**BIOMAX C tablet, vegetarian**

**DESCRIPTION** super high-potency, 1000 mg vitamin C with bioflavonoids in one prolonged release tablet.

**FORMULATION** Each tablet contains vitamin C, 1000 mg along with 400 mg of lemon hesperidin, rutin and bioflavonoids. The active ingredients are bound in a manner allowing prolonged release; this provides antioxidant power to inflamed tissues via the digestive tract over several hours. Additional ingredients: cellulose, stearic acid (vegetable), silica, calcium stearate (vegetable), food glaze and rose hips.

**INDICATIONS** common treatment to relieve seasonal symptoms is the use of Vitamin C (ascorbic acid, ascorbate). It is required by humans and has several decades of history showing this nutrient effective at reducing symptoms while even helping prevent recurrent infections.

**FEATURES** each tablet provides 1000 mg (1667% RDI) of vitamin C, helping to prevent and reduce symptoms and an effective nutrient fighting infections. These indications are supported by the results from many decades of research. Prolonged release vitamin C formulas provide continuously raised bloodstream levels of this powerful antioxidant, allowing the individual to ingest fewer tablets throughout the day to maintain adequate tissue vitamin C.

**DIRECTIONS** normally one to two tablets daily with or without food and at the very first signs take one tablet every four to six hours thereafter until symptoms subside. Tablets may be halved for small children but not crushed.

**HOW SUPPLIED** as 100 coated, prolonged release tablets.

**BACKGROUND**

The current RDI for vitamin C is judged by many researchers as being far below that necessary for health. Pauling calculated the amounts of vitamin C continuously biosynthesized by mammals and after adjusting for human weight, he estimated our requirement to be a minimum of several hundred mg/day - with the ideal amount being at least 3 g/day for a 70 kg person. He vehemently argued that recommendations by some authorities, of only a few tens mg/day, are well below that necessary for robust health.

It has been known for some time that vitamin C is required for the biosynthesis of connective proteins, such as collagen. Here it is a substrate for the post-transcriptional modifications of the important amino acids proline and lysine – both intimately involved with collagen cross-linking and hence stiffening collagen and strengthening bones. The importance for vitamin C assisted destruction of bacteria and viral agents is a more recent discovery. Vitamin C fights infections by assisting an active group of common white blood cells, neutrophils, in the destruction of invasive particles by the “oxidative-burst” process. Termed phagocytosis, infective agents – bacteria and viral particles – are engulfed by white blood cells such as neutrophils and natural killer (NK) cells and then liquidated.
Human neutrophils destroy these invaders by releasing massive amounts of hydrogen peroxide (H₂O₂) and hypochlorous acid (HOCl) thus burning these bugs into water, CO₂ and chlorinated organics. This oxidation also often destroys the neutrophil itself and releases excess H₂O₂ and HOCl into surrounding tissues. The entire process, while necessary for survival, is incredibly oxidative and inflammatory and is not initiated by the neutrophil without adequate tissue levels of protective vitamin C.

Vitamin C protects surrounding tissues from the deleterious effects of excess H₂O₂ and HOCl released from active neutrophils during the phagocytic process. These oxidative agents are actually sequestered by the key protective biochemical glutathione which is immediately oxidized to the non-protective glutathione dimer. The dimer is recycled back to the protective glutathione monomer by reduction from tissue vitamin C, which is itself oxidized to dehydroascorbate. This compound was thought to be the useless end-product of vitamin C oxidation, but we now know that dehydroascorbate is required by the sub-cellular mitochondria. This is the form of vitamin C which is allowed access to the inner mitochondrial matrix, where it is reduced back to vitamin C (indirectly from the Krebs cycle). Here, mitochondrial vitamin C once again protects tissues from oxidation by H₂O₂ produced from incomplete oxygen reduction during ATP biosynthesis in the mitochondria.

To maximize tissue protection and neutrophil activity our bloodstream vitamin C should be constantly maintained at high levels. Formulas which slowly release vitamin C over several hours have been clinically shown to maintain these high levels in the bloodstream⁴. We now know that high concentrations of vitamin C are absolutely required by neutrophils to actively fight infections⁵, meaning vitamin C does much more than retard and reverse inflammation. More than this, vitamin C taken continuously in combination with zinc, seems to reduce the occurrence of a number of respiratory, clinical complaints⁶. Research has also shown that vitamin C obtained from nutritional supplements is equivalent to vitamin C from natural sources such as orange juice and cooked broccoli⁷.

References

7. Mangels AR. et al. (1993). The bioavailability to humans of ascorbic acid from oranges, orange juice and cooked broccoli is similar to that of synthetic ascorbic acid. Journal of Nutrition 123: 1054-1061.