

Preliminary investigation on the total phenolic content and antioxidant activity of pineapple wastes via Microwave Assisted Extraction at fixed microwave power

ABSTRACT

Pineapple contains many bioactive compounds and nutraceutical values which are good for human health. Processing pineapple in industries leaves a lot of wastes which can cause serious environmental problems. Pineapple waste is a by-product of the pineapple processing industry and it consists of residual pulp, peels and skin. Studies on the content of phenolic and the antioxidant activities in wastes of fruits have been emerging for the past years due to the concern on sustainable environment. In this study, the phenolic compound was extracted from pineapple wastes (namely skin) by using MAE (Microwave-Assisted Extraction). The aims of the present paper are to determine the phenolic compound and antioxidant activity of pineapple waste and to find the optimum condition at 250 W microwave power by using MAE with the temperature varied at 30 °C, 60 °C, 90 °C and 120 °C. The phenolic content was measured by using the Folin-Ciocalteu reagent. For the antioxidant activity, the analysis was done by using DPPH (2,2'-diphenyl-1-picrylhydrazyl) radical scavenging assay. The optimum condition for the extraction was found at 30 °C using deionised water as a solvent. At this optimum condition, the value of the phenolic content was achieved at the highest value, 206.46 mg GAE/g dry weight whereas the EC₅₀, DPPH value was obtained at the lowest value, 13.65 mg/mL. From this research, it is proved that the pineapple skin is one of the good sources of antioxidant phenolic and serves as the best candidate to be a potential source of natural antioxidant for food and nutraceutical application.