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The impact of phosphorous fertilizers on heavy metals content of soils and vegetables grown on selected farms in Jordan

Asad Alkhader

National Center for Agricultural Research and Extension, Jordan

A survey was conducted to investigate the levels of Cd, Pb and As heavy metals in soils, leafy vegetables (lettuce plant), and irrigation water in areas characterized by intensive agricultural activities in Jordan. Thirteen farms from three locations (Jordan Valley, Alyadoda, and Jarash) were selected for this purpose. Ten P fertilizers that are most widely used by farmers were also collected and analyzed for heavy metals content. The results indicated that the lettuce, used as an indicator plant for possible vegetables contamination with heavy metals, was within allowable levels of Cd and Pb of 0.2 and 0.3 mg kg⁻¹ of fresh weight for leafy vegetables, respectively. The plant was, also, safe with respect to As, as the level of this metalloid was much less than the established acceptable concentration of 1 mg kg⁻¹ fresh weight. The results suggested that the most probable sources of the heavy metals (Cd, Pb and As) in the collected samples of soils and plant from the selected farms were soil parent materials and pesticides application. Long term P fertilizers additions are, also, likely sources of heavy metals in agricultural soils and crops. This implies a risk to the human health and environment in the future is expected.

Biography

Asad Alkhader has completed his PhD (in Horticulture and Crop Science) from University of Jordan. His MSc in Soils and Irrigation was also from the same university. He is working as a researcher in National Center for Agricultural Research and Extension (NCARE) in crop water and nutrient management. He is also the coordinator of the National Fertigation Project. He has published 4 papers in reputed journals and has been serving as a member of fertilizer committee in his country (Jordan).

asad_fathi@yahoo.com

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