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Effect of sewage on heavy metals accumulation and nutritional value of corn and cotton

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This research was conducted to study heavy metals concentration in corn and cotton under irrigation with different concentrations of sewage in Talebabad (Varamin, Tehran) in 2005 on the base of a completely randomized block design with 3 replications. The factor was different concentrations of sewage including aqueduct water, equal ratio of sewage and aqueduct water and net. Plants were harvested in complete raping and dried in oven. Then heavy metals were measured by Atomic Absorption System. According to the results the corn transferred and assembled a large quantity of Pb and Cr and it was more than standard limit. These plants assembled a large quantity of Mn, Zn and Cd. Mn assembling was in standard limit but Cd assembling was in critical limit in plant and domesticated animal feeding, respectively according to the table of critical and standard limit of heavy metals assembling in domesticated animal feeding, the quantity of Ni, Pb, Cr and Zn was less than standard limit in ear. So, feeding of domesticated animal by ears do not cause any problem. But Mn and Cd assembled in ear and corn were higher than standard limit. So, use of them to feed domesticated animal and domestic birds cause to assemble of heavy metals in organs. According to results, heavy metals assembling in cotton lint due to irrigation with sewage were greater than irrigation with aqueduct water. The quantity of Pb and Cr was higher than standard limit. So, it cause to change characteristics of lint. Also, high concentration of them can damage human body by extracted oil of cotton seed. It was indicated that these quantities were less than critical and standard limit by mean comparison of heavy metals assembling in lint and critical limit table of domesticated animal feeding. So, oil cake of cotton seeds has no problem for ruminants.

Keyword: Corn, Cotton, Heavy Metals, Pollution, Sewage

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