Nutrient Status of Nipa from Semi-Wild Stands in Selected Areas of Mindanao, Philippines

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Keywords

leaf analysis, macronutrients, micronutrients, *Nypa fruticans* Wurmb., soil analysis

Abstract

Nipa (*Nypa fruticans* Wurmb.) is a potential source of biofuel from its sap. Increasing sap yield requires understanding nutrient requirements of this palm necessary for cultural management practices. Hence, the nutrient status of nipa in its natural habitats (Western, Northern, Eastern, and Southern Mindanao) were determined to establish critical levels of essential elements using soil and leaf analyses. Results revealed that nipa palms thrived in a wide variety of soils from clayey, loamy to sandy clay loam types. Elemental variations were observed across sampling sites owing to their locations in the estuaries, human activities, and soil pH. Exchangeable bases Na, Ca, Mg, and K varied considerably across areas affecting leaf levels of nipa. However, leaf B levels were shown to be regulated even at toxicity levels of B in the soil. These growing conditions indicate that nipa palm can tolerate highly variable physico-chemical factors that exist in the estuaries. The critical levels of the essential elements in the leaf tissue are estimated as follows: 1.30±0.30% N, 0.13±0.03% P, 0.82±0.14% K, 0.12±0.29% Ca, 0.03±0.03% Mg, 0.16±0.13% Na, 0.53±0.10% S, 0.70±0.10 mg/kg Cu, 4.30±0.90 mg/kg Zn, 20.00±2.30 mg/kg Fe, 64.20±31.70 mg/kg Mn, and 4.40±1.70% B. These leaf nutrient levels will serve as a basis for fertilizer formulation in nutrient management in the future.