



Antifungal Activity of Different Concentrations of Harmal and Datura Extracts on Colony Growth and Spore Germination of *Botrytis cinerea*

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Essential oils and extracts of medicinal plants are one of the most important natural sources for control of pest and herbivores. The most important benefits of these plant compounds are the degradability of the nature of these compounds, which does not cause environmental pollution, nor does it have side effects for the main plant. The antifungal effect of *Peganum harmala* and *Datura stramonium* extracts on spore germination and colony growth of four isolates of *Botrytis cinerea* (the causal agent of gray mold in fruits and ornamental plants) was evaluated in this study. The study was conducted as completely randomized design for factorial experiments, in which 4 isolates of *B. cinerea* (isolated from strawberry, tomato, grape and Rose host plants), two plant extract (Harmal and Datura), 5 concentrations (0, 15, 30, 45 and 60 mg/ml) and 3 replicates for each treatment were used. The extracts of the plants were extracted, concentrated, sterilized and prepared as concentrations desired. Sterile PDA plates containing desired concentration of each plant extract were inoculated with a 5 mm diameter disc of each isolate colony and incubated at 24 °C and dark regime and the colony diameter was measured daily. The antifungal effect of Plant extracts on spore germination of *B. cinerea* were evaluated using micro-dilution technique. The study was conducted as described for colony growth but with 3 isolates of *B. cinerea* and 4 replicates for each treatment. Wells in micro plates were loaded with 10⁵ conidia of each *B. cinerea* isolates and 150 µl of each plant extracts. The controls includes one with spores and no extract and the other a blank without spore. Subsequent changes in optical density following spore germination in the wells was measured using an Elisa reader after 24 h incubation at 24°C and dark regime. The data were statistically analyzed with SAS software. The results indicated that the Harmal extract was more antifungal activity against colony growth of *B. cinerea* than Datura extract and 60 mg/ml concentration of Harmal extract had better performance than other treatments used in this study, 3 days after inoculation while Datura extract with 60 mg/ml concentration showed highest antifungal effectiveness against spore germination and had significant difference with the other treatments.

Keywords: Plant extracts, *Botrytis cinerea*, *Peganum harmala*, *Datura stramonium*

References

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