

ASSESSMENT OF SOIL NUTRIENTS ACROSS CROP AND DEPTH VARIATIONS IN CHULLIAR-IKSHUMATHI SUB-WATERSHED OF GAYATHRIPUZHA, KERALA

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Abstract

Soil nutrients are vital for plants. Excessive or deficit soil nutrients have a negative impact on the growth of plants. Present study has analyzed variations in macronutrients such as nitrogen, phosphorus, and potassium content in the soil from areas having different crop cover. The study was carried out in Chulliar-Ikshumathi sub-watershed of Gayathri sub-basin, in Kerala. The soil samples were collected from 44 locations under different crop cover conditions. At each site samples were collected from 0 to 10, 10 to 20 and 20 to 30 cm depths, after removing the superficial litter and other organic matter from the top soil. Standard soil chemical analysis methods were employed to determine the nutrient status and statistical analysis was carried out to understand the nutrient status under different crop cover conditions as well as variations with depth. The latter analysis would also help to understand nutrient movement under tropical humid conditions. It has been observed that the nutrient concentration is more under banana and vegetable plants which are the annual and seasonal crops respectively. In general nutrient concentration significantly reduces with depth. It is also found that nutrient level is relatively lower under perennial crops than the seasonal or annual crops. Extensive use of chemical fertilizers is the reason for such high nutrient levels in those areas. The nutrient status is comparable in the fields where chemical fertilizers have been used as well as those that are chemical fertilizer free.

Keywords: Macronutrients, Nitrogen, Phosphorous, Potassium, soil depth, crop cover