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Effect of fertilizer treatments and soil moisture regimes on Rice plants (*Oryza Sativa* L.) Iron and Manganese Content (mg/pot) by different rice parts of two varieties at harvest.

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Abstract : A greenhouse experiment was carried out using El kanater clay loam soil to study the influence of soil moisture regimes and different fertilizer treatments on yield of two rice varieties and micro nutrients content.
The obtained results can be summarized in the following :
Yield of rice plants (straw and grain yield) were highly significantly increased by using soil moisture regime of (M1) followed by M2 and M3 in decreasing order.Soil moisture regimes significantly affected the uptake of Fe and Mn by the different rice parts (roots, straw and grains) of the two rice varieties (Giza 176 and Sakha 102). The highest Fe and Mn concentration in roots were obtained by using M3 followed by M2 and M1 in descending order.
Results indicated that all the used fertilizer treatments i.e. inorganic fertilizer (F1 and F2) organic fertilizer (F4) and their combination (F3) significantly increased the yield dry matter, total uptake of Fe and Mnby different rice part (roots, straw and grains) as compared with those obtained under non fertilized treatment (F0).
Inorganic fertilizers (F1 and F2) treatments significantly increased the yield, concentration and the total uptake of Fe and Mnas compared with those obtained by using the organic fertilizer treatment (F4).
In the pot experiment, the highest straw and grain yields of the verities Sakha 102 and Giza 176 were obtained when the fertilizer treatment of F3 (23 Kg N + 15 Kg P2O5 + 52 Kg K2O/ Fed. + 1.5 ton chicken manure) was used followed by F2, F1 and F4.
The highest values of the yield (roots, straw and grain), concentration and the total uptake of Fe and Mnwere obtained by using the fertilizer treatment of F3 (organic and inorganic in combination) followed by the two rates of inorganic fertilizer treatments (F2 and F1) and F4 (organic fertilizer alone) in descending order.
The interaction between soil moisture regimes and fertilizer treatments significantly affected the concentrations and the total uptake of Fe and Mnby the two rice varieties. The highest concentration and uptake values were obtained under soil moisture regime of M1 and using fertilizer treatment of F3 (M1F3), while the lowest values were obtained under soil moisture regimes of M3 and without fertilizers (M3 F0).While in roots, the highest values of Mn concentration were obtained under soil moisture of M3 and using fertilizer treatment F3, while the lowest values were obtained under M1 and F0.
Key Words: Organic and Inorganic fertilizers, Soil moisture, Macro, Rice varieties, Yield, Micro Nutrients.

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