

Quercetin-Bromelain Complex

DESCRIPTION

Quercetin-Bromelain Complex, provided by Douglas Laboratories®, is a unique formulation of quercetin, buffered vitamin C, and bromelain. Quercetin is a bioflavonoid that has excellent antioxidant activity. Magnesium ascorbate is a buffered form of vitamin C, a key antioxidant, which synergistically supports the quercetin activity. Bromelain is a proteolytic enzyme purified from pineapple, which is active and stable at the acidic levels found in the stomach.

FUNCTIONS

Quercetin is a naturally occurring bioflavonoid with strong antioxidant activity. The antioxidant activity of quercetin protects the gastrointestinal tract in several ways. First, quercetin prevents oxidation of lipids. The gastrointestinal tract has an increased exposure to oxidative stress due in part to the lowered pH. It is important to protect the lipid bilayer of the cell wall of the gastrointestinal tract because these cells serve as an important part of the body’s immune system. Secondly, quercetin prevents the depletion of glutathione from the cells of the intestinal tract. Glutathione is a cosubstrate for antioxidant enzymes glutathione peroxidase and glutathione reductase. By preserving the level of glutathione, quercetin protects metabolic activity and cellular structure of the highly vulnerable cells of gastrointestinal tract from toxic free radical damage. Vitamin C synergistically improves the ability of the quercetin to preserve glutathione. Thirdly, quercetin increases mucus secretion from gastric cells. The mucus polysaccharide provides a protective buffer for the gastric cells from the low pH of the stomach contents. The reduced contact provides protection from gastric lesions. Quercetin provides an antispasmodic activity that prevents the uncontrolled peristaltic activity found in diarrhea. The reduced excretion of the intestinal contents provides benefit to the gastrointestinal tract by preventing the constant production of cellular protective materials. Quercetin also reduces the immune response to allergens. Quercetin inhibits the IgE-mediated allergic mediator release from mast cells as well as IgG-mediated histamine release. Quercetin is a potent inhibitor of the lipoyxygenase that metabolizes arachidonic acid, which is the first step towards proinflammatory arachidonic acid metabolites. Thus, quercetin with the assistance of vitamin C in the gastrointestinal tract helps protect against gastric lesions that permit highly antigenic proteins, antigenic compounds and/or infective agents from passing into the body. In addition it prevents the release of components of the allergic inflammation response. Bromelain is a supportive nutrient in helping prevent allergens from crossing the gastrointestinal tract. Bromelain assists in the breakdown of large macromolecular protein complexes. This reduces the chance that these complexes will leave the stomach untouched or in large fractions retaining their recognizable antigenic form that could pass through these gastric lesions inducing an allergenic response. Quercetin, vitamin C and bromelain are all dietary nutrients that help support the immune system. They inhibit the absorption of substances into the body that may induce the allergic response. In addition quercetin is used by the body to help reduce the allergic immune response in the intestinal tract, possibly providing nutritional support to normal inflammation processes.

INDICATIONS

Quercetin-Bromelain Complex may be taken as a dietary supplement for those individuals who wish to increase their intake of this important bioflavonoid, key antioxidant vitamin C, and the proteolytic enzyme Bromelain.

FORMULA (#QBC)

Each Tablet contains:

Quercetin	333 mg
Vitamin C (Magnesium ascorbate).....	200 mg
Magnesium (ascorbate)	13 mg
Bromelain (2,000 GDC per gram).....	100 mg

Quercetin-Bromelain Complex

SUGGESTED USE

Two to four tablets twice daily between meals as a dietary supplement, or as directed by physician.

SIDE EFFECTS

No adverse side effects have been reported.

STORAGE

Store in a cool, dry place, away from direct light. Keep out of reach of children.

REFERENCES

Heinicke RM, et al. Effect of bromelain on clinical laboratory tests after oral administration. *Jpn Heart J.* 1971; 12(6):517-527.

James JM, Sixbey JP, Helm RM, Bannon GA, Burks AW. Wheat alpha-amylase inhibitor: A second route of allergic sensitization. *J Allergy Clin Immunol* 1997; 99:239-234.

Lastra CA., Martin MJ, Motilva V. Antiulcer and gastroprotective effects of quercetin: a gross and histologic study. *Pharmacology* 1994; 48:56-62.

Lozoya X, Meckes M., Abou-Zaid M, Tortoriello J, Nozzolillo C, Arnason JT. Quercetin glycosides in *Psidium guajava* L. leaves and determination of a spasmolytic principle. *Arch Med Res Spring* 1994; 25(1):11-15.

Martensson J, Jain A, Meister A. Glutathione is required for intestinal function. *Proc Natl Acad Sci.* 1990;87:1715-1719.

Masson M. [Bromelain in blunt injuries of the locomotor system. A study of observed applications in general practice]. *Fortschr Med* 1995; 113(19):303-306.

Skaper S.D., Fabris M., Ferrari V., Carbonare M.D. and Leon A. Quercetin protects cutaneous tissue-associated cell types including sensory neurons from oxidative stress induced by glutathione depletion: cooperative effects of ascorbic acid. *Fr Rad Biol Med* 1997; 22(4):669-678.

Welton AF, Tobias LD, Fiedler-Nagy C, et al. Effects of flavonoids on arachidonic acid metabolism *Prog Clin Biol Res* 1986; 213:231-242.

Williamson G, Plumb G.W., Uda Y., Price K.R. and Rhodes M.J. Dietary quercetin glycosides: antioxidant activity and induction of the anticarcinogenic phase II marker enzyme quinone reductase in Hepalcl7 cells. *Carcinogenesis* 1996; 17(11):2385-2387.

For more information on Quercetin-Bromelain Complex visit douglaslabs.com

† 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.

Manufactured by
Douglas Laboratories
600 Boyce Road
Pittsburgh, PA 15205
800-245-4440
douglaslabs.com



**You trust Douglas Laboratories.
Your patients trust you.**