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Bioassays and enzyme inhibitory activities of *Alysicarpus vaginalis* and *Biophytum reinwardtii*

T.D.A.D.K. Kulathunge[1], J.M.N. Marikkar[1], N.K.B. Adikaram[1], L. Jayasinghe[1*]

[1]*National Institute of Fundamental Studies, Kandy, Sri Lanka*

[*]*lalith.ja@nifs.ac.lk*

Sri Lankan traditional medicine utilizes mainly herbal preparations for the treatment of diseases. They have a broad literature on 2000 species, but only a few of these have been examined for bioactivities and chemical compositions. This research is directed towards the discovery of the bioactivities of *Alysicarpus vaginalis* and *Biophytum reinwardtii*. Whole plants of both species were selected for the study. The plants were collected from the Central province of Sri Lanka, washed, air-dried and finely powdered. Extracts obtained using *n*-hexane, ethyl acetate (EtOAc) and methanol (MeOH) were subjected to phytotoxic activity against Lettuce seeds, cytotoxicity against brine shrimp, antifungal activity against *Cladosporium cladosporioides*, DPPH (2,2- diphenyl-1-picrylhydrazyl) radical scavenging antioxidant activity, α-amylase inhibitory activity and lipase enzyme inhibitory activity. None of the crude extracts showed any significant phytotoxicity or cytotoxicity. MeOH extract of *B. reinwardtii* (BM) exhibited the highest antioxidant activity (IC_{50} 43.7 mg l^{-1}) compared to ascorbic acid (IC_{50} 2.21 mg l^{-1}) and other extracts also showed antioxidant activity IC_{50} in the range of (43-665) mg l^{-1}. None displayed any inhibition zone against *C. cladosporioides.* MeOH extracts of both plants showed α- amylase enzyme inhibitory activity where BM (IC_{50} 743.43 mg l^{-1}) and MeOH extract of *A. vaginalis* (AM) (IC_{50} 1015.98 mg l^{-1}). EtOAc extract of *A. vaginalis* (AE) (IC_{50} 332 mg l^{-1}), exhibited lipase enzyme inhibition. This study revealed that both plants contain compounds with adequate properties which can further focus on the isolation of bioactive compounds responsible for these bioactivities.

Keywords: *a-amylase, antifungal, antioxidant, cytotoxicity, lipase, phytotoxicity*