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COMPARATIVE STUDY BETWEEN METHANOL DIRECT AND SUCCESSIVE EXTRACTION FOR THREE EGGPLANT PEEL (*SOLANUM MELONGENA*) VARIETIES ON TOTAL PHENOLS, ANTIOXIDANT AND ANTICANCER ACTIVITIES

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ABSTRACT

Methanol successive (MS, after n-hexan followed by propan-2-ol extraction) and methanol direct (MD) extract of eggplant peel varieties were evaluated for total phenolic and flavonoid extracted, antioxidant activity, and anticancer effect against breast cancer (MCF-7) as well as liver cancer cell line (HepG2). The results showed that the recovery of total extract, total phenolic (TP) and total flavonoid (TF) extracted by MD than these extracted by MS. Also, MD extract, which had lowest TP and TF content compared with MS extract, exhibited the highest DPPH radical scavenging activity in both long purple and round black verities and the highest ferric reducing power (FRP) in all three (EPP) varieties. MD extracts had the strongest inhibition against breast cancer cell line (MCF-7 cells) with IC_{50} (concentration inhibits 50% of the cell) values ranged from 17.0-21.6 µg/ml, whereas MS extracts had the strongest inhibition against liver cancer cell line (HepG2 cells) with IC_{50} values ranged from 19.7–25.2 µg/ml. Among three eggplant varieties, peel of round black peel extracts had the highest TP and TF content, and showed the highest FRP and DPPH radical scavenging activity in both MD and MS extracts. Round black exhibited strong inhibition against HepG2 and MCF-7 cells in MS and MD extracts, respectively, but long purple exhibited strong inhibition against MCF-7 cells in MD extract. It could be concluded that the antioxidant activity and anticancer effect against MCF-7 and HepG2 cells, depends on the extraction procedure and eggplant varieties as well as the type of cancer cells.

Keywords: Anticancer activity, antioxidant activity, eggplant varieties, methanol direct and successive extract, phenolic compounds.