Characterization and quantification of dragon fruit (Hylocereus polyrhizus) Betacyanin pigments extracted by two procedures

ABSTRACT

A method for the extraction of betacyanins pigments of dragon fruit (Hylocereus polyrhizus) grown in Malaysia was studied. A processing scheme consisting of solvent system selection (ethanolic and aqueous ethanolic) was proposed to study the effect of water in enhancing betacyanin recovery from the pulp of H. polyrhizus fruit. Betacyanins, in concentrated extracts from the dragon fruit (H. polyrhizus), were identified as betanin, phyllocactin, hylocerenin and their respective C-15 isoforms using High-performance liquid chromatographic (HPLC) analysis. Structural alteration was monitored by using selected solvent systems. As for the relative peak area ratios, some betacyanins showed a higher stability than others. Betanin, one of the main betacyanin in selected Malaysian H. polyrhizus cultivars, displayed the most stable structure. Comparing the peak area ratios of individual betacyanins, it was noticed that ethanolic assay might induce co-occurring of the C-15 isoforms.

Keyword: Dragon fruit; Hylocereus polyrhizus; Betacyanins; Betanin; Phyllocactin; Hylocerenin