Advance on the Flavonoid C-glycosides and Health Benefits

Xiao, J.ab, Capanoglu, E.c, Jassbi, A.R.d, Miron, A.e.

Critical Reviews in Food Science and Nutrition, Volume 56, 29 July 2016, Pages S29-S45

Abstract

The dietary flavonoids, especially their glycosides, are the most vital phytochemicals in diets and are of great general interest due to their diverse bioactivity. Almost all natural flavonoids exist as their O-glycoside or C-glycoside forms in plants. The dietary flavonoid C-glycosides have received less attention than their corresponding O-glycosides. This review summarizes current knowledge regarding flavonoid C-glycosides and their influence on human health. Among the flavonoid C-glycosides, flavone C-glycosides, especially vitexin, isoorientin, orientin, isovitexin and their multiglycosides are more frequently mentioned than others. Flavonoid C-monoglycosides are poorly absorbed in human beings with very few metabolites in urine and blood and are deglycosylated and degraded by human intestinal bacteria in colon. However, flavonoid C-multiglycosides are absorbed unchanged in the intestine and distributed to other tissues. Flavonoid C-glycosides showed significant antioxidant activity, anticancer and antitumor activity, hepatoprotective activity, anti-inflammatory activity, anti-diabetes activity, antiviral activity, antibacterial and antifungal activity, and other biological effects. It looks like that the C-glycosylflavonoids in most cases showed higher antioxidant and anti-diabetes potential than their corresponding O-glycosylflavonoids and aglycones. However, there is a lack of in vivo data on the biological benefits of flavonoid C-glycosides. It is necessary to investigate more on how flavonoid C-glycosides prevent and handle the diseases. © Taylor & Francis Group, LLC.