

Evaluation of the Antioxidant and Antidiabetic Potential of Fruit and Vegetable Peels

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Abstract : Fruits and vegetables (F&V) are widely eaten for their nutritional value and associated health benefits being an immense source of bioactive compounds. However, F&V peels are often discarded, and it accounts for a higher proportion of food waste. Incorporation of F&V peels as functional ingredients can add more value to food due to the higher amounts of phytochemicals present in them. In this research, methanolic extracts of different F&V peels, namely apple, orange, kiwi, grapefruit, dragon fruit, pomelo, and pumpkin are investigated for their total phenolic content (TPC) by Folin-Ciocalteu (FC) assay and the antioxidant capacity was evaluated by 2,2-diphenyl-1-picrylhydrazyl (DPPH) and phosphomolybdenum assay using UV-Vis spectroscopy. Evaluation of the α -glucosidase inhibitory assay was carried out during this study to determine the antidiabetic potential of F&V peels. Results of our study showed that grapefruit peels contained the highest total phenolic content of 477.81 ± 0.01 mg gallic acid equivalent per gram dry weight of the sample, and kiwi peel had the highest antioxidant capacity (90.51 ± 0.10 % inhibition of DPPH radical) among the different F&V peels studied. Fruit peels exhibited high α -glucosidase inhibitory activity. Comparing fruit peels with vegetable peels, it was found that fruit peels had high total phenolic content, antioxidant capacity and anti-diabetic potential compared to vegetable peels.

Keywords : polyphenolics, fruit peels, antioxidant, antidiabetic

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