



STUDY OF THE VITAMIN COMPOSITION OF HIPPOPHAE RHAMNOIDES

K. V. Raimova

N. G. Abdullajanova

R. R. Makhmudov

R. N. Rakhimov

A.S.Sadykov Institute of Bioorganic Chemistry, Tashkent city, Republic of Uzbekistan

e-mail: anodira73@rambler.rurambler.ru

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Relevance: Sea buckthorn (*Hippophaë rhamnoides*) is a valuable source of biologically active substances. While the fruit is well-studied, the leaves remain less well-researched, although they contain a complex of vitamins and antioxidants. Determination of their vitamin composition is important for use in the pharmaceutical and food industries, as well as for the prevention of hypovitaminosis.

Research objective: The aim of our work is to study the vitamin composition of the leaves of sea buckthorn *Hippophaë rhamnoides*.

Materials and methods: The amount of water-soluble vitamins was analyzed by high-performance liquid chromatography (HPLC) based on the gradient elution mode. A buffer solution with acetonitrile was used as the mobile phase. Identification was studied in the UV range from 200 to 400 nm. Chromatography conditions: Chromatograph - Agilent Technologies 1260. Mobile phase (gradient mode) - acetonitrile-Buffer pH=2,92. (4% : 96%) 0-6 min., (10% : 90%) 6-9 min., (20% : 80%) 9-15., (4% : 96%) 15-20 minutes, injection volume-5mcl. The rate of the mobile phase was 0.75 ml/min. Chromatographic column - Exlipse XDB C18 (reverse phase), 5 microns, 4.6 x 250 mm. First, the plant was dried and crushed. 0.500 g of the ground sample was weighed on an analytical balance. The sample was placed in a 300 ml flat-bottomed flask. Then 50 ml of a 3% acetic acid solution was added. The mixture was stirred on a magnetic stirrer without heating for 6 hours. At the end of the process, the mixture was cooled and filtered. Then 1 ml was poured into special containers and placed in a chromatograph for testing. First, working standard solutions were analyzed on a chromatograph, and then the prepared working solutions were analyzed. The results were repeated 3 times and the average value was taken.

Results: The samples of sea Buckthorn leaves (*Hippophaë rhamnoides*) which was used in the study were collected in 2024 in Namangan region of the Papal region at the beginning of the autumn period (August, September). The vitamin composition was analyzed after the plant was dried under a canopy. The leaves of *Hippophaë rhamnoides* contain water-soluble vitamins such as: Vitamin B₁-Thiamin is found in many foods. In the absence of thiamine, the nerves of the extremities are affected, causing the disease polyneuritis. Vitamin B₁ in the leaves was 12.5 mg/% and vitamin B₂ was found in large quantities and it was 32.4 mg/%. Vitamin B₂-Riboflavin is involved in the process of plant growth and development, as well as in the production of energy during the exchange of proteins, fats, carbohydrates. The vitamin B₃ was approximately 18 mg/%. The study of samples of vitamin C-ascorbic acid in plants revealed a relatively high content in the aboveground part, which amounted to 76.6 mg/%. Ascorbic acid-vitamin C plays an important role in cellular metabolism, in maintaining the normal state and repair of connective tissue. If the human body does not have enough ascorbic acid, the structure of bone cell tissues is disturbed, and chest disease occurs. In the body, ascorbic acid is not formed and does not accumulate by itself.



Conclusions: It was found that sea buckthorn leaves contain vitamins B₁, B₂, B₃ and C, with the highest amount of ascorbic acid (76.6 mg/%). This confirms the prospects of using this raw material as an affordable source of vitamins for medicine and nutrition.