

Soil Reinforcement by Fibers Using Triaxial Compression Test

Authors : Negadi Kheira, Arab Ahmed, Kamal Elbokl Mohamed, Setti Fatima

Abstract : In order to evaluate influences of roots on soil shear strength, monotonic drained and undrained triaxial laboratory tests were carried out on reconstituted specimens at various confining pressure ($\sigma_c' = 50, 100, 200, 300, 400$ kPa) and a constant relative density ($D_r = 50\%$). Reinforcement of soil by fibrous roots is crucial for preventing soil erosion and degradation. Therefore, we investigated soil reinforcement by roots of acacia planted in the area of Chlef where shallow landslides and slope instability are frequent. These roots were distributed in soil in two forms: vertically and horizontally. The monotonic test results showed that roots have more impacts on the soil shear strength than the friction angle, and the presence of roots in soil substantially increased the soil shear strength. Also, the results showed that the contribution of roots on the shear strength mobilized increases with increase in the confining pressure.

Keywords : soil, monotonic, triaxial test, root fiber, undrained

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