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Unveiling bioactive wonders of *Kalanchoe pinnata* (Lam.) Pers., *Portulaca oleracea L.* and *Morinda citrifolia L.*

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Plants with medicinal values are rich in secondary metabolites. This study assesses selected bioactivities of traditional medicinal plants *Kalanchoe pinnata* (Akkapana), *Portulaca oleracea* (Gendapala) leaves, and, *Morinda citrifolia* (Ahu) which are highly regarded for their health benefits. The plant materials were collected, cleaned, air dried, ground, and extracted using methanol by sonication and subjected to bioassays. The antioxidant potential was determined using 2,2-diphenyl-1-picrylhydrazyl (DPPH) radical scavenging and Ferric Reducing Antioxidant Power (FRAP) assays. In the DPPH assay, *K. pinnata* showed an IC_{50} value of 12.97 ± 0.82 mg L^{-1} compared to the positive control: ascorbic acid (3.17 ± 0.47 mg L^{-1}). Meanwhile, *P. oleracea* and *M. citrifolia* showed IC_{50} values of 527.61 ± 4.68 mg L^{-1} and 552.51 ± 5.13 mg L^{-1} respectively. In the FRAP assay, *K. pinnata* showed a reducing power of 0.783 µmol dm^{-3} of $FeSO_4$ g^{-1} which was lower than the positive control; trolox (12.07 ± 0.30 µmol dm^{-3} of $FeSO_4$ g^{-1}). Only *K. pinnata* displayed α-amylase inhibitory potential with an IC_{50} value of 127.50 ± 8.64 mg L^{-1} compared to positive control: acarbose (45.99 ± 3.97 mg L^{-1}). *K. pinnata*, *P. oleracea* and *M. citrifolia* showed, percentage lipase inhibitions of 43.61 ± 1.53%, 35.81 ± 0.70%, and 33.40 ± 0.70% at 1000 mg L^{-1} respectively compared to the positive control: orlistat (100.00%). In the brine shrimp lethality assay only *M. citrifolia* exhibited an LC_{50} value of 474.08 ± 45.86 mg L^{-1} compared to positive control: $K_2Cr_2O_7$ (LC_{50} 35.16 ± 0.10 mg L^{-1}). In phytotoxicity assay, *P. oleracea* displayed a root inhibition with an IC_{50} value of 818.53 ± 21.88 mg L^{-1} compared to positive control: abscisic acid (0.29 ± 0.10 mg L^{-1}). In conclusion, among the three extracts *K. pinnata* exhibited higher antioxidant and α-amylase inhibitory potentials. Future directions of this study include chromatographic separation of the crude extracts to obtain bioactive compounds.

Keywords: *α-Amylase, antioxidant, cytotoxicity, lipase, phytotoxicity*