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Anthocyanin Extraction from Purple Sweet Potato Cultivar Antin-3 *(Ipomoea batatas L.)* using Maceration, Microwave Assisted Extraction, Ultrasonic Assisted Extraction and Their Application as Anti-Hyperglycemic Agents in Alloxan-Induced Wistar Rats

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Abstract: Purple sweet potato (PSP) cultivar Antin-3 was reported has higher anthocyanin content than other cultivars that had been circulating in Indonesia. Anthocyanins contained in the PSP has positive health effects. The antioxidant properties of anthocyanin play a role in reducing oxidative stress in the body due to conditions of hyperglycemia. Diabetes Mellitus (DM) is a metabolic disease characterized by high blood glucose levels exceed the normal level (hyperglycemia). Anthocyanins extract from PSP was expected to help reduce the progression of the diabetes by lowering blood glucose. Three types of extraction methods used in this study (Microwave Assisted Extraction, Ultrasonic Assisted Extraction and maceration). Anthocyanin extracts from best method was tested to alloxan induced Wistar rats to determine their effects in lowering blood glucose levels. The results showed that the extraction method significantly affect on the levels of anthocyanin, antioxidant activity DPPH IC_{50}, antioxidant activity FIC IC_{50}, total phenol, pH, and redness level of anthocyanin extracts from PSP cultivar Antin-3. The best treatment obtained from MAE extraction method where levels of anthocyanin reached 687.58 ppm, DPPH IC_{50} antioxidant activity 61.91 ppm, FIC IC_{50} antioxidant activity 199.31 ppm, totalphenolic content 5186.51 ppm GAE, pH 3.00, and redness level 39.5. Anthocyanin extract at dose of 40mg/200gr body weight for 4 weeks to the experimental animals could lower blood glucose levels by 33.23% and had effect on improvement histopathological pancreatic β cells.

Key words : purple sweet potato, Antin-3, microwave assisted extraction, ultrasonic Assisted extraction, maceration, hyperglycemia, blood glucose levels.

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