

Comparative Study on Functional Properties of Insoluble Dietary Fibre Extracted from Bark Waste of Cinnamon (*Cinnamomum zeylanicum*) Refuse Tea (*Camellia sinensis*) and Empty Fruit Bunch Residue of Oil Palm (*Elaeis guineensis*)

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This study was conducted to investigate the potentials of applying insoluble dietary fiber (IDF) from cinnamon bark waste (CBW), refuse tea (RT) and empty fruit bunch residue of oil palm (EFROP) in food and pharmaceutical industries. Proximate composition, dietary fiber, and IDF composition were determined. IDFs from these materials were isolated by treating them with a neutral detergent solution. *In-vitro* functional properties including water holding capacity (WHC), oil holding capacity (OHC), water swelling capacity (WSC), Total antioxidant capacity (TAC), and glucose absorption capacity (GAC) of extracted IDFs were determined. IDF contents in CBW (78.86%) and EFROP (75.36%) were not different ($p < 0.05$). RT showed the lowest ($p < 0.05$) IDF content (43.87%) and the highest ($p < 0.05$) soluble dietary fiber content (9.14%). The highest ($p < 0.05$) WHC was observed in IDF obtained from RT, followed by EFROP. However, the WSC of IDFs of RT, ICBW, and EFROP were not significantly different ($p < 0.05$). OHC of IDFs of RT (408.55%) and CBW (395.23%) were not different ($p > 0.05$) and were higher ($p < 0.05$) than that of EFROP (287.59%). IDFs of RT reported the highest ($p < 0.05$) total polyphenolic content (133.75 GAE mg/g). Highest ($p < 0.05$) TAC was reported by IDF of CBW (347.50 mmol Fe⁺²/g). The glucose absorption capacity of IDFs of RT, CBW, and EFROP were not significantly different. Results indicate that out of the three residues, IDF of RT has more beneficial *in-vitro* functional properties. Moreover, IDF of CBW shows more *in-vitro* functional properties than IDF of EFROP.

Keywords: Ceylon cinnamon, antioxidant properties, glucose adsorption