
ABSTRACT

Wastewater irrigation has caused sufficient toxic metals load in cauliflower grown in certain areas of Lahore, as compared with the ground water worldwide. Agricultural land to the North and East of Lahore city along river Ravi and Jallo town was selected as the study area. Cauliflower grown in ground water zone (GWZ), near Wahga and Jallo showed up with these trace metals, Zn, Cd, Pb, Cu and Cr but concentration of all the heavy metals remained under the permissible limits of WHO/FAO.

Concentration of Zn in WWZ sample was (35.44 mg kg^{-1}) while that of GWZ sample was, (4.40 mg kg^{-1}). Cauliflower samples showed Cd concentration obtained from WWZ as (2.22 mg kg^{-1}), and by GWZ it was, (0.95 mg kg^{-1}). The maximum Pb concentration (1.42 mg kg^{-1}) was found in samples grown on WWZ. However, Pb concentration was (0.91 mg kg^{-1}) in GWZ samples. In WWZ grown cauliflower, concentration of Cu appeared as (1.26 mg kg^{-1}) but that in GWZ its concentration was (0.88 mg kg^{-1}). Cr concentration in cauliflower of WWZ was (1.15 mg kg^{-1}) highly exceeding than that of GWZ, as just (0.84 mg kg^{-1}).

Results show that cauliflower has a capability to accumulate the heavy metals if irrigated with wastewater. Resulted values indicated that WWZ grown cauliflower containing high levels of metal content pose a serious health risk, particularly with Cd. Long-term use of wastewater irrigation can cause severe risk to consumer's health. The level of heavy metal content recorded shows a trend; **Zn > Cd > Pb > Cu > Cr** in all the crop samples grown in GWZ (ground water zone) and WWZ (wastewater zone) as well.

To avoid the entrance of metals into the food chain, it is needed to take urgent measures to implement environment protection laws to monitor and standardized the industrial and municipal effluents in agricultural lands. Furthermore, continuous monitoring of the soil, plant and water quality to prevent heavy metals contamination in vegetable crops are prerequisites to minimize health risks to consumers.