



Research Article

Status and distribution of phosphorus fractions in red and lateritic soil profile of different agroclimatic zones of Karnataka

K.S. NIRANJANA, GANAPATHI, H.M. CHIDANANDAPPA, CHANDRUPATIL AND M.S. BHADRINATH

Abstract : The vertical distribution and speciation of phosphorus was studied in nine red and lateritic soil profiles of different agro climatic zones of Karnataka. The relative abundance of different fractions was in the order of Fe-P (131.64 ppm) > A1 – P (98.00 ppm) > Red-P (93.01 ppm) > Ca-P (79.66 ppm) > Occl-P (51.84 ppm) > saloid-P (23.18 ppm). Organic P constituted 47.09 per cent of the total P. On an average, total P content varied from 353.28 ppm to 1522.28ppm. Soil CEC, iron oxide, pH, silt and clay content play an important role in distribution of phosphorus fractions in soil.

Key Words : Phosphorus fractions, Vertical distribution, Soil physic-chemical properties, Red and lateritic soils

How to cite this Article : Niranjana, K.S., Ganapathi, Chidanandappa, H.M., Chandrupatil and Bhadrinath, M.S. (2012). Status and distribution of phosphorus fractions in red and lateritic soil profile of different agroclimatic zones of Karnataka, *Internat. J. Forestry & Crop Improv.*, 3 (1) : 39-44.

Article Chronical : Received : 27.04.2012; Revised : 18.06.2012; Accepted : 21.06.2012

INTRODUCTION

Phosphorus (P) is the second major nutrient required by all the crops. The knowledge of P status and various fractions of soil phosphorus and their distribution play a significant role in soil fertility and productivity (Jayasree Sankar, 1991). The different forms of P vary greatly in solubility and availability to the plants. Since the soil solid phase phosphates control the phosphate concentration in soil solution and also reflect the reserve supply of nutrient, knowledge concerning the forms and amounts of P is important. Many scientists have tried to

study the distribution of P in the soil, but the profile studies on the distribution of P with depth have been made only in few cases. Such studies would enable in refining the genetic characteristics of soils. Karnataka experiences a varied agro-climatic and diverse type of soil. Hence, the present study was under taken to study the distribution of different forms of P in red and lateritic soil profiles of different agro-climatic zones of Karnataka.

EXPERIMENTAL METHODS

Soil profiles samples, horizon wise were collected from North Eastern Transition Zone – Bidar (Rhodic Paleustalfs), Central dry zone – Arasikere (Rhodic Paleustalfs), Eastern Dry zone – Bangalore (Kandic Paleustalfs), Southern Dry zone – Mandya (Typic Rhodoustalfs), Southern Transition zone – Shimoga (Ultic Haplustalfs), Hilly zone – Chethalli (Ustic Palehumults), Mudigere (Paleustults), Sakaleshpur (Ultic Paleustalfs) and Coastal zone – Brahmavar (Typic Kandiuults). The collected soil samples were processed and analyzed for various physic-chemical properties by standard methods (Piper, 1950; Jackson, 1973). Total P was digested

MEMBERS OF RESEARCH FORUM

Author of the Correspondence :

GANAPATHI, Organic Farm Research Center, Zonal Agricultural Research Center, Navile, SHIMOGA (KARNATAKA) INDIA
Email : ganapathiguddekoppa@yahoo.com

Address of the Coopted Authors :

K.S. NIRANJANA, CHANDRUPATIL AND M.S. BHADRINATH,
Department of Soil Science and Agricultural Chemistry, University of Agricultural Sciences, G.K.V.K., BENGALURU (KARNATAKA) INDIA

H.M. CHIDANANDAPPA, Department of Soil Science and Agricultural Chemistry, University of Agricultural Sciences, Navile, SHIMOGA (KARNATAKA) INDIA