EFEECT OF WATER QUALITY AND SOIL TEXTURE ON SOME PHYSICAL AND BIOLOGICAL PROPERTIES.

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ABSTRACT

To study and know the effect of irrigation water quality texture on SAR, ESP in the soil on some of soil physical properties and its effect on population of soil microorganism. So that Lab experiment was conducted by using soil samples collected from the surface soil 0.0-0.3 m depth from the field of Agriculture College –Abu grab. Soil air dried and sieved ، 5 k.gm of soil was placed in open side's plastic pipes. The experiment included 4 levels of salt water W1, W2, W3 W4 which were 0.8 ,1.8,2.8,8 $dS.m^{-1}$ respectively and two texture of soil which were SIL ,SICL with four replicates .CRD design was used saline soil were made through out the addition saline water to the columns of soil . Soil EC was measured through T1, T2, T3, T4 period which were 20,40,60,80 days respectively. ESP, SAR, modulus of rupture, hydraulic conductivity was measured and total bacteria and fungi population was counted. Results showed that SAR value was raised in SiL, SiCL soil with increase of water salinity at W1, W2, W3, W4 treatments which gave significant values 13.6, 14.5, 15, 15.4 $mmol.L^{½}$ in SiCL soil. While the SiL soil gave decrease values which they were 10.8, 12, 12.5, 13.2 $mmol.L^{½}$ for the above treatments respectively. also ESP gave these values 15.6,17.5 , 19.5, 20.1 for SiCL soil during T1, T2,T3, T4, period respectively while water quality gave ESP values which were 16.5 ,17.7 19, 19.27 for W1, W2, W3, W4, treatments respectively. the mean of modules of raptures were increased for SiCL during the differences of incubation times which records T1,T2,T3,T4 treatments the values were 171,211,249,282 Kpas respectively. While water quality treatments gave 177, 209, 244, 284. Kpas. For W1, W2, W3, W4 treatments respectively. in the SiCL soil were significant decrease of total bacterial population with the differences of water quality which gave W1,W2,W3,W4 treatments CFU values 147 , 67,45, 30 (10^6) respectively . when the total of fungi population were 68.7, 45.7,30,13 (10^4) for W1, W2, W3, W4 treatments respectively so that through these results we can say using irrigation with water at high salinity for long time or period the soil structure will be at abed physical properties so that hydraulic conductivity will be very low and anaerobic condition will decrease fungi and bacterial population, organic matter will decrease therefore plant growth will failed.

Keyword: water quality, soil texture, SAR, ESP, modules of rapture, hydraulic conductivity and fungi and bacteria population