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Effect of Foliar Spray with Potassium and Manganese on the Growth and Resistance of *Swietenia mahagoni* (L.) Jacq. Seedlings under Different Levels of Drought

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Abstract

The present study aims to study the effect of foliar application of two chemical fertilizers (Potassium and Manganese Sulfate) on growth and drought tolerance of *Swietenia mahagoni* (L.) Jacq. seedlings to obtain their highest growth using lowest available water resources. An experiment was conducted in an open field of Gemmeiza Agricultural Research Station during February - December seasons of 2020 and 2021. Three levels of water stress were applied (100, 75, and 50 % field capacity); while 3 of Potassium Sulfate (0, 4 and 6 g L^{-1}), and 3 of Manganese Sulfate (0, 2 and 4 g L^{-1}) were applied as foliar application. The results indicated that, plant height, stem diameter, leaf number, leaf area, fresh and dry weight of the plant organs, relative water content, ratios of shoot to root fresh and dry weight and total chlorophyll, were decreased with increasing levels of drought stress. Both K_2SO_4 and $MnSO_4$ spray significantly mitigated the drought stress by increasing most of vegetative growth and biochemical parameters (chlorophyll a and b, Proline, and carbohydrate of the leaves) of S. *mahagoni* seedlings. Concentration of 6 g L^{-1} of Potassium Sulfate spray was the highly effective than the other treatments.