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Bioactivity of aerial parts of *Mussaenda frondosa*

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Background: Natural products are metabolic compounds which are produced by living organisms such as plants, or micro-organisms which possess vast diversity and involve in vital biochemical pathways, help to continue life on the earth. *Mussaenda frondosa* ("Mussanda") is a tropical shrub belonging to family Rubiaceae and distributed in South Asia. It is commonly used in traditional medicinal practices such as for treatment of asthma, ulcers, leprosy, diuretic, wounds, swells and eye infections.

Objectives: To determine the bioactivity of *M. frondosa*.

Methods: Samples were collected from Central Province Sri Lanka. Aerial parts of *M. frondosa* (15g) were air dried and powdered using grinder and then sequentially extracted into ethylacetate (EtOAc) and methanol (MeOH) using sonicator. Crude extracts were screened for antioxidant activity using DPPH radical scavenging method, antifungal activity against *Cladosporium cladosporioides*, phytotoxicity by lettuce seed germination assay, brine shrimp toxicity against *Artemia salina*, and enzyme inhibitory assays for α-amylase, α-glucosidase, acetylcholinesterase and lipase.

Results: After solvent evaporation it resulted 0.57g of EtOAc and 1.33g of MeOH extracts. Both EtOAc and MeOH extracts showed moderate brine shrimp lethality with IC_{50} 6.0 ppm and 17.0 ppm respectively. Strong antioxidant activity was observed for EtOAc extract against DPPH radical with IC_{50} 0.58 ppm and MeOH extract at 0.67 ppm. Strong α-glucosidase inhibition was observed for both EtOAc and MeOH crude extract with IC_{50} 0.56 ppm and 1.88 ppm respectively. None of above crude extracts exhibited antifungal property against *C.cladosporioides* and phytotoxicity against lettuce seed germination assay. Both EtOAc and MeOH extracts did not exhibit α-amylase, lipase and acetylcholinesterase inhibitory activity.

Conclusion: *Mussaenda frondosa* can be considered as a potential source for isolation of new therapeutic agents especially for cancer and diabetes mellitus.

Keywords: *Antioxidant activity, Bioassay, α-glucosidase, Mussaenda frondosa*