



Preliminary tests for *Salix* sp. tolerance to heavy metals (Cd, Ni, Pb)

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The species of *Salix* genus constitute potential sources of germplasm in the prevention of the environment degradation, and offer remedy for about two third from the all degradation types. The majority of the willow species, present a good adaptation to hypoxic conditions, feature which suggest that they manifest a preference for mineral nutrition in comparison with organic one. Thus, many of willow species can be developed on soils with a big amount of minerals and/or radionuclides, being both phytoremediatory species, as well as pioneer ones, contributing to the restoration of soil. Thus, the willow species, posses the capacity for development in degraded areas, natural or anthropic, as swamps, abandoning crops areas, sandy dune, riparian sandy areas, gravels, a.o. In this paper are present some laboratory comparative tests of heavy metals tolerance on four *Salix* sp. genotypes: clone 202 (*Salix alba*), hybrid 892 (*Salix alba*), Inger (*Salix viminalis*) and Gudrun (*Salix viminalis*). The genotypes of *Salix alba* are native from Romania, produced in the Forest Research and Management Institute Bucharest, while the genotypes of *Salix viminalis* are native from Sweden, but the plant material was produced under license in Romania by REBINA Agrar SRL. As plant material were used one-year-old cuttings (5-10 cm long), with 2-6 buds each. Per genotype, per heavy metal and each of three concentration five replication were used. There were ten experimental variants for each genotype: three concentrations for each of the heavy metals; concentrations selected, in the accordance SR ISO 11269-2/March 1999 and Control (tap water). The cuttings were maintained in metallic solutions for 15 days. In the days 7th and 15th, were performed biometrical observations on: the roots number and length, the shoots number and length, the leaves number/shoot, viability of the shoots. At the end of the experiment the content in heavy metals was determined in roots and shoots (by atomic absorption spectrometry). The analysis of variance proved the significant role of the genotype in all analyzed features. The percent of shooting was significant higher in *Salix alba* (81.90 - 96.26%) in comparison with *Salix viminalis* (50.43 - 62.67%). The best results for all treatment variants were registered in hybrid 892. Clone 202, hybrid 892 and Inger are sensitive to highest concentration of lead (450.0 ppm) and tolerant to all other treatment variants, while Gudrun is sensitive to Ni, but all the concentrations of Cd and Pb presented a stimulative effect on shoots development. The content of heavy metals in plant was also dependent by the organ (root or shoot) and by the genotype.