

Phytoremediation Of Saline Soils Using Some Salt Tolerant Crops*

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ABSTRACT

The current water scarcity scaling up desertification and salinization hazard led to urgent necessity for in situ techniques such as phytoremediation. The experiment was conducted at the college of Agriculture field, Abu-Graib district in Baghdad. The soil classified as Typic Torrifluvent. A randomized complete block design was used with three replicates. Each treatment with plot area 3×4 m was repeated three times. The treatments tested were: S1- planting one salt tolerant crop-sorghum (monoculture). S2- planting one salt tolerant crop-millet (monoculture). S3- planting two salt tolerant crops: sorghum and millet (diculture). The results showed that sodium concentration in stems for S3 treatment was 1.27% and decreased significantly at the first harvest comparing with S1 and S2. Sodium concentration in leaves was 1.09% for S3 and decreased significantly comparing with S1 and S2. Concentration in leaves was 0.49% for S1 at second harvest which was significantly decreased comparing S2 and S3. S1 showed a significant decrease in sodium concentration in grains comparing with both S2 and S3. Statistic analysis results indicated a significant increase in chloride concentration in stems for S1 was 2.47% at first harvest comparing with S2. At second harvest, S1 became 1.70% and showed a significant increase of chloride concentration in stems comparing with S2. Salt uptake by millet at the first harvest was less than the second harvest due to the lack of salt avoidness ability of the crop. Phytoremediation led to decrease of sodium and chloride concentrations in soil layers comparing with their levels before plantation. Increasing of salt tolerance for sorghum led to an increase in total yield in both mono and diculture .

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