

Study on bioaccessibility of betacyanins from red dragon fruit (*Hylocereus polyrhizus*)

ABSTRACT

Betacyanins are bioactive dietary phytochemicals which can be found in red dragon fruit (RDF). Therefore, the bioaccessibility of betacyanins that present in fermented red dragon fruit drink (RDFD) and pressed red dragon fruit juice (RDFJ) was accessed in simulated gastric and intestinal digestion. Results disclosed that betacyanins from RDFD and RDFJ suffered minor loss (< 25%) at gastric-like environment but greater loss was observed during the intestinal phase digestion. After subjected to intestinal digestion, RDFD retained 46.42% of betanin while RDFJ retained 43.76%, with betanin concentration of 17.12 mM and 12.37 mM, respectively. Findings also revealed that RDFD exhibited higher antioxidant capacity compared to RDFJ after subjected to intestinal digestion, with values of 0.88 mM Trolox equivalent antioxidant capacity (TEAC) and 0.85 mM TEAC, respectively. The data suggests that betacyanins that present in RDF are bioaccessible while fermentation able to enhance the bioavailability with more betacyanins retained after intestinal digestion.

Keyword: Antioxidant; Betacyanins; Bioaccessibility; Bioactive compounds; Fermentation