



Tropentag, September 17-19, 2014, Prague, Czech Republic

“Bridging the gap between increasing knowledge and decreasing resources”

Effect of Indole-3-Butyric Acid on Rhizogenesis of Juvenile Leafy Cuttings of *Swietenia macrophylla* King

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Abstract

Swietenia macrophylla King. (Meliaceae) commonly known as big-leaf mahogany, is neotropical heliophytic slow growing forest tree species, valued for its excellent wood quality. Because of unsustainable commercial exploitation, many populations of mahogany have been depleted and this species become rare in parts of its natural area of distribution. Despite its ecological, economical, and social importance, *S. macrophylla* remains essentially wild and hence vulnerable. One of domestication research priority of this species is development of optimal methods for successful vegetative propagation. These methods may serve as appropriate tool for elite trees genotype conservation, or for propagation of selected Hypsipyla resistant, faster-growing trees with acceptable wood quality. It is also an alternative to propagation by seeds, which is often constrained by environmental, ecological, genetic or economic factors. This study is focused on effects of six different concentrations (0, 1000, 2000, 3000, 4000, and 8000 ppm) of Indole-3-butyric acid (IBA) on rooting parameters of juvenile leafy stem semihardwood cuttings of *S. macrophylla*. After 61 days in sub-irrigated polyethylene polypropagator, the parameters of propagules were measured. The number and percentage of rooting, callus formation, number of roots, total root length, and length of the longest root was significantly higher in group treated with 4000 ppm of IBA than in control group with untreated cuttings. No significant differences were recorded in mortality, leaf abscission, and number of calli per cutting between the six groups tested. These results shows that for successive vegetative propagation of juvenile leafy cuttings of *S. macrophylla* was best application of concentration 4000 ppm of IBA.

Keywords: Domestication of forest trees, Indole-3-butyric acid (IBA), juvenile leafy cutting, sub-irrigated polyethylene polypropagator