

Translocation of minor elements from soil in organically cultivated tomato plants -III-

Comparison of the amounts of elements between two areas

Hayanori Takei, Makiko Takazawa^{*1} and Nobuyuki Terada^{*2}

Personal Reseacher
Motoyoshida, Mito, Ibaraki 310-0836, Japan

^{*1} Department of Health and Nutrition, Sendai Shirayuri Women's College
6-1 Honda-cho, Izumi-ku, Sendai 981-3107, Japan

^{*2} Department of System Robotics, School of Engineering, Toyo University
2100 Kujirai, Kawagoe, Saitama 350-8585, Japan

Abstract

This study aims to determine the quantities of minor elements in different organs of tomato plant at different growth stages by PIXE analysis for the purpose of grasping the effects of an organic fertilizer in organic cultivation. In this fiscal year, tomato seedlings were grown in two different areas with the same organic fertilizer and by the same cultivation practice. The concentrations of elements in the seedlings were determined to compare with those of the soil and to examine how they were related to vitamin C content of the fruit. The following were found from the result:

- This experiment with the two areas reproduced the result of Takazawa *et al.* for vitamin C content in the fruit.
- The use of the same organic fertilizer and cultivation practice led to similar tendencies in the amounts of elements in the seedlings of the two areas. However, mobility from soil to the plant body could explain concentration differences for some elements such as phosphorus. On the other hand, factors other than soil had to be taken into account for other elements such as copper.
- Future experiments need to include climate and moisture transpiration from the plant body. More data accumulation is desirable.