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VARIABILITY IN PHYSICO-CHEMICAL PROPERTIES OF SELECTED RUBBER GROWING SOILS OF SOUTH-EASTERN NIGERIA

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The physical and chemical properties of rubber growing soils in south-eastern Nigeria were studied using soil samples collected from three rubber plantations. The soil texture varied greatly from sand to sandy clay depending on the parent rocks. The soils were gravel-free on the surface and highly eroded when devoid of vegetative cover. The soils were acidic in nature (pH 4.09 – 5.50), low in organic carbon (0.12 -2.87%), total nitrogen (0.01 - 0.25%) effective cation exchange capacity (2.22 – 9.45 cmol/kg), base saturation (14.00 – 65.69%) and low to high in available phosphorus (0.55-80.0mg/kg). The low nutrients content is partly attributable to the parent materials and partly to the high rainfall experienced in the region.

Key words: *Hevea brasiliensis*, Nigeria, Physico-chemical properties, Soil.

INTRODUCTION

The soil properties vary for both virgin and cultivated land. According to Bechett (1967), parent materials may vary irregularly over short distances as in soliflucted materials or the deposits of a braided stream, or more gradually across the outcrop of a sedimentary rock. Kantey and Morse (1965) reported that soils formed on transported materials tend to be more variable than those formed from weathered bedrocks *in situ*. In addition to this, topography greatly modifies soil profile development and influences the quantity of precipitation absorbed and retained. The topography also influences the rate of removal of the solids by erosion and by directing movement of materials in suspension or solution from one area to another (Foth, 1978).

The rubber tree (*Hevea brasiliensis*, Muell. Arg.) even though a native of South America is one of the major tree crops grown in the tropical rainy regions of south eastern Nigeria. The study was undertaken to determine the variability in physical and chemical properties of soils from three rubber estates in that region and to assess the suitability of these soils for rubber cultivation.

MATERIALS AND METHODS

The study sites were located in the south eastern part of Nigeria in the states of Akwa Ibom and Cross River. Ntak Inyang rubber estate is at about 4 km from Uyo, the capital of Akwa Ibom State along the Uyo-Calabar highway. Sampling was done in blocks B and C of the plantation. The

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