Control of Plant Pathogenic Fungi using Organic Solvent Extracts of Leaf, Flower and Fruit of Lawsonia inermis L.

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Abstract

In this study leaf, flower and fruit of Lawsonia inermis L. Powders were sequentially extracted with DCM, ethyl acetate and ethanol solvents. The dried extracts were tested for their antifungal activity against Aspergillus niger, Penicillium notatum, Fusarium oxysporum, Colletotrichum gloeosporioides and Rhizopus stolonifer. The results revealed that all the test extracts were able to inhibit the growth of all the tested fungi except Rhizopus stolonifer. Ethyl acetate extract of flower revealed significantly ($P < 0.05$) higher activity on Aspergillus niger, Penicillium notatum and Colletotrichum gloeosporioides, while highest inhibition on Fusarium oxysporum was expressed by ethyl acetate extract of leaf and on Rhizopus stolonifer was by ethanol extracts of leaf and fruit. The ethyl acetate and ethanol extracts of flower and leaf were able to inhibit the growth of most of the test fungi even at 1mg / 100 µl. Among the tested eight phytochemicals at least two of them were detected in all tested extracts. Ethanol extracts had higher number of phytochemicals in all three tested plant parts, it was followed by ethyl acetate extracts and then DCM extracts. All the ethanol extracts had tannins, flavonoids, terpenoids and cardiac glycosides. According to the results of this preliminary study, ethyl acetate and ethanol extracts of both flower and leaf could be used as a source for further screening of bio-pesticides.