

Abstract

Heave causes serious damages on structures resting on expansive soils. Investigations have been carried out to develop a procedure for quick and acceptable prediction of swell characteristics from physical, chemical and mineralogical soil properties. Recent studies showed that, soil suction seems to affect the stress-strain behaviour of soils. Therefore, it is thought that, suction is related to swell characteristics, namely percent swell and swelling pressure. In the present study, the relationships between suction and swelling characteristics of clayey soils were investigated. Swell tests were carried out according to ASTM D 4546 procedures by using oedometer equipment. Suctions of soils with different initial water content were measured by thermocouple psychrometer technique. The results of experimental studies were evaluated and relationships between suction and swell characteristic were established. It was showed that there are linear relationships between percent swell–suction (in log kPa term) and swelling pressure–suction (in log kPa term).