EFFECT OF LIME ON RELATIONS BETWEEN CONTENT OF MACROELEMENTS IN *BRASSICA NAPUS* VAR. *OLEIFERA* AND *AVENA SATIVA* L. AND THE ENZYMATIC ACTIVITY OF SOIL CONTAMINATED BY CADMIUM

Mirosław Wyszkowski [1], Jadwiga Wyszkowska [2]
[1] *Department of Environmental Chemistry,* [2] *Department of Microbiology*
University of Warmia and Mazury in Olsztyn, Plac Łódzki 4, 10-718 Olsztyn, Poland

ABSTRACT

The aim of the study was to determine the effect of Cd contamination (0, 4, 40, 80 and 120 mg Cd kg^{-1} of soil) on macroelements content in *Brassica napus* var. *oleifera* and *Avena sativa* L. and on relationships between enzymatic activity in soil and content of N and P in the above-ground parts of plants. The effect of soil Cd contamination on the yield and content of macroelements in plants was determined by Cd dose and application of lime. In series without Ca highest Cd doses caused a decrease in yield of both plants and an increase in macroelements content in above-ground parts of plants, especially N and K in both plants and P and Mg in *Avena sativa* L. The content of Ca and Na in plants decreased after application highest doses of Cd into the soil. Lime application to the soil caused an increase in the yield of plants in variants with 80 and 120 mg Cd kg^{-1} of soil, especially *Brassica napus* var. *oleifera* (main crop). Lime decreased content of N, K and Mg and increased content of Ca and Na (only in oat) in plants. The enzymatic activity of soil was generally correlated with the content of the N and P in above-ground parts of plants.

Keywords: soil contamination, cadmium, plants, chemical composition, enzymatic activity.