Stability of betanin in pitaya powder and confection as affected by resistant maltodextrin

ABSTRACT

Physicochemical properties and stability of betanin in pitaya juice spray dried with maltodextrin (MD_p) and resistant maltodextrin (RMD_p), and its stability after incorporation into sugar confection were assessed. MD_p exhibited more favorable powder properties with higher betanin retention, compared to RMD_p. Morphology of MD_p exhibited well defined spheres as compared to RMD_p which displayed agglomerated particles. Storage for 3 months at 4 °C, 25 °C and 40 °C exhibited higher betanin degradation in RMD_p at all temperatures with corresponding lower half-lives compared to MD_p. Exposure of powder to light increased degradation of betanin in RMD_p more so than in MD_p. In sugar confection, RMD_p exhibited higher betanin retention post processing at 78.13% compared to MD_p at 69.06%. However, after storage for 3 months at 25 °C and 40 °C, stability of betanin in candies incorporated with RMD_p reduced below that of candies incorporated with MD_p, signifying higher stability in the latter.

Keyword: Spray dry; Encapsulation; Powder properties; Degradation kinetics; Betanin