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Review on the Bioactivities of Quercetin

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Abstract : Quercetin, the most active bioflavonoid which is produced as a secondary metabolite by plants, is a polyphenol with a wide spectrum of bioactivities. This bioflavonoid is the —nature's biological response modifier as it interferes with the various allergens and other reactive compounds. Apple, oranges, tomatoes, onions, black tea and green tea are good sources of quercetin and it is also available commercially. After absorption in the small intestine and colon, quercetin conjugates with glucuronic acid and binds to albumin and passes to liver and benefits the body by its various bioactivities. Ouercetin's antioxidant activity enhances the radical scavenging activity and metal chelation of the ions but the prooxidant activity depends on its high concentration. Further, quercetin interferes with the formation of leukotrienes from arachidonic acid showing its anti-inflammatory effect. A combined effect of quercetin and bromelain effectively suppresses the allergic reactions and the excessive inflammation resulting from bruising and tissue damage. The mutualistic effect of vitamin C and quercetin protects each other from getting oxidized. A direct relationship was also found to exist between quercetin's antiviral activity and enhancement of cyclic adenosine monophosphate (cAMP), which is a second messenger involved in many biological processes. Quercetin helps in down regulation of mutant gene p53 and inhibits the growth of cancerous cells by putting a check at G1 phase. This also controls the surpassing of the normal regulatory growth by the tumor cells and inhibits the production of heat shock proteins and thus showing its anticancer properties. Owing to the potential pharmaceutical properties of quercetin, the bioactivities, principle uses and mechanisms involved in the treatment of various diseases were reviewed in this paper. In addition, safety issues involved in the partake of quercetin by humans have also been discussed.

Keywords : Bioactivities of Quercetin.

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