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DEVELOPMENT OF THE METHOD OF NON-DESTRUCTIVE ANALYSIS OF HEAVY METALS IN THE RAW MATERIAL THAT CONTAINS CARBOHYDRATES

Mineral components content determination to a large extent determines the quality of herbal products (herbal raw material). A significant problem is the pollution of vegetable raw materials for the food industry with heavy and toxic metals ions.

All methods of the microelements content determination used today are destructive and time-consuming regarding analysis.

From the literature it is known that the application of X-ray fluorescence analysis for determination of the content of heavy metals in vegetable raw materials has proven to be of sufficient accuracy, but requires complex mathematical apparatus for previous calculations as well as for measurements results calculations. This approach is determined by almost complete lack of standard samples of plants composition (content).

To address this problem, we have investigated the impact of specific carbohydrates (matrices) on the results of analysis of the content of microelement in the feedstock. We have studied a number of carbohydrates (mono-, diand polysaccharides) of the same fixed mass, containing various amounts of salts Cd, Zn, Pb and Hg. It has been found that the type of carbohydrate (matrix) has almost no effect on the quantitative determination of microelement. This allowed to make the series of standard samples for the determination of each element. The third phase — construction (building). On the basis of the extracted (obtained) data, we created a series of standard samples for the determination of the elements such as Cd, Zn, Pb and Hg, and calibration curves were constructed for determination of mineral components concentration in the samples of vegetable raw material.

KEY WORDS: *analysis, metals, carbohydrates*