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We have noted that the maiden volume of the *West African Journal of Applied Ecology* contains some errors, omissions of references and misprints attributable to the printer. We sincerely apologise for these and hope to avoid these in subsequent issues. Thank you.

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Soil Properties of a Toposequence in the Moist Semi-Deciduous Forest Zone of Ghana

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Abstract

In 1997 a semi-deciduous forest area at the University of Ghana Agricultural Research Station, Kade, was selected as a research area for ecological studies. The area is gently sloping forming a toposequence. Several activities have been initiated, e.g. six soil profiles have been described, sampled and analysed; suction cells have been installed for analysing soil solution chemistry; the water balance is determined from soil water data and climatological measurements; and for benchmark soil studies the clay mineralogy has been examined. This paper describes the basic physical and chemical status of the six soil profiles. The soil profiles were sited on the Bekwai, Nzima (upper slope), Kokofu, Kakum (middle slope), Temang and Oda (bottom slope) series. All soils are derived from Pre-Cambrian phyllite and are dominated by low activity kaolinitic clays. The toposequence shows longitudinal gradients in textures, iron content and drainage conditions and marked vertical gradient in carbon, nitrogen and phosphorus contents, soil reaction and base saturation with highest values in the topsoil due to the ion-pump effect of the natural vegetation. Upper slope soils are clayey and show distinct enrichment of clay in the subsoils. They are well drained, rich in iron oxides, strongly leached with low EC values, base saturation, and pH(CaCl₂) (3.7-4.4) in the subsoil, but the ion-pump maintains relatively high pH(CaCl₂) (5.4-5.9) and base saturation in the topsoil. Drainage becomes poorer towards the valley bottom, where soils generally show loamy textures and redoximorphic features, but only Oda shows high base saturation and pH(CaCl₂) (5.8-5.9) throughout the profile.

Key words: Catena, soil series, pedology, forest, soil

Introduction

The semi-deciduous forest zone of Ghana contains some of the most productive soils of the country (Ahn, 1970; Adu, 1992). The zone, which covers some 48,000 km², has adequate rainfall for the cultivation of large scale plantation crops, such as cocoa [*Theobroma cacao*], oil palm (*Elaeis guineensis*) and lemon (*Citrus* spp.) as well as annual crops such as maize (*Zea mays*), cassava (*Manihot utilissima*) and plantain (*Musa sapientum*).

The soils of the forest zone are generally developed from rocks of the Birrimian system (middle Pre-Cambrian) (Adu, 1992),

which consists mainly of argillaceous sediments metamorphosed into phyllite. The well-drained upland soils belong to the Forest Ochrosol Great Soil Group of the Ghanaian soil classification system (Brammer, 1962) and are generally accommodated as Acrisols in the FAO-Unesco Revised Legend (FAO, 1988) and as Ultisols in Soil Taxonomy (Soil Survey Staff, 1998).

Despite their agricultural importance and the general belief that their fertility is depleting and, hence, diminishing yields (MOFA, 1998), only cursory and rather old data are available on these soils (Brammer, 1962; Adu, 1992). Detailed physical, chemi-