

Research Article

Comparative study of physico-chemical, nutrients availability and acidic properties of Arunachal Pradesh soil under different land use systems

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Summary

Forty-eight soil samples were collected from 0-15 cm from each forest and cultivated areas of 12 different places of Arunachal Pradesh. Forest soils contained higher values of available N, organic carbon, whereas available P and K were found to be more in cultivated soils. Available S B and Ca+Mg were found to be higher in forest soils. Soil respiration in both land use showed ideal to high soil respiration rate, higher soil respiration rates exhibited in cultivated land than the forest soil. Exchange acidity exhibited higher in forest area than the cultivated area. The total acidity was found to be higher in forest land than the cultivated land. Exchangeable Al of the soils of Arunachal Pradesh in both the system came under medium range. Soil pH was found negatively correlated with organic carbon, available N, K, exchange acidity and lime requirement. With soil organic carbon, positive correlation was found with available N, K, exchange acidity and lime requirement, but negative correlation with total acidity. The results concluded that types of soil and land uses practices were responsible for the varying soil inherent properties. The pH, EC and organic carbon were varied 4.1-5.6, 46.6-150 ds/m and 0.068-3.28%, respectively. Whereas, macronutrients variations were recorded as N (213.2 to 470.3 kg ha⁻¹), P (22.2 kg ha⁻¹ to 44.6 kg ha⁻¹) and K (188 to 246 kg ha⁻¹) found to be ranged under low to medium, were varied from 11-66 kg ha⁻¹, 0.22-0.99 kg ha⁻¹ and 0.2-6.5 kg ha⁻¹, respectively, The total acidity on an average observed in soils of Arunachal Pradesh was 3.21 meq/100g and 5.40 meq/100 g in cultivated and forest area, respectively. Ranges came under medium in an average *i.e.* 0.83 meq/100 g in cultivated area and in forest area exchangeable Al ranged from 0.50 meq/100 g to 1.35 meq/100 g which observed to be range under medium. Average exchange acidity of 1.02 meq/100 g and 1.13 meq/100 g was exhibited in the samples of cultivated and forest areas, respectively.

Key words : Nutrients status, Acidic components, Physico-chemical properties

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