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Stability and degradation kinetics of crude anthocyanin extracts from H. sabdariffa
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Abstract

Hibiscus sabdariffa is an under-utilized plant that has reported to have great potential in the food industry. The vibrant red pigment from the calyces indicate a source of anthocyanins. Anthocyanins would make ideal natural food colourants with additional nutritional benefits however stability is a hindering factor. Stability studies were the main focus of this study. Crude anthocyanins were extracted using four different solvent systems. The crude extracts were analysed under the following parameters; heat (50 and 80 °C), light (darkness and 20 W light) and pH (pH 1-9) stability. Degradation kinetic studies were done on thermally treated samples. Radical scavenging ability was thereafter calculated. Anthocyanidins were identified and quantified by HPLC coupled with a Diode Array Detector (DAD). Total phenolic content was determined with Folin – Ciocalteu's method. Approximately 87% of pigments were retained when heated at 50 °C while heating at 80 °C resulted in 61% pigment retention. The pH stability of samples incubated for 7 days indicated that crude anthocyanins degraded slower at acidic pH. Light stability showed slower degradation in dark incubated samples resulting in 84% pigment retention after a 10 day period. H. sabdariffa shows potential for the application of a food in products such as jelly and yoghurt.

Keywords

Anthocyanins, degradation kinetics, Folin-Ciocalteu, Hibiscus sabdariffa.

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