* determined it to be a potent antimicrobial compared to the control, Gentamicin, a conventional antibiotic.[17]

The polysaccharides in aloe vera extract have been evaluated for antioxidant activity and have been demonstrated to be effective in scavenging hydrogen peroxide, nitric oxide, superoxide, DPPH (1,1-diphenyl-2-picrylhydrazyl) radicals, and others.[18,19] The anthraquinone glycoside, Aloin, extracted from Aloe vera is another constituent to exhibit major anti-inflammatory and anti-oxidative activity. Studies show that aloin suppresses lipopolysaccharide (LPS)-induced inflammatory responses and apoptosis by inhibiting NF-kB activation as well as reducing iNOS/NO expression, TNF-alpha levels, and IL-1B production.[20,21] In a rat model of chemically-induced myocardial oxidative stress, prophylactic treatment with aloe vera polysaccharides protected against cardiotoxicity in a dose-dependent manner, as evidenced by reduced levels of lactate dehydrogenase, creatine phosphokinase, cardiac catalase and superoxide dismutase, with elevated levels of glutathione.[19, 22]

Colitis, Irritable Bowel Syndrome, Colorectal Cancers and Other Forms of GI Distress

In a systematic review of alternative medicine treatments in inflammatory bowel diseases (IBD) that highlighted a randomized, double-blind, placebo-controlled trial of oral aloe vera gel administered for 4 weeks, 20 out of 30 subjects who were diagnosed with ulcerative colitis and received the aloe noted either complete remission or improvement in their symptoms, compared to just 1 out of 14 in the placebo group. Adverse effects were minor, similar between the aloe and placebo groups, and not clearly linked to the aloe, which makes aloe a promising choice compared to pharmaceutical drugs that have stronger side effects.[23] Another review of clinical trials on the effects of phytotherapy for IBD patients revealed that UC patients who used aloe vera gel had more positive responses and remission of symptoms compared to placebo group. The components of gel that are mainly used to significantly reduce intestinal inflammation, clinical colitis and progression, are aloe-emodin (AE), aloesin, and aloin, which has been shown to decrease myeloperoxidase, LTB4, and proinflammatory cytokine TNF-a, IL-1B, blocking NF-kB activation.[24]

An *in vitro* study evaluating the effects of aloe extract on human colorectal cells collected from patients with active ulcerative colitis showed that compared to controls, aloe significantly reduced the production of superoxide radicals, IL-8 and prostaglandin E2.[25] In another *in vitro* study examining aloe-emodin's (AE), a natural extract from Aloe vera, impact on colorectal cancer cells found exposure to AE generated ROS which induces endoplasmic reticulum (ER) stress, as well as an upregulation of several unfolded protein responses leading researchers to hypothesize AE may be a possible candidate in treating colorectal cancer via ER stress-dependent apoptosis.[27]

In a rat model of irritable bowel syndrome (IBS), aloe vera used in combination with German chamomile (*Matricaria recutita*) was effective at reducing TNF-α, lipid peroxidation and myeloperoxidase activity, and also delayed gastric emptying and bowel transit time, suggesting that aloe could be a useful adjunct for diarrhea-dominant IBS (IBS-D).[26] A randomized, double-blind, placebo-controlled pilot study of 68 adults with IBS were given aloe vera extract or placebo, and after 4 weeks of treatment the overall severity of IBS symptoms was reduced in the aloe vera group versus placebo with no serious adverse effects.[28] A meta-analysis in 2018 was the first to determine the effectiveness and safety of Aloe vera in helping control IBS symptoms in patients. The study exhibited aloe vera's laxative effect, which can be helpful for IBS-C patients, and due to its anti-inflammatory and probiotic effects, short term use of aloe vera may be a possible mechanism for the treatment diarrhea-predominant or mixed type IBS.[29]

Recommended Use:

- As a dietary supplement, take one capsule per day, or as directed by your health care practitioner.

For a list of references cited in this document, please visit:
http://catalog.designsforhealth.com/assets/itemresources/Aloe_200x_References.pdf

*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.

To contact Designs for Health, please call us at (860) 623-6314, or visit us on the web at www.designsforhealth.com.