

Quercetin: Promising Flavonoid for Drug Development

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Recently, many pharmaceutical companies and researchers attention has been focused on dietary products as a wealthy resource for drug discovery and development because the merit of diversified health benefits and therapeutic potentialities due to the presence of pharmacologically active compounds [1,2]. Flavonoids are a group of polyphenolic compounds, diverse in chemical structure and characteristics, considered being as health-promoting and disease-preventing dietary supplements. There has been mounting trend in the research of flavonoids from dietary sources, due to increasing evidence of the versatile health benefits of flavonoids including anti-inflammatory, antioxidative, antiproliferative and anticancer activity, free radical scavenging capacity, anti-hypertensive effects, coronary heart disease prevention and anti-human immunodeficiency virus functions [3,4]. Quercetin (3,3',4',5'-pentahydroxy flavone) is a flavonoid is prevalent in wide variety of dietary plants, including red onions, tomatoes, lettuce and celery, fruits such as apples and berries, tea, fruits and vegetable juices, and many herbal plants including *Persicaria chinensis* L. [5,6], and *Phyllanthus acidus* [7,8]. Epidemiological data suggest that quercetin, one of the most prominent dietary antioxidants, is combating the destructive "free radical" molecules that play in part of many diseases. Moreover, quercetin has healthful anti-inflammatory, anticancer and anti-allergic effects; it can also improve the health of capillaries. Molecular investigations revealed that quercetin modulate several signal transduction pathway by targeting MAPK/AP1, IKK/NFκB, Src/Syk/IRAK1 and Nrf2/Keap1, and stabilizing P⁵³ at both the mRNA and protein levels to reactive P⁵³-dependent cell cycle arrest and apoptosis [9].

Advance studies needed to focus on most effective doses of quercetin for clinical trials and more focus on bioavailability, permeability and safe doses to offer this flavonoid as a most prospective novel candidate for future drug development.

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