

# Studies on Some Physico-chemical Properties of Dhandhingguri Watershed at Coochbehar-II Block in Coochbehar District, (W.B.)

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**Abstract**—A laboratory experiment was carried out to study different physico-chemical properties of different soil layers i.e. 0-15cm, 15-30cm and 30-45cm of different place in three land situation viz. Upland, Medium land and Low land of a watershed, located in Dhandhingguri watershed in Coochbehar-II block of Coochbehar district, West Bengal. Different physico-chemical properties like pH, EC, texture, water holding capacity, bulk density, oxidizable organic carbon, available nitrogen, available phosphorus, available potassium, available sulphur, cation exchange capacity of the soil sample were estimated in laboratory by taking four replications for each of the properties. The results obtained from the study, indicated that, low lands were high in pH than other land situations. On an average pH of the watershed were 5.87. The pH was significantly negatively correlated with organic carbon (-0.350\*) and significantly correlated with bulk density ( $r = 0.354^*$ ). Organic carbon was found highest in surface layer in all land situation and decrease with the depth. Available P, K, S contents were low in the watershed. Irrespective of land situation and soil layer the organic carbon positively as well as significantly correlated with available nitrogen ( $r=0.381^*$ ), available phosphorus ( $r = 0.627^{**}$ ), available potassium ( $r = 0.518^{**}$ ), silt( $r=0.338^*$ ), clay( $r=0.485^{**}$ ), CEC( $r=0.591^{**}$ ) and available sulphur( $r=0.357^*$ ) (Table - 9). The organic carbon was significantly negatively correlated with bulk density( $r= -0.591^{**}$ ), particle density( $r= -0.694^{**}$ ), porosity( $r=-0.387^*$ ) and sand( $r=-0.490^{**}$ ). The texture of the surface soil was sandy clay loam type and sand content was increased with depth and significantly negatively correlated with organic carbon ( $r= -0.490^{**}$ ) and maximum water holding capacity( $r= -0.354^*$ ). These in formations will definitely help the farmers of the locality to choose correct cropping system and judicious application of fertilizers and will also support the proper utilization of land.

**Keywords:** coochbehar, physico-chemical properties, watershed.

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