

## Concentrated aloe extract for gastrointestinal and digestive support

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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.<sup>1,2</sup> 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 psychological stress, the use of NSAIDs, corticosteroids and/or alcohol, as well as providing symptomatic relief in irritable and inflammatory bowel disorders.

### 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 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.<sup>3,4</sup> 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.<sup>5</sup> 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.

### Gastrointestinal Protection

In a mouse model of ethanol-induced gastric lesions, freeze-dried aloe vera extract was shown to be protective 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), two critical biomarkers for this type of gastric ulceration.<sup>6</sup> Treatment with aloe resulted in nearly a 50 percent reduction in these markers, compared to controls. 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.<sup>6</sup>

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.<sup>7</sup> Aloe vera contributed to reduced levels of TNF- $\alpha$ , and elevated levels of IL-10, an anti-inflammatory signaling molecule. According to this study, IL-10 contributed to reduced inflammation through feedback inhibition on TNF- $\alpha$  production.

In other animal models of gastric ulcers, aloe vera has demonstrated gastro-protective effects in addition to mildly inhibiting gastric acid secretion as a natural H2 receptor antagonist, which may be helpful in healing active ulcerations without the side-effects of more powerful pharmaceutical acid-reducing drugs.<sup>8</sup>

## Antibacterial and Antioxidant Activity

In animal models of *Helicobacter pylori* (*H. pylori*) infection, aloe vera was shown to reduce levels of TNF- $\alpha$  and leukocyte adhesion.<sup>9</sup> 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- $\alpha$ , 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.<sup>10</sup> 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 *Shigella*, *Streptococcus*, *Enterobacter* and *Staphylococcus* (including MRSA).<sup>11,12</sup>

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.<sup>13,14</sup> 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.<sup>14</sup>

## Colitis, Irritable Bowel Syndrome and Other Forms of GI Distress

In a randomized, double-blind, placebo-controlled study 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.<sup>15</sup>

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.<sup>16</sup>

In a rat model of irritable bowel syndrome (IBS), aloe vera used in combination with German chamomile (*Matricaria recutita*) was effective at reducing TNF- $\alpha$ , 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).<sup>17</sup>

**Recommended Use:** As a dietary supplement, take one capsule per day, or as directed by your health care practitioner.

## References

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## Supplement Facts

Serving Size 1 capsule

Amount Per Serving	% Daily Value
Aloe Vera ( <i>Aloe barbadensis</i> )(leaf) (200:1)	500 mg *

\*Daily Value not established.

**Other Ingredients:** Microcrystalline cellulose, stearates (vegetable source).