DETERMINATION OF IONS OF SOME HEAVY METALS IN OBJECTS OF AN ENVIRONMENT

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Development of obtaining and processing industries results in increase of distribution of ions of heavy metals in objects of an environment. Ions of heavy metals act in water, ground and plants, and through them they get in organisms of animals and humans. The ions of heavy metals, which fall into organism of animals and humans cause diseases of various etiology. In this connection there is a need of the constant control of the contents of ions of heavy metals for these and other objects connected to feed and food.

The Present work is devoted to the definition of the contents of ions of heavy metals in plants growing lengthways and near to highways, in ground and foodstuffs of these zones. For the analysis the samples of stalks and roots of plants, suitable for feeding animals up who were burnt in closed chamber are selected. Formed at burning oxides the ions of heavy metals dissolved in nitric acid. For the analysis of soil the top part of the ground where plants grow has been selected. From foodstuff meat, milk and products of their processing have been taken for the analysis. The analysis of the contents of ions of heavy metals was carried out by methods of potentiometric titrations and spectrophotometry. As contents of ions of heavy metals are small enough in these objects, by the solutions of samples are concentrated by distillation method. Potentiometrically lead ions have been titrated 0,025 M K₂CrO₄ solution in the presence of 1-2 drops of 0,05 M Cr(NO₃)₃ solution, cadmium ions - 0,025 M K₂[Fe(CN)₆] solution in the presence of 1-2 drops of 0,05 M K₃[Fe(CN)₆] solution, mercury ions - 0,025 M KJ solution in the presence of 1 drop of 0,1 % C₂H₅OH solution of iodine, and copper ions - iodometrically 0,025 M Na₂S₂O₃ solution. As an indicator electrode platinum, and as an electrode of comparison – AgCl/Cl⁻ electrodes are used. Titration has been carried out by adding titrant by drops. The accuracy of potentiometric determinations has been controlled by spectrophotometric method. Chloroformic color extracts of ditizones of ions of the heavy metals obtained in various pH values were used for spectrophotometric determinations. The obtained results show, that the more content of ions of heavy metals in ground, the more they pass in plants, organisms of animals and humans.