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BOOK OF ABSTRACTS

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ABSTRACT BOOK

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FF-18-87

Obtaining of polysaccharide complex of lentil and the study of its elemental composition

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Background. Carbohydrates mainly comprise the plant organism and make up the largest of its masses. It was established that polysaccharides exhibit various pharmacological actions: expectorant, antitumor, immunomodulatory and others. Macro- and micronutrients are absolutely essential for the human body. The elements of plants are organically linked, that is more accessible and easily absorbed form. The aim of the work was to study the elemental composition of the polysaccharide complex from lentil herb, which is a fodder crop and is widely cultivated all over the world.
Materials and methods. Selection of polysaccharide fraction from raw herbal materials was carried out according to the methodology of N.K. Kochetkov. The gravimetric method was used to determine its content [1]. The study of elemental composition was carried out at DNU NTK "Institute of Single Crystals" of the National Academy of Sciences of Ukraine by atomic emission spectrographic method [2].
Results. The resulting water-soluble polysaccharide complex (WSPC) is an amorphous light brown powder. Quantitative content of it in lentil herb was 15.60 ± 0.32%. 15 elements were identified in WSPC, 5 of which were classified as macro- and 10 - as microelements, among which Ni, Cu and Pb belong to heavy metals. A high content of K (7600 mg/kg), Ca (3800 mg/kg), Mg (1070 mg/kg), P (810 mg/kg), and a slightly lower - Na (240 mg/kg), Si (190 mg/kg) were obtained in the investigated sample. It should be noted that the content of Pb, Cu, Ni, Sr, Cd, As is within the limits of the maximum permissible concentrations for raw materials and nutritive products [3].
Conclusions. The content of the elements in the lentil raw material can be arranged in order of decreasing: K>Ca>Mg>P>Na>Si>Al=Mn>Fe>Sr>Zn>Cu>Mo=Pb=Ni>Co=As=Hg=Cd. The obtained results will be used in further studies of the pharmacological activity of the polysaccharide complex from lentil herb.

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