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Total Phenol and Antioxidant Potentials of Provitamin A Cassava Peels and Stem Extracts

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Abstract

The economic value of cassava plant may be enhanced through a complete utilisation of all the parts through a reduction, recycling and reuse of residues/by-products. Thus, this study was carried out to evaluate the potentials of extracting antioxidants and phenols from cassava peels and stems. Extraction was made from dried peel and stem samples using 80 % methanol and the extracts were stored at -23°C until needed for further analysis. Average total phenolic (TP) yield from the extracts were 584.52 Gallic acid equivalent (GAE) mg/100 g (peel) and 272.47 GAE mg/100 g (stem) and 1, 1-diphenyl-1-picrylhydrazyl radical scavenging activity was 18.93 % and 20.77 %, respectively. The peel and stem extracts assayed by ferric reducing antioxidant power method had significant effect ($p < 0.01$) on the antioxidant activities ranging from 101.50–169.50 μM TE g^{-1} for the peel and 73–120.13 μM TE g^{-1} for the stem. The findings in this study suggested that the peel and stem particle sizes influenced the extraction of antioxidants and the samples particle sizes were dependent on the solvent, the incubation time and the antioxidant assays used. The presence of the antioxidants in the extracts is an indication of the total phenol content, 1, 1-diphenyl-1-picryhydrazyl scavenging activity and ferric reducing antioxidant power. These substances can serve as valuable source of raw materials for food and non-food applications.

Keywords: Ferric reducing antioxidant power, gallic acid equivalent, antioxidant activity, provitamin A, radical scavenging activity

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