

hemoglobin in the allocation of the protein to column DEAE-cellulose, which indicates the possibility of using more accessible DEAE-Sepharose matrix to obtain purified forms of human hemoglobin.

Heterogeneity derived hemoglobin fractions was confirmed by proteomics «top-down» with the use of gas chromatography-mass spectrometry of high resolution. Deconvolution analysis of the mass spectra of the chromatographic separation of hemoglobin under denaturing conditions showed only the presence of subunits corresponding to the individual forms of the protein (Figure 1).

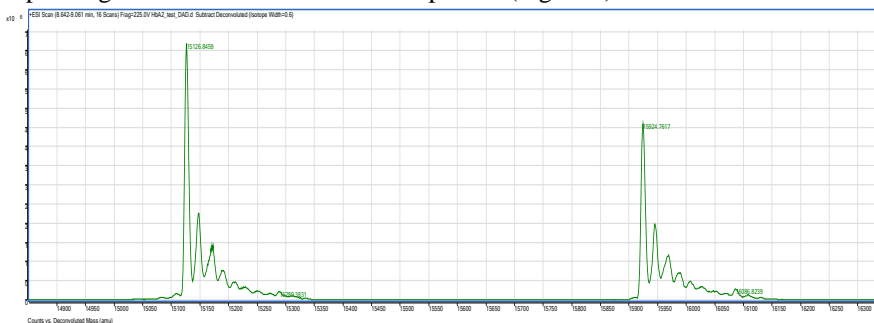


Figure 1. – The result of mass spectrum deconvolution minor peak shape in its hemoglobin HbA₂ chromatographic separation under denaturing conditions

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TOXICOLOGICAL CHARACTERISTICS OF HEXYL ESTER OF 5-AMINOLEVULINIC ACID

As a result of the development of protective and stimulating compositions for the treatment of seeds in agriculture a promising plant growth regulator hexyl ester of 5-aminolevulinic acid (H-ALA) with a pronounced growth stimulating properties against a number of crops was established at the Institute of Bioorganic Chemistry of the National Academy of Sciences. For the safe use of the H-ALA in the agricultural sector complete toxicological and hygienic assessment of the rationale of hygienic standards in the working area, air, water reservoirs, food, as well as calculation of the acceptable daily intake dose in humans must be allowed. The basis for such studies is the toxicological experiment on warm-blooded animals, which allows you to define the threshold of harmful action of chemical factors.

The research goal is to identify the major parameters of toxicity of hexyl ether of 5-aminolevulinic acid and products of plant protection based on it.

To evaluate the quantitative parameters of acute toxicity probit analysis according to the method of Litchfield and Wilcoxon, the crude product - hexyl ester of 5-aminolevulinic acid H-ALA and its formulation (3% H-ALA in DMSO) was determined.

The study of local irritant and skin-resorptive properties of the crude product in order to study the toxicity with cetaceous application of H-ALA in three series of experiments with the introduction of 50%, 25%, 5% (m / V) solutions of H-ALA were held.

The determination of the ability of fluorine to accumulate in the body was carried out by assessing the cumulative properties of substances by Y.S.Kagan and V.V.Stankevich. The experiments were performed on white rats to which the test substance is administered intraperitoneally in a dose of 0,1 DL₅₀ within 1.0-1.5 months (on 5 times a week) control animals receive equivalent quantities of a solvent.

In the result of studies after a single intragastric administration of the mean dose DL₅₀ H-ALA in mice (males) is 3000 mg / kg, rat (female) – 7800 mg / kg acute effect Lim_{ac} threshold set at mean effective dose ED₅₀ (mouse) – 73 mg / kg. The value of the indicator of acute coverage is 41 (characterized as a substance with a wide zone of the toxic effect. In response to the massive doses of H-ALK (a total of 13 multiple DL₅₀) in mice adaptation of the test sub-chronic toxicity (accumulation factor of 6.1) occurs. H-ALA is weak irritating to intact skin and pronounced irritative effects on the eyes of rabbits (8 points).

In the study the formulation (3% H-ALA solution in DMSO) of the mean dose of intragastric administration was determined at 11,000 mg / kg. Weak irritant effect on skin and mucous eye were detected. Sensitizing properties are not available. Inhalation toxicity is not expressed.

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THE FEATURES OF MALIGNANT BREAST NEOPLASMS IN THE REPUBLIC OF BELARUS

In the last two decades there has been a considerable increase in the incidence of breast cancer in Belarus and in most developed countries. The problem is now becoming ever more relevant.

According to the World Health Organization about 1.38 million of new cases of cancer of this localization is revealed each year in the world. Breast cancer has the second place in the structure of cancer incidence in the female population in the Republic of Belarus (17.6%) and the first place (16.9%) in the structure of women's mortality from malignant neoplasms. It occurs in one in ten women of the Republic, and one in three die from this disease.