Use of Agricultural Wastes for Improving Soil Crop Nutrients and Growth of Cocoa Seedlings

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Abstract

The quest for organically-produced cocoa produce in the world market necessitated recent focus on research into the use of agricultural wastes as source of nutrients in cocoa (Theobroma cacao) production. This work carried out at Federal College of Agriculture, Akure is the comparative study of effect of kola testa (KT), cocoa pod ash (CPA), melon testa (MT), cowpea pod (CP), kola pod (KP) and cocoa testa (CT) and NPK fertilizer (NPK) on soil and crop nutrient composition and growth cocoa seedlings. The nutrient composition of the wastes was also determined. The test soil was slightly acidic, medium in organic matter (OM) and low in N and available P. In terms nutrient of N, P and K, the MT, CP and CPA respectively have the highest percentages. The KT, CT, CPA and MT had highest and similar values of C:N ratio. NPK gave highest soil OM, N, Mg, leaf N, P, K and Ca. MT gave highest soil P, Ca, leaf Ca and Mg, CPA which gave highest soil K had relatively high soil P, N, Mg and leaf K and Ca. KT gave relatively high soil K, Mg, leaf K and Mg. The CT, KT, CPA and KP increased number of leaves significantly. The KT, MT, CPA and NPK gave higher and similar values of fresh matter yield and tended to give highest values of soil and plant N, P, K, Ca and Mg. In addition to nutrients released, the relatively high C:N ratio (27 – 31 C:N ratio) of KT, CPA and MT should have contributed to their better effect on growth of cocoa seedlings

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