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Laboratory Studies to Assess the Effect of Recron Fiber on Soil Subgrade Characteristics

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Abstract : Stabilization of weak subgrade soil is mainly aimed for the improvement of soil strength and its durability. Highway engineers are concerned to get the soil material or system that will hold under the design use conditions and for the designed life of the engineering project. The present study envisages the effect of Recron fibres mixed in different proportion (up to 1% by weight of dry soil) on Atterberg limits, Compaction of the soil, California bearing ratio (CBR) values and unconfined compressive strength (UCS) of the soil. The present study deals with the influence of varying in length (20 mm, 30mm, 40mm and 50mm) and percentage (0.25 %, 0.50 %, 0.75 % and 1.0 %) of fibre added to the soil samples. The aim of study is to determine the reinforcing effect of randomly distributed fibres on the Compaction characteristics, penetration resistance and unconfined compressive strength of soils. The addition of fibres leads to an increase in the optimum moisture content and decrease in maximum dry density. With the addition of the fibres, the increases in CBR and UCS values are observed. The test result shows higher CBR and unconfined compressive strength value for the soil reinforced with 0.5% Recron fibre, once keeping aspect ratio as 160.

Keywords : soil, recron fiber, unconfined compressive strength (UCS), California bearing ratio (CBR)
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