

IMPACT OF SOIL SALINIZATION ON NATURAL VEGETATION AND LAND DETERIORATION

R. A. Al-Tamimi

ABSTRACT

This work was conducted to assess the impact of soil salinization and sodification on natural vegetation and land deterioration in Wadi Al-Shatti, Southern Libya. Fallow soils were very strongly saline with mean E_{Ce} of 111.2 and 68.78 dS m⁻¹ in crust and surface layers respectively. The cultivated soils were moderately, strongly and very strongly saline with mean E_{Ce} of 14.52 dS m⁻¹. Sodium was the dominant cations, followed by calcium and magnesium. Chloride was the dominant anion. Very low concentrations of bicarbonate and absence of carbonate was recorded. Sodium chloride was prevalent salt in all samples, followed by calcium sulphate in some and magnesium chloride in the others. Sodium and magnesium sulphate were found in some samples, while the presence of calcium and magnesium chloride was confined in fallow soils and crust of very high salinity. Crust and surface layers of fallow soils have high values of ESP with means of 47.78 and 33.85% respectively, whereas low values were noticed in cultivated soils with mean of 18.10%. Field study results showed the disappearance of ordinary natural vegetation and the occurrence of halophyte plants, like; Athel trees (*Tamarix aphylla*), Spiny rush (*Juncus acutus*), Cogon grass (*Emperica cylindrica*), Camel thorn (*Alhagi maurorum*) and Nitre bush (*Nitraria retusa*). Degradation indices confirmed that the cultivated soils suffered from slight to moderate deterioration, whereas fallow soils suffer from sever to very sever deterioration.