Extraction of Anthocyanin from Hinembilla (*Antidesma alexiteria*) Fruit as a Natural Food Colorant

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Artificial food colorants impart health hazards thus, present study attempts to extract anthocyanin from Hinembilla (*Antidesma alexiteria*) fruit as a natural food colorant with promising antioxidant properties. Anthocyanin was extracted with ultrasound-assisted extraction (UAE) and maceration by using four different solvents (70% ethanol, acidified 70% ethanol, absolute ethanol and acidified absolute ethanol) at 40°*C.* Total monomeric anthocyanin (TMA) pigment content and total phenolic content (TPC) were determined by pH differential method and Folin-Ciocalteu method, respectively. Antioxidant efficacy of extracts were determined by ferric reducing antioxidant power (FRAP) and 2,2-diphenyl-1-picrylhydrazyl (DPPH) radical scavenging capacity assays. TMA content ranged from 67.80 to 129.92 mg L^{-1}. DPPH radical scavenging activity as measured by IC_{50} ranged between 135.33 and 194.90 mg L^{-1}. FRAP ranged from 0.44 to 0.92 µmol Fe^{2+} per gram extract. TPC ranged from 3.33 to 6.77 mg gallic acid equivalents (GAE) per gram extract. Significantly ($p<0.05$) higher TMA (129.92 mg L^{-1}), FRAP (0.92 µmol Fe^{2+} per gram extract), TPC (6.77 mg GAE per gram extract) and lower IC_{50} (135.33 mg L^{-1}) values were recorded in UAE with 70% ethanol. Hence, anthocyanin can be extracted effectively with UAE than maceration with comparatively high antioxidant properties. Moreover 70% ethanol served as the best solvent to extract anthocyanin. The correlation of TPC with DPPH assay (IC_{50}) (R^2=0.7) and FRAP values (R^2=0.8) was strong, suggesting the phenolic compounds are the major contributor towards the exhibited properties. In conclusion, *A. alexiteria* serves as an excellent source of anthocyanin with high antioxidant properties thus suggesting the potential applications as a natural food colorant.

Keywords: Anthocyanin, *Antidesma alexiteria*, Maceration, Ultrasound-assisted extraction