

Total Phenol and Antioxidant Potentials of Extracts from Yellow Cassava Peels and Stem

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Phytochemicals like phenols, carotenoids, tocopherols present in plants are strong antioxidants that play vital roles in the health care system. The economic value of cassava can be enhanced by incorporating the utilization of all the different parts through a complete reduction, recycling and reuse of the by-products. The focus of this study was to investigate the content of total phenols and the antioxidant activity of the yellow cassava peels and stems; and the effect of different particle size using different antioxidant assays. The peels and stems of the yellow cassava variety were collected and total phenolic and antioxidant activities were determined in their methanolic extracts. Average total phenolic 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 ranged from 8.08 - 18.93% and 9.43 - 20.77% (Peel; 6hr and 24hr) and -0.20 - 11.35% and 2.34 - 11.34% (Stem, 6hr and 24hr) respectively. The peel and stem extracts measured by ferric reducing antioxidant power assay had a significant effect ($p < 0.01$) on the antioxidant activities ranging from 102.00 - 169.50 $\mu\text{m TE/g}$ for the peel and 73 - 107.50 $\mu\text{m TE/g}$ 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 concentration, the incubation time and the different antioxidant assays used. Yellow cassava peels exhibited high antioxidant scavenging activities due to the high phenolic content and the particle size, dilutions and incubation time also had significant impact on the TPC and antioxidant activity and can be considered good source of natural antioxidants.

Keywords: Ferric reducing antioxidant power, Gallic acid equivalent, Antioxidant activity, Yellow cassava, Radical scavenging activity, Total phenolic content.