

Mirosław WYSZKOWSKI¹ and Maja RADZIEMSKA

**CONTENT OF NITROGEN COMPOUNDS
IN SOIL POLLUTED WITH CHROMIUM(III)
AND CHROMIUM(VI) AFTER APPLICATION
OF COMPOST, ZEOLITE AND CALCIUM OXIDE**

**ZAWARTOŚĆ ZWIĄZKÓW AZOTOWYCH
W GLEBIE ZANIECZYSZCZONEJ CHROMEM(III) I CHROMEM(VI)
PO APLIKACJI KOMPOSTU, ZEOLITU I TLENKU WAPNIA**

Abstract: The present study has been undertaken in order to determine the influence of tri- and hexavalent chromium compounds – 25, 50, 100 and 150 mg · kg⁻¹ of soil on the concentration of nitrogen compounds in soil after crop harvest, and the effectiveness of neutralizing substances, such as compost, zeolite and calcium oxide, on alleviating results of chromium pollution. Soil contamination with chromium(III) and chromium(VI) significantly modified the content of nitrogen compounds in soil after plant harvests. Under the influence of trivalent chromium, in a series lacking any neutralising substances, the total nitrogen content decreased while the ammonia nitrogen level rose after plant harvest. Chromium(VI) had a similar influence on N-NH₄⁺. The neutralising substances added to soil, such as compost, zeolite and calcium oxide had a significant effect on the content of total nitrogen in soil. Calcium oxide in the objects polluted with chromium(III) and chromium(VI) caused a significant decrease in the content of N-total in soil. Compost, zeolite and calcium oxide caused an increase in the average content of N-NO₃⁻ in soil, with the effect being stronger in post polluted with chromium(VI) than with chromium(III). As for chromium(VI), the content of N-NO₃⁻ was most strongly affected by calcium oxide added as a soil amending substances. All the tested neutralising substances had a weaker influence on the content of N-NH₄⁺ in soil.

Keywords: chromium(III), chromium(VI), soil, compost, zeolite, CaO, N-NH₄⁺, N-NO₃⁻