COPPER CONCENTRATION IN CITY EFFLUENT IRRIGATED SOILS AND VEGETABLES

M. Qadir, A. Ghafoor, G. Murtaza, M. Sadiq and M.K. Rasheed[1]

ABSTRACT

Urban agricultural soils in Pakistan often receive metal-rich city effluent as an irrigation source. Among the metal ions, copper is considered as an essential micronutrient. However, at higher levels, it is not only phytotoxic but also shows toxicity to animals, particularly mammals. A number of farmers' fields around Faisalabad city were selected to determine the extent of copper contamination in the effluent-irrigated vegetables and soils. Samples of city effluent, vegetables and soils were collected from these fields. The sampled vegetables were spinach [Spinacia oleracea L.], vegetable marrow [Cucurbita pepo L], eggplant [Solanum melongena L.] and okra [Abelmoschus esculentus (L.) Moench]. Copper concentration in the effluent samples (0.18 - 0.20 mg l^{-1}) showed little variation with respect to different sampling sites. The NH_4HCO_3 - DTPA extractable copper was found maximum at the soil surface (5.47 to 9.48 mg kg^{-1}) and decreased with soil depth. The metal ion was found in critical range in all the vegetables which indicates a questionable use of these vegetables for human consumption.