

Some more References on BROMELIAN.

1) What does bromelain do?

Bromelain, derived from the pineapple plant, is one of a group of proteolytic enzymes **(enzymes capable of digesting protein)**.

It is widely believed that most orally ingested enzymes are destroyed by the digestive juices prior to being absorbed. However, there is evidence that significant amounts of bromelain can be absorbed intact.¹ **Proteolytic enzymes other than bromelain are often used with people who suffer from malabsorption. Although bromelain in combination with other enzymes and ox bile has been reported to help digest food,** it is generally not used for this purpose. However, bromelain does contribute to the digestion of protein, and may therefore be used as a digestive aid. Although many doctors assume that other proteolytic enzymes, such as those found in pancreatin, are more effective than bromelain in helping digestion and absorption, almost no research compares the relative effects of these enzymes.

Bromelain is an anti-inflammatory agent and for this reason is helpful in healing **minor injuries**, particularly **sprains and strains**, muscle injuries, and the **pain**, swelling, and tenderness that accompany sports injuries.^{3 4 5} Topically applied bromelain in the form of a cream may be beneficial for frostbite,⁶ possibly enhancing the rate of healing,⁷ and for cleaning debris from **burns**.⁸ These uses of bromelain should be supervised by a doctor.

Also as a result of its anti-inflammatory effect, bromelain has been found to dramatically reduce postoperative swelling in controlled human research.⁹ Double-blind research has found bromelain effective in reducing swelling, bruising,¹⁰ and pain, for women having minor surgery in conjunction with giving birth (episiotomy).¹¹

The anti-inflammatory effect of bromelain is the probable reason this enzyme has been found effective for people suffering from **sinusitis**.¹² Some of the evidence supporting bromelain in the treatment of sinusitis comes from double-blind research.¹³

Bromelain, in combination with trypsin (another enzyme), may enhance the effect of antibiotics in people with a urinary tract infection (**UTI**). In a double-blind study, 100% of people who received bromelain/trypsin in combination with **antibiotics** had a resolution of their UTIs, compared to only 46% of those who received antibiotics alone.¹⁴

Again, probably due to its anti-inflammatory action, bromelain was reported to help patients with [rheumatoid arthritis](#) in preliminary research.¹⁵ In that trial, in which bromelain was given for varying (3-week to 13-month) periods, 73% had good to excellent results.

Bromelain is a natural blood thinner because it prevents excessive blood platelet stickiness.¹⁶ This may explain, in part, the positive reports in a few clinical trials of bromelain to decrease symptoms of [angina](#) and thrombophlebitis.^{17 18} In addition, bromelain reduces the thickness of mucus, which may benefit patients with [asthma](#) or chronic [bronchitis](#).¹⁹

Preliminary evidence in both animals and people suggests that bromelain may possess antitumor activity, though the true importance of this effect is poorly understood.²⁰

Bromelain can induce beneficial changes in white blood cells with possible effects on [immune function](#).^{21 22} However, whether these effects would help people with immune system problems remains unclear.

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2) DETAILED DESCRIPTION OF THE INVENTION

The invention provides some improvements introduced into the object of the Spanish patent application P9401832 relating to a whitening toothpaste which is anti-plaque and anti-tartar of low abrasion, consisting of the development of a whitening toothpaste which is anti-plaque and anti-tartar of low abrasion and which is suitable for treating sensitive teeth, that is characterized by the lack of detergents and whose formulation comprises:

Component % by weight with respect to total
Papain 0.1-1
Xylitol 5-10
abrasive system based on silica 16-18
a buffer consisting of:
i) tetra-potassium pyrophosphate 4-5
ii) potassium dihydrogen phosphate 1-3
additives/recipients s.q.
[s.q.: sufficient quantity to make up 100%]

Papain is a proteolytic enzyme with low specificity, suitable for cleaning the salivary protein plaque that has a whitening effect on the tooth surfaces. A valued enzymatic extract can be used, whose proteolytic activity has been adjusted to a constant value, from a latex obtained from unripe fruits of the Carica papaya (papaya). Papain hydrolyses proteins, amides and amino acid esters, and its activity is associated with the presence of free sulphyl (--SH) groups in its active center. To produce the toothpaste of this invention, an enzymatic extract is preferably used that contains papain with a proteolytic activity of, approximately, 6,000 U-USP/mg [Units of United States Pharmacopea]. The optimum working temperature for this enzyme lies between 40 and 65° C. Due to the low substrate specificity, papain can act on multiple protein products, in over pH range of from 3 to 9. Outside these values the enzyme is inactive. In general, the toothpaste that contains papain conveniently has a pH near to neutral, that is to say, approximately 7, with a view to guaranteeing the activity of the enzyme without de-mineralising the enamel. Papain has a cleaning action on the bacterial plaque and tartar by breaking the glycoprotein and lipoprotein chains from the saliva fluid as well as acting on the bacterial excretory activity of mucylaginose substances (capsule) that attach themselves to the enamel allowing colonisation by bucal flora (bacterial plaque) and the fixing of calcium salts to these structures that act as supports (tartar). Therefore, by attacking these structures, the processes associated with plaque and tartar excess is improved such as tooth decay and periodontal disease.

- 3) [Altern Med Rev](#). 2000 Oct;5(5):448-54.[Related Articles](#), [Links](#)



Natural treatment of perennial allergic rhinitis.

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Perennial allergic rhinitis is an IgE-mediated inflammatory disorder of the nasal mucosa characterized by paroxysms of sneezing, nasal congestion, pruritis, and rhinorrhea. The condition may be caused by certain environmental agents, food sensitivities, structural abnormalities, metabolic conditions, or synthetic drugs. Recent health impairment outcome studies on allergic rhinitis sufferers reveal a measurable decline in physical and mental health status and the inability to perform daily activities. Antihistamines, decongestants, anticholinergic agents, and corticosteroid drug therapy, alone or in combination, are typically used in the treatment of allergic rhinitis. Reported adverse side effects include sedation, impaired learning/memory, and cardiac arrhythmias. Therapeutic strategies should seek to decrease the morbidity already associated with this condition. *Urtica dioica*, bromelain, quercetin, N-acetylcysteine, and vitamin C are safe, natural therapies that may be used as primary therapy or in conjunction with conventional methods.

Publication Types:

- [Review](#)

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- 4) Clin Immunol. 2005 Jun 1; [Epub ahead of print] : Treatment with oral bromelain decreases colonic inflammation in the IL-10-deficient murine model of inflammatory bowel disease.
Hale LP, Greer PK, Trinh CT, Gottfried MR.
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Bromelain is a mixture of proteinases derived from pineapple stem that is marketed in health food stores as a "digestive aid". Orally administered bromelain was anecdotally reported to induce clinical and endoscopic remission of ulcerative colitis in two patients whose disease was refractory to multi-agent conventional medical therapy. However, the potential efficacy of bromelain in colitis has not yet been tested rigorously in either animals or humans. In this study, the clinical and histologic severity of inflammatory bowel disease (IBD) was determined in IL-10(-/-) mice treated orally with bromelain in vivo. Daily treatment with oral bromelain beginning at age 5 weeks decreased the incidence and severity of spontaneous colitis in C57BL/6 IL-10(-/-) mice. Bromelain also significantly decreased the clinical and histologic severity of colonic inflammation when administered to piroxicam-exposed IL-10(-/-) mice with established colitis.

Proteolytically active bromelain was required for anti-inflammatory effects in vivo. Adverse effects of dermatitis, hair loss, and weight loss due to mucositis were rare, dose related, and were not seen in wild-type mice treated orally with up to 1000 mg bromelain/kg/day for 18 weeks. Although the exact mechanisms by which exogenous proteinases affect bowel inflammation have not yet been determined, the results justify additional studies of this complementary biologically based approach to treatment of IBD.

5) [Mult Scler.](#) 2005 Apr;11(2):166-8. [Related Articles](#), [Links](#)

A randomized, double-blind, placebo-controlled study of oral hydrolytic enzymes in relapsing multiple sclerosis.

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Oral administration of hydrolytic enzymes (HE), such as bromelain, trypsin and rutosid, may have beneficial effects on the clinical course of neurological symptoms related to multiple sclerosis (MS). This is supported by a complete protection by HE from experimental allergic encephalomyelitis, an animal model related to MS. Three hundred and one patients with relapsing MS were enrolled in a double-blind, placebo-controlled trial. No treatment effect between the placebo and the HE groups was found either for clinical or MRI parameters.

- 6) [In Vivo](#). 2005 Mar-Apr;19(2):417-21. [Related Articles](#), [Links](#)

Therapeutic use, efficiency and safety of the proteolytic pineapple enzyme Bromelain-POS in children with acute sinusitis in Germany.

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The therapeutic efficiency and safety of the proteolytic enzyme bromelaine obtained from pineapple (Bromelain-POS, Ursapharm GmbH, Saarbrücken, Germany) was evaluated in children under the age of 11 years diagnosed with acute sinusitis. Data from 116 patients from 19 centres located across Germany were analysed in a pharmacoepidemiological cohort study. Patient cohorts were either treated with Bromelain-POS (N = 62), in combination with Bromelain-POS and standard therapies (N = 34), or with standard therapies (N = 20). The primary parameter measuring effectiveness of the different treatment groups was the duration of symptoms. The shortest mean period of symptoms was observed in patients treated with Bromelain-POS alone (6.66 days), followed by the standard therapy (7.95 days) and those treated with a combination of Bromelain-POS and the standard therapy (9.06 days). Patients of the Bromelain-POS monotherapy group showed a statistically significant faster recovery from symptoms ($p = 0.005$) compared to the other treatment groups. One 10-year-old male patient, with a known pineapple allergy, showed a self-limiting mild allergic reaction. No other unwanted side-effects were reported. This trial documents that the proteolytic pineapple enzyme Bromelain-POS is widely used in the treatment of young children diagnosed with acute sinusitis in Germany and that the use of proteolytic enzymes can benefit such patients.

Bromelain: biochemistry, pharmacology and medical use.

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Bromelain is a crude extract from the pineapple that contains, among other components, various closely related proteinases, demonstrating, in vitro and in vivo, antiedematous, antiinflammatory, antithrombotic and fibrinolytic activities. The active factors involved are biochemically characterized only in part. Due to its efficacy after oral administration, its safety and lack of undesired side effects, bromelain has earned growing acceptance and compliance among patients as a phytotherapeutical drug. A wide range of therapeutic benefits has been claimed for bromelain, such as reversible inhibition of platelet aggregation, angina pectoris, bronchitis, sinusitis, surgical traumas, thrombophlebitis, pyelonephritis and enhanced absorption of drugs, particularly of antibiotics. Biochemical experiments indicate that these pharmacological properties depend on the proteolytic activity only partly, suggesting the presence of nonprotein factors in bromelain. Recent results from preclinical and pharmacological studies recommend bromelain as an orally given drug for complementary tumor therapy: bromelain acts as an immunomodulator by raising the impaired immunocytotoxicity of monocytes against tumor cells from patients and by inducing the production of distinct cytokines such as tumor necrosis factor- α , interleukin (IL)-1 β , IL-6, and IL-8. In a recent clinical study with mammary tumor patients, these findings could be partially confirmed. Especially promising are reports on animal experiments claiming an antimetastatic efficacy and inhibition of metastasis-associated platelet aggregation as well as inhibition of growth and invasiveness of tumor cells. Apparently, the antiinvasive activity does not depend on the proteolytic activity. This is also true for bromelain effects on the modulation of immune functions, its potential to eliminate burn debris and to accelerate wound healing. Whether bromelain will gain wide acceptance as a drug that inhibits platelet aggregation, is antimetastatic and facilitates skin debridement, among other indications, will be determined by further clinical trials. The claim that bromelain cannot be effective after oral administration is definitely refuted at this time.

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