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Antioxidant, anti-dyslipidemic, and cytotoxic properties of medicinal plants: *Ipomoea cordatotriloba* Denn., *Eclipta prostrata* (L.) L., *Portulaca oleracea* L., and *Peperomia pellucida* (L.) Kunth

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Medicinal plants are valuable sources of bioactive compounds with potential therapeutic effects against oxidative stress and dyslipidemia. This study investigated the in vitro antioxidant, anti-dyslipidemic, and cytotoxic activities of aqueous extracts from four medicinal plants: *Eclipta prostrata* (L.) L. (False Daisy), *Portulaca oleracea* L. (Purslane), *Peperomia pellucida* (L.) Kunth (Pepper Elder), and *Ipomoea cordatotriloba* Denn. (Tievine), the latter being relatively less studied. Antioxidant activity was assessed using the Ferric Reducing Antioxidant Power (FRAP) and 2,2-diphenyl-1-picrylhydrazyl (DPPH) radical scavenging assays. Anti-dyslipidemic potential was evaluated through a lipase inhibition assay, while cytotoxicity was determined using the brine shrimp lethality bioassay. Among the tested extracts, *I. cordatotriloba* exhibited the highest reducing power in the FRAP assay, whereas *E. prostrata* demonstrated the strongest DPPH radical scavenging activity (IC_{50} = 147.13 ± 1.20 mg L^{-1}). Both *E. prostrata* and *P. pellucida* displayed strong overall antioxidant activities, consistent across both DPPH and FRAP results. None of the extracts showed significant lipase inhibition at 1000 mg L^{-1}. Cytotoxicity screening revealed moderate toxicity in *P. pellucida* (LC_{50} = 249.90 ± 0.20 mg L^{-1}) and concentration-dependent lethality in *I. cordatotriloba*. *E. prostrata* and *P. oleracea* exhibited mild toxicity (13.33 ± 5.77%). These results suggest that *E. prostrata* and *P. pellucida* possess notable antioxidant potential, while *P. pellucida* and *I. cordatotriloba* display cytotoxicity at higher concentrations. Statistical analyses were performed using one-way ANOVA followed by Tukey's post hoc test, with significance set at $p < 0.05$. Further studies are recommended to isolate and characterize the active constituents responsible for these bioactivities using bioassay-guided fractionation and advanced spectroscopic techniques.

Keywords: *Bioactive compounds, ferric reducing ability, lipase inhibition, medicinal plant extracts, radical scavenging assay*