Utilisation of Guava Discarded Product: Extraction of Antioxidant from Guava Leaves Using An Ultrasound Assisted Method

ABSTRACT

Background: In this research, guava leaves are utilised as a potential source of natural antioxidants. Various extraction techniques have been applied for the extraction of phenolic compounds from plants. However, the high temperature and long extraction time used in these methods can cause degradation of the bioactive compounds. In order to overcome this limitation, ultrasound assisted extraction is one of the techniques that can be applied. The advantages of this method include increased extraction yield, less solvent amount required, lower temperature and shorter extraction time.

Objective: The main objective of this work is to apply ultrasound assisted method in the extraction of antioxidant from guava leaves. The effect of extraction time, temperature and the solid-to-liquid ratio on the extraction performance are investigated.

Method: The extraction was conducted by following the standard method described in the literature. Total phenolic content and antioxidant activity were analysed according to Folin-Ciocalteu and 1,1- Diphenyl-2-picryl-hydrazyl (DPPH) method, respectively.

Results: The results show that both total phenolic content and antioxidant activity increase with an increase in extraction time. The most appropriate temperature was found to be 55 °C, while increasing the solid-to-liquid ratio led to a drastic drop in the phenolic content and the antioxidant activity of the guava leaves.

Conclusion: The ultrasound assisted extraction method was successfully applied in the extraction of antioxidant compounds from guava leaves. The utilisation of guava leaves in this manner is expected to reduce the amount of waste disposal from food industries.