



## **Flavonoids: Natural Substance having Several Health Benefits**

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### **COMMENTARY**

Flavonoids are cluster of plant metabolites (natural substance) which provides health benefits through cell signaling pathways and antioxidant effects. These are polyphenolic molecules which contains 15 carbon atoms. Flavonoids are rich in antioxidants having several health benefits and used in nutraceutical, pharmaceutical, medicinal and cosmetic applications. These are found in all fruits, vegetables, wine and chocolates [1-3]. Flavonoids has variable phenolic structures and is easily extracted from fruits and vegetables. There are six sub types of flavonoids which are as follows:

#### ***Flavanols***

Flavanols has antioxidant properties which helps in managing symptoms of cardiovascular disease. Found in Onions, Red Wine, Tea, Peaches, Berries and Tomatoes.

#### ***Flavan-3-ols***

It is rich in nutrients. Found in: White Tea, Green Tea, Oolong Tea, Black Tea, Apples, Blueberries Cocoa and Chocolate Products.

#### ***Flavones***

Includes Luteolin and Apigenin. Flavones delays the metabolizing of drugs pigments in blue and white flowering plants, works as natural pesticide, protects leaves from harmful insects, help in inflammation in body. Found in: Parsley, Red Peppers, Celery, Chamomile.

#### ***Flavanones***

Includes Hesperetin, Eriodictyol and Naringenin. It is linked with anti-inflammatory properties and maintains cardiovascular health. Helps in controlling weight and cholesterol. Found in Lemons, Oranges and Grapefruit.

#### ***Isoflavones***

Includes Genistein, Glycitein and Daidzein. They are phytoestrogens acting like the hormone estrogen. Beneficial in lowering the risk of hormonal cancers and in treating menopausal symptoms. Found in soy, soy products, and some other legumes such as fava beans.

#### ***Anthocyanins***

Includes Malvidin, Pelargonidin, Peoidin and Cyanidin. These are naturally produced pigments which are responsible for providing flowers their red, purple, and blue color. Maintains heart health, has antioxidant effects and helps with obesity and prevents diabetes. Found in the outer skin of berries and berry products like: Red and Purple Grapes, Red Wine Cranberries, Strawberries.

Flavonoids acts as antioxidants, antimicrobials, photoreceptors, visual attractors, feeding repellants, and for light screening. It helps in regulating cellular activity and fights off free radicals which causes oxidative stress on body and thus indirectly helps in preventing Cancer. Antioxidants in the Flavonoids helps body to fight with all harmful molecules. Inflammation occurs because of immune responses produced by the body. Allergens, germs, toxins triggers inflammation and thus Flavonoids helps in reducing inflammation. Flavonoids helps in managing high blood pressure, lowers risk of heart attack and decreases risk of type 2 diabetes. Flavonoids produces colors for

attracting pollinating insects. Health Benefits includes: Anti-viral, Anti-cancer, Anti-inflammatory and Anti-allergic [4-5]. Quercetin, a flavonoid, helps to relieve asthma, sinusitis and fever. Flavonoids present in tea lower levels of triglycerides and cholesterol in the blood and also protects body from osteoporosis and lessens the symptoms of menopause.

#### REFERENCES

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