

Micronutrients Status Of Mollisols (Southwestern Mountainous Region, Saudi Arabia)

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ABSTRACT

Mollisol order was recognized in some areas within the southwestern region of Saudi Arabia. Soils were developed mainly over igneous and metamorphic parent materials. Thirteen soil profiles were studied and available micronutrient, (Fe, Mn, Cu and Zn) levels were evaluated. Soil profiles were classified into Argiustoll, Haplustoll and Calciustoll great groups. Data of \sim HCa3-DTPA extractable Fe, varied 1.27 - 19.7, 0.75 - 12.2 and 10.7 - 22.27 mg *ki*l for Argiustolls, Haplustolls and Calciustolls, respectively. Also, available Mn fluctuated between 1.64 - 37.38, 3.24 - 65.58 and 3.28 - 42.7 mg *ki*l; Cu ranges from 0.12-13.45, 2.12 - 9.26 and 0.94-4.22 mg *ki*l and Zn varied 0.08 7.34, 0.6 - 5.48 and 0.26 - 1.58 mg *kg*-1 for Argiustolls, Haplustolls and Calciustolls, respectively. Most of the studied soil samples were either sufficient or near the marginal level. Significant correlation coefficients between a.M. and available Fe ($r = 0.492^*$) or Mn ($r = 0.875^{**}$) were obtained for Argiustolls. Haplustolls indicated a significant correlation between Fe and either a.M. ($r = 0.576^{**}$) or clay ($r = 0.855^{**}$), while Mn showed positive correlation with a.M. (0.831^{**}), clay (0.582^{**}) and ECe (0.842^{**}). On the other hand, Cu and Zn showed non-significant correlation coefficients. Therefore, presence of igneous and metamorphic parent materials beside other soil forming factors seems to have great impact on the level and distribution of available micronutrients in mollisols. Both clay and a.M. contents play a positive role in increasing level of most of the studied micronutrients particularly Fe and Mn. The differences in the contents of nutrient between the studied sub- great group within each soil great group were unclear and also between the great groups, while the major difference seems to be related to soil constituents other than soil taxa.