

IN VITRO EVALUATION OF ANTIFUNGAL POTENTIAL OF SOME PLANT EXTRACTS AGAINST *COLLETOTRICHUM GLOEOSPORIOIDES* CAUSING PAPAYA ANTHRACNOSE DISEASE

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Papaya (*Carica papaya* L.) is one of the most widely utilized fruits in Sri Lanka and in many parts of the world. However, papaya is highly susceptible to various diseases, both in the field and during storage. Anthracnose caused by *Colletotrichum* spp. is one of the most serious diseases that affects the ripened fruit. To control anthracnose, farmers use extensive amounts of various synthetic fungicides. This has a negative impact on human health and the environment and also results in the development of fungicide resistance strains. Thus, it is worthwhile to detect the effectiveness of some plant extracts in controlling the disease as an inexpensive and environmentally sound approach. In this study, the antifungal activity of the crude leaf extracts of twelve plant species against the papaya anthracnose fungus *Colletotrichum gloeosporioides* have been screened. Aqueous extracts of ‘gandapana’ (*Lantana camera*), ‘malla’ (*Olex zeylanica*), ‘wal dunkola’ (*Eupatorium odoratum*), ‘wal kapuru’ (*Galutheria rudis*), ‘rasakinda’ (*Tinospora cordifolia*) and ‘kalukamberiya’ (*Solanum nigrum*); and Methanol extracts of dried leaves of ‘kiriala’ (*Xanthosomas agittifolium*), ‘panuala’ (*Typhonium trilobatum*), ‘fancy leaved caladium’ (*Caladium hortulanum*), ‘dumbcane’ (*Dieffenbachia maculate*) and ‘walgahala’ (*Colocasia esculenta* L.) were screened against the fungus using agar incorporation method to detect the antifungal activity. The measurements were taken as the percent inhibition of radial mycelial growth relative to a control. The results revealed that the water extracts of plants *S. nigrum*, *G. rudis*, *L. camera*, *O. zeylanica*, *E. odoratum* and *T. cordifolia* showed 100%, 100%, 80.2%, 66.19%, 70.4% and 15.4% growth inhibition respectively on potato dextrose agar, five days after culturing (DAC). All the plant species extracted by methanol did not show any significant growth inhibition on the mycelial growth of the fungi ($P < 0.05$). As aqueous extracts of *S. nigrum* and *G. rudis* showed 100% inhibition, they seem to have the strongest antifungal property against the papaya anthracnose fungus *C. gloeosporioides* among the tested plant species. Aqueous extracts of the other three plant species, *L. camera*, *O. zeylanica* and *E. odoratum* also showed a significant inhibition in mycelia growth of *C. gloeosporioides* ($P < 0.05$). Therefore, this study concludes that the plant species, *S. nigrum*, *G. rudis*, *L. camera*, *O. zeylanica* and *E. odoratum* have the potential to control the papaya anthracnose pathogen. However, further studies are required to isolate antifungal compounds present in these plant species and to evaluate their antifungal efficacy *in vivo* against *C. gloeosporioides* in papaya.

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