

GENERAL PROPERTIES AND IRON AND ALUMINIUM STATUS OF SELECTED RUBBER GROWING SOILS OF SOUTHERN NIGERIA

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Studies were conducted to determine the distribution of iron and aluminium oxides in profiles selected from rubber growing soils. The amorphous Fe and Al oxides were of much lower concentrations in these soils than their crystalline counterparts. No definite pattern of distribution of these compounds in relation to profile depth was discerned. Soils formed from coastal plain sands had the highest mean value of Fe+ Al oxides (5.54 per cent), followed, in descending order, by soils from basalt (4.17 per cent), basement complex rocks (3.39 per cent) and calcareous sandstone (3.17 per cent).

Key words:- *Hevea brasiliensis*, Soil profile, Sesquioxides, Soil property, Nigeria.

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INTRODUCTION

Hydrous oxides of iron and aluminium are some of the terminal products of weathering of primary rocks and minerals in humid and sub-humid tropical soils. They occur in several pedogenetic forms which include structural components of silicate clays (Omueti and Jones, 1977), and coatings or films on clay particles (Jones and Uehara, 1974). These compounds are of great agronomic significance because of their highly reactive nature which enables them to exert tremendous influence on a wide range of physical and chemical properties of soils. For example, the growth of tree crops such as rubber, oil palm and cocoa, can be seriously hampered in topographic sites characterized by extensive out-crops or superficial layers of indurated ferruginous sandstone (duricrust), as those occurs in some parts of south-eastern and south-western Nigeria. Reports of iron and aluminium oxide contents in

Nigerian soils are rather few (Gallez *et al.*, 1975). This investigation was aimed at studying the distribution of crystalline and amorphous iron and aluminium oxides in selected soil profiles supporting rubber (*Hevea brasiliensis*) in parts of south-eastern Nigeria and to complement the reports of Adesemoye (1987), Aghimien *et al.* (1988), Juo *et al.* (1974) and Udo (1980).

MATERIALS AND METHODS

Locations

The study was carried out in five locations (Ogoja, Obubra, Ikom, Odajio and Eziobodo) in south-eastern Nigeria lying between latitudes 5°29' and 6°45' N and longitudes 7°02' and 8°45' E. Eziobodo has the most southerly location and is in Imo State. Others are in Northern Cross River State. The areas have an annual rainfall ranging from 2000-3000 mm and experience four