

**ANTIFUNGAL ACTIVITY OF LEAF AND BARK EXTRACTS ON THE GROWTH AND DEVELOPMENT OF DAMPING-OFF FUNGI AND THEIR PRACTICAL UTILISATION IN PROTECTION OF SEEDLINGS****Stompor-Chrzan E.***University of Rzeszow, Department of Agroecology ul. Ćwiklińskiej 2, 35-601 Rzeszów  
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Damping-off fungi pose the greatest hazard to seedlings of leguminous plants. For many decades only plant protection chemicals were applied to control them, with consequential negative effect on the environment. Presently, there is a growing tendency to switch to safe, ecological plant protection systems. More and more attention is paid to a potential of finding in our climate some plants containing antifungal active ingredients. Their extracts could be used as environment-friendly fungicides of plant origin.

Two experiments were carried out with this objective in mind. Laboratory experiment evaluated the effect of water and alcohol extracts on the growth and development of selected phytopathogens. The morphology of mycelium was also evaluated including macro- and microscopic changes. Extracts were prepared of the following raw materials: *cortex* (bark) of *Quercus robur* L., *Aesculus hippocastanum* L., *Corylus avellana* L., *Salix alba* L., *Frangula alnus* Mill. and *folium* (leaves) of *Berberis vulgaris* L., *Quercus robur* L., *Populus tremula* L., *Juglans regia* L., *Rubus plicatus* W. et N., *Ribes nigrum* L. The test material was formed by fungi isolated from bean seeds: *Fusarium oxysporum*, *F. culmorum*, *F. solani*, *Rhizoctonia solani*, *Botrytis cinerea* and *Alternaria alternata*. The laboratory assays were performed with PDA nutrient medium and with extract addition doses of 25; 50; 100 and 200 µg/ml. Obtained results were presented in percentage of mycelium growth inhibition after 4 and 8 days of incubation of fungal colonies. On the other hand, the pot experiment determined the effect of bean seed dressing with plant extracts on sprouting, seedling mass and healthiness. Prior to sowing, seeds were wet dressed with water and alcohol extracts of chestnut bark and oak as well as those of currant and poplar leaves typical in the laboratory experiments.

Performed tests have shown that the effects of these extracts had on damping-off fungi were differentiated and depended on the type of extract and on sensitivity of tested fungus. The strongest antifungal effects were shown by all tested alcohol extracts. They restricted the development of phytopathogens from 80 to 100%. Selected extracts of horse chestnut and oak bark, used for seed dressing, inhibited seedling sprouting and growth and reduced the seedling attack by damping-off. Water extracts on the other hand had weaker effects on tested fungi than alcohol extracts.

The best results were obtained in case of horsechestnut and oak and alder-buckthorn (*Frangula alnus*) bark extracts, as well as those of current and poplar leaves. It was found that the above mentioned extracts strongly reduced the growth of mycelium of *F. oxysporum* and *A. alternaria*, caused deformation and considerable changes in appearance of aerial mycelium, reduced the growth of mycelium cells and partially inhibited formation of fruiting bodies of *Botrytis cinerea* and *Rhizoctonia solani*. Obtained results have shown that water extracts applied for seed dressing had favourable effect on healthiness of bean seedlings, while they reduced the development of pathogenic fungi.