

**MYCORRHIZAL STATUS OF AUTOCHTONIC WILLOW SPECIES
OUTPLANTED AT THE PILICA RIVER FLOODPLAIN A LONG MOIST
GRADIENT**

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Water/land ecotone properties with wetlands have been key points in sustainable management of water quality. There is a well-developed system of floodplains in Poland, than can play a role in nutrient retention, sedimentation and uptake of nutrients by plants. The buffering capacity of floodplains depends on vegetation cover, and especially on plants effective in accumulation of nutrients. Conditions for plant growth are affected by symbiotic organisms such as bacteria and fungi present in the soil around roots. The microbial activity of rhizosphere crucially affects the condition of plants.

Research was conducted in the experimental Pilica River floodplain (27 ha), which is located upstream of the Sulejów Reservoir. The Digital Terrain Model (DTM) of the floodplain, hydrological model of flooding and the map of distribution of plant communities have been developed for the study area.

Investigation of the mycorrhizal status of plants eg. *Salix* species and adaptation ability in relation to different hydrological habitat conditions and rate of phosphorus assimilation for 5 species of *Salix*, have been estimated. *Salix fragilis* well tolerates high coefficient of stress (drought or flow conditions), while *Salix purpurea* is sensitive to changes of water level and prefer moist places.

Soil cores as well as root and ground water samples were collected before and after flooding. The mycorrhizal status of willow growing in studied communities and some quantitative features of mycorrhizae were determined.

Preliminary results of the present project show a dry-to-wet gradient in mycorrhizal distribution. Mycological analysis of roots of outplanted willows revealed the presence of mycorrhiza in two species: *Salix fragilis* and *Salix purpurea*. The first formed ectomycorrhiza with *Cenococcum* sp. and the second– arbuscular mycorrhiza with *Glomus* sp. Both mentioned willow species show high survival and highest grow of biomass. In the examined specimens of *Salix aurita* and *S. cinerea* mycelium of pathogenic fungus *Rhizoctonia* sp. was found. No mycorrhizal associations were recorded in willow species growing in high flooded habitats.

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