

ABSTRACT

Thermal degradation of the anthocyanin is a significant issue for the food industries; yet heat treatment is one of the most widely used methods to preserve and extend the shelf life of foods. The stability of anthocyanin can be improved and co-pigmentation is a prominent strategy to improve the stability of anthocyanin through complex formation. Rice bran hydrolysates (RBH) is the product of proteolysis full fat or defatted rice bran by proteases and it contains phenolic compounds and protein which may improve the stability of anthocyanins through co-pigmentation. Therefore, the objective of the present research is to evaluate the effect of RBH on the thermal degradation of anthocyanin in different pH. In this research, RBH was obtained through subcritical alkaline water extraction followed by proteolytic hydrolysis and pigmented rice bran was used as the source of anthocyanin. Several analyses were conducted to monitor the stability of anthocyanin during thermal treatment, including total anthocyanin content, percent polymeric color, color coordinates (L^* , a^* , b^* , and ΔE), and absorbance. The present results showed that RBH significantly decreased the degradation rate constant of anthocyanin at pH 4 by 18.75% which significantly increased the half-life of anthocyanin by 26.14% whereas no significant effects were observed at pH 7; although the overall color change (ΔE) of the solution at both pHs was retained with RBH. These findings may suggest that the effect of RBH is only preferable in acidic condition. Further studies are needed to support and expand the results from the present research.

Keywords: Rice bran hydrolysates (RBH), thermal degradation, anthocyanin, pigmented rice bran, co-pigmentation