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Genesis of Soils of Middle Indo-Gangetic Plains of Bihar, India

SAMAR K. GANGOPADHYAY [1,*], P. CHANDRAN [2], S. K. RAY [1] AND A.K. MAITRA [1]

[1] National Bureau of Soil Survey and Land Use Planning, Regional Centre, Kolkata-700 091, India
[2] National Bureau of Soil Survey and Land Use Planning, Amravati Road, Nagpur-440 033, India

Abstract: *Typical four pedons representing north Bihar plain of middle Indo-Gangetic plain under rainfed agro-eco system developed from the recent tertiary deposits of alluvium parent materials under sub humid climate were studied for their physical, chemical and mineralogical characteristics. Soils are very deep, olive brown to grey in colour, silt loam to silty clay loam in texture and slight to moderately eroded. The soils are slightly to moderately alkaline (pH 7.9 to 8.8), medium to high in organic carbon, low in CEC and high in base status. Soils are high in $CaCO_3$ content which generally influences the fertility of the soils. The mineralogical characteristics of soils indicate that Kaolinite is the dominant clay mineral in theses soils followed by mica especially in the upland situation indicating intensive leaching and relatively stable land-form. The decrease in kaolinite and increase in smectite/hydroxyl-interlayered vermiculite with depth indicates the transformation of smectite/hydroxyl-interlayered vermiculite to kaolinite, which generally occurs through an intermediate phase of smectite-kaolinite (Sm-Kl) or hydroxyl-interlayered interstratifications. The transformation of clay minerals in these soils indicates the influence of climate on the genesis of soil.*

Keywords: Clay mineralogy, Soil characteristics, calcareous soil, alluvium, north Bihar plain