Journal of Innovations in Pharmaceutical and Biological Sciences (JIPBS)
ISSN: 2349-2759
Available online at www.jipbs.com

Research article

Silicon-enhanced reduction of some heavy elements accumulation in Cowpea Plants (*Vigna unguiculata* L.)

Shaymaa I Shedeed[*1], Ahmed H Khater[1], Medhat K Ali[2]

[1]*Plant Nutrition Dept., Agricultural and Biological Division, National Research Centre, Giza, Egypt.*
[2]*Faculty of Agriculture, Ain Shams University, Cairo, Egypt.*

Key words: Silicon nutrition, Potassium silicate, Accumulation, Agro-mineral silicate source, Micronutrients, Heavy metals, Cowpea plants.

***Corresponding Author: Shaymaa I. Shedeed,** Plant Nutrition Dept., Agricultural and Biological Division National Research Centre, Dokki, Egypt.

Abstract

A field experiment was conducted using three treatments of silicon applications in order to evaluate and study the effect of foliar potassium silicate application and agro-mineral silicate (vermiculite) in soil as supplemental for Si in decreasing heavy elements accumulation in cowpea plants (shoots and roots) and their concentration in the soil. The obtained results showed that the studied treatments had a significant positive effect on Si (beneficial element) and some micronutrients (Fe, Zn and Mn). On the other hand, there was a reduction effect on some heavy elements (Cu, Ni, Pb, Cd and V) in plant and soil by using the silicate treatments as compared with control. In addition, the different silicon applications affected significantly the studied growth parameters and yield of cowpea plants.