Effect of Schinus molle and Schinus terebinthifolius Extracts on Sweet Pea Damping-off

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Abstract:

The potential efficiency of leaf and stem extracts of Schinus molle and Schinus terebinthifolius against Fusarium solani in addition to the phytochemi-cal screening of both species was studied. Extracts were prepared using differ-ent solvents (water, ethanol, methanol and acetone). Fusarium solani was iso-lated and identified from naturally diseased sweet pea (Lathyrus odoratus) plants. According to the pathogenicity tests, the highest pathogenic isolate was used to test the antifungal activity of each extracts with different concentrations on mycelial growth of F. solani in vitro. The effect differed according to the ex-tract type and concentration. The potential antifungal activity of ethanol ex-tracts appeared highly significant when used with leaves, regardless of plant species, whereas acetone was effective when used with stems. The highest re-duction of F. solani growth was obtained by ethanol and aqueous extracts of S. terebinthifolius leaves, ethanol extract of S. molle leaves, acetone extract of both S. molle and S. terebinthifolius stems, respectively. Effect of extracts at 64 mg/ml on damping-off incidence of artificially infected L. odoratus under greenhouse conditions was studied as well. The highest reduction of the disease was achieved by leaf extracts of S. terebinthifolius followed by S. molle. These results were attributed to the presence of alkaloid, phenolics, flavonoids, and tannins in leaves and stems of both plant species as revealed by the phytochem-ical screening. Significant negative correlation was detected between in vitro inhibition percentage of F. solani and the field incidence of damping-off in L. odoratus plants. These results suggest that extracts from S. molle and S. tere-benthefolius, especially ethanol leaf extracts and acetone stem extracts, are promising naturally derived antifungal agents for F. solani and other plant path-ogenic fungi.

Keywords:

Lathyrus odoratus, Fusarium solani, pepper tree, solvent extracts

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