Effect of Asclite, reducer of As absorption, to the As absorption of radish grown on As-contaminated soil

S. Kawai[1], K. Watanabe[1], S. Goto[2] and K. Sera[3]

[1]Faculty of Agriculture, Iwate University
3-18-8 Ueda, Morioka 020-8550, Japan

[2]Nishina Memorial Cyclotron Center, Japan Radioisotope Association
348-58 Tomegamori, Takizawa, Iwate 020-0173, Japan

[3]Cyclotron Research Center, Iwate Medical University
348-58 Tomegamori, Takizawa, Iwate 020-0173, Japan

Abstract

In order to examine the effect of Asclite (Createrra Inc.) to reduce absorption by plants, a pot experiment was conducted. Asclite is artificially made as material to remove As from water. Seeds of radish were sown in the pots (500 ml) with 400 g of 2 types of soils. Takizawa soil without As as control and mixed soil with Annaka Soil contaminated with As were used in the experiment. Vermiculite known as soil amendment was mixed with the Annaka soil, whose weight ratio was 1:1. Asclite was added and mixed with the soils in the concentration 0, 1, and 2 %. Chemical fertilizer (N, P_2O_5, K_2O: 10, 10, 10 %), 0.2 g, was added to each pot. The plants were grown in the greenhouse of Iwate University. The dry weights of the plants were not significantly varied by the addition of Asclite. The results of measurement of elements concentration with PIXE analysis indicated that As concentration in the edible part of radish was reduced by the application with 2 % of Asclite. But the concentrations of the other elements were not changed by the application of Asclite. The As concentration of the edible part was lower than that of shoots in radish. The results suggested that Asclite may be useful material for the reduction of As concentration in the edible part of the root crop.