

Clay dispersion induced by changes in some soil properties in undulating salt-affected landscapes of southern Karnataka, India

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Effect of sodicity on clay dispersion in salt-affected black soils of the Kabini canal command area in Chamrajnagar district, southern Karnataka was studied. Forty-eight soil samples were collected from nine soil profiles and analysed for physical and chemical properties. The clay dispersion ranged from 0.57% to 62.1%. High positive and negative correlations with exchangeable sodium and exchangeable calcium respectively, with clay dispersion were recorded, which can be predicted better with exchangeable sodium and available soil water. Based on clay dispersion value, 2%, 27% and 71% soils are dispersive, intermediate dispersive and non-dispersive respectively. Based on exchangeable sodium percentage, 50, 21 and 29 soils are dispersive, intermediate dispersive and non-dispersive respectively. Application of gypsum and organics reduces the clay dispersion in surface soil. Sub-surface drainage will be more effective. Construction of soil and water conservation structures with pile foundation; providing cement lining for soil stabilization in normal construction; providing drainage lines for the structures; construction after refilling with non-dispersive soil will save the structures in salt-affected soils.