

Effects of Enzymatic Liquefaction on the Physicochemical Properties and Antioxidant Activity of Zn-Amaranth (*Amaranthus viridis*) Puree

Authors : M. A. Siti Faridah, K. Muhammad, H. M. Ghazali, Y. A. Yusof

Abstract : This study was conducted to investigate the effects of three variables namely types of cell wall degrading enzymes (Viscozyme L, Pectinex Ultra SP-L, Rapidase PAC, Rohament CL and Rohapect PTE) at varying concentrations (0.25-3% v/w) and times (30 min-24 h) on the zinc (Zn-) amaranth purees. Liquefaction treatment of the Zn-amaranth purees with Viscozyme (1% v/w at pH 5 and 45°C for 3 h) was found to be the best procedure, which produced Zn-amaranth puree with low viscosity (8.60 mPas). Zn-amaranth purees were also found to have the highest metallo-chlorophyll derivative contents (0.16 mg/g), free radical 2, 2-diphenyl-1-picrylhydrazyl (DPPH) values (12.49 mM (TE)/g fresh weight) and ferric reducing antioxidant power (FRAP) values (4.57 mM (TE)/g fresh weight) within 3 h of liquefaction. Other physicochemical properties of the enzyme-liquefied Zn-amaranth purees indicated that lightness (L*) (12.54), greenness a*/b* (-0.30), reducing sugar (103.88 mg/mL) and soluble dietary fibre (5.94%) of the purees were higher compared to that of nonenzyme-liquefied amaranth purees.

Keywords : amaranth, antioxidant, chlorophyll derivative, enzymatic liquefaction

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