

Application of atomic absorption spectroscopy for the analysis of chemical composition of *Brassica rapa*

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Abstract

This paper presents the study of the chemical composition of Petrovskaya variety of turnip after the non-root treatment of vegetating plants with the solution of trivalent chromium. The treatment has been performed with the solutions of chromic potassium sulphate with chromium concentrations of 0.002% and 0.005%. The experiment has been conducted according to the following scheme: 1. NPK (background) – control version; 2. NPK + HO Cr 0.002%; 3. NPK + HO Cr 0.005%. Nitroammophoska was used as the background macro fertiliser during the sowing at the rate of 30 g/m². In the control versions plants have been treated with the distilled water. The content of chromium in root vegetables has been assessed using the method of atomic absorption spectroscopy. It is shown that after the treatment with the solution of chromic potassium sulphate the average content of chromium in root vegetables increased by 31.3% in NPK + Cr 0.002% version and by 55.6% in NPK + Cr 0.005% version in comparison with the control version. At the chromium concentration of 0.002% the content of dry matter in turnip remained at the level of control version, the content of dry soluble matters and ascorbic acid decreased down to 5.9% and 28.60 mg/100 g, the level of nitrates in root vegetables increased up to 286.0 mg/kg of wet mass. At the chromium concentration of 0.005% the content of dry matter in turnip decreased down to 10.4%, the content of dry soluble matters increased up to 7.3%, the content of ascorbic acid and nitrates decreased down to 27.81 mg/100 g and 210.2 mg/kg of wet mass, respectively.

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