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Influence of Four Salinity Treatments on Growth and Leaf Nutrient Content of Three *Taxodium* Genotypes

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Abbreviated as BC, MC, and hybrid in this abstract, baldcypress (*Taxodium distichum* L Rich var. *distichum*), montezuma cypress (*Taxodium distichum* var. *mexicana* Gordon), and *Taxodium* × ‘Nanjing Beauty’ (a hybrid, BC × MC) were subjected to acute applications of four salt rates in a container study. Beginning 22 May 2006, zero, low, medium, and high rates of sea salt solutions were applied one time per week for 13 weeks (0, 17, 60, and 103 mol·m⁻³). When no salt damage was evident, the decision was made to double the rate (0, 34, 120, and 206 mol·m⁻³), and this protocol was continued for another 12 weeks. Plants were harvested on 15 Nov. 2006. A two-way factorial design with four randomized blocks was utilized. Irrigation between salt solution applications was via sprinkler when needed. Leachate readings via the pour-through method indicated that only one sprinkler irrigation was needed to bring substrate conductivity down to just above background. During the 24-hour exposure periods, roots were subjected to conductivities approaching 20 decisiemens/m with the high rates. In spite of doubling the rate in midcourse of this experiment, all plants survived and few exhibited salt damage symptoms. There was no significant salt rate effect on growth, as determined by the wet weight of aboveground parts. There were genotype differences. The hybrid produced higher wet weights than BC and MC. However, MC exhibited the greatest increase in height of the three genotypes. The explanation is growth habit differences. The cutting-grown hybrid was heavily branched and plagiotropic, while MC enjoyed a strong leader. Na concentration in *Taxodium* leaves increased as sea salt concentrations increased. The K:Na ratio in *Taxodium* leaves decreased as salt concentration increased. Of three *Taxodium* genotypes, BC exhibited the highest leaf content of Na, Ca, and S; MC had the lowest leaf content of Na, Ca, and S; the hybrid was in-between. Work plans include repeating this experiment but at much higher rates, and field trials of germplasm in saline locations in East Texas.