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Spatial distribution of soil nutrients in high altitude alpine pastures of south Kashmir Himalaya, India

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Abstract
The present study was carried out in sub-montane and high altitude pastures of temperate zone of south Kashmir Himalaya. The south Kashmir spreading over four districts *viz.,* Kulgam, Anantnag, Shopian, and Pulwama located between 33° 52' 31" N and 74° 89' 29" E with altitudinal range of 1526 to 3569 m above sea level. Three sites were randomly selected in three districts (Kulgam, Anantnag and Shopian) each. Soil samples were collected from each pasture land use system with depth up to 0-15 cm by using post hole and screw auger. Composite soil samples from each pasture land uses were prepared. The texture of the soils varied from silty clay loam to clay loam with slightly acidic to neutral in soil reaction, pH ranging from 6.23 to 7.23 with a mean value of 6.75. Less soluble salts were available which ranged from 0.18 to 0.34 (dSm^{1}) with a mean value of 0.25 (dSm^{1}) and organic carbon content was medium to high ranging from 1.56 to 2.23% with a mean value of 1.97%. Whereas the available macronutrient contents of N, P, K and S were medium to high, ranging from 180.26 to 245.65, 15.23 to 21.56, 125.6 to 156.21 and 10 to 17 mg kg^{-1}, respectively. The DTPA-extractable Zn, Cu, Mn and Fe were also high and varied from 0.50 to 1.54, 1.80 to 2.56, 11.29 to 18.34 and 12.39 to 19.21 mg kg^{1}, respectively. Thus, all the pastures showed significantly enhanced values of pH, organic carbon, available macronutrient (N, P, K and S) and micronutrient (Zn, Fe, Cu, and Mn) contents in soils.

Keywords: Alpine pastures, Ecosystem, Nutrient distribution, Organic carbon, Soils