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Adv Exp Med Biol. 2016;928:213-244.

Fisetin and Its Role in Chronic Diseases.

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Abstract

Chronic inflammation is a prolonged and dysregulated immune response leading to a wide variety of physiological and pathological conditions such as neurological abnormalities, cardiovascular diseases, diabetes, obesity, pulmonary diseases, immunological diseases, cancers, and other life-threatening conditions. Therefore, inhibition of persistent inflammation will reduce the risk of inflammation-associated chronic diseases. Inflammation-related chronic diseases require chronic treatment without side effects. Use of traditional medicines and restricted diet has been utilized by mankind for ages to prevent or treat several chronic diseases. Bioactive dietary agents or "Nutraceuticals" present in several fruits, vegetables, legumes, cereals, fibers, and certain spices have shown potential to inhibit or reverse the inflammatory responses and several chronic diseases related to chronic inflammation. Due to safe, nontoxic, and preventive benefits, the use of nutraceuticals as dietary supplements or functional foods has increased in the Western world. Fisetin (3,3',4',7-tetrahydroxyflavone) is a dietary flavonoid found in various fruits (strawberries, apples, mangoes, persimmons, kiwis, and grapes), vegetables (tomatoes, onions, and cucumbers), nuts, and wine that has shown strong anti-inflammatory, anti-oxidant, anti-tumorigenic, anti-invasive, anti-angiogenic, anti-diabetic, neuroprotective, and cardioprotective effects in cell culture and in animal models relevant to human diseases. In this chapter, we discuss the beneficial pharmacological effects of fisetin against different pathological conditions with special emphasis on diseases related to chronic inflammatory conditions.

KEYWORDS: Allergy; Cancer; Cardiovascular diseases; Chronic diseases; Cytokines; Diabetes; Fisetin; Inflammation; Neurological diseases; Nutraceuticals; Obesity; Pulmonary diseases; Transcription factors

PMID: 27671819 DOI: 10.1007/978-3-319-41334-1_10

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