

QUANTITATIVE ANALYSIS OF ASCORBIC ACID IN THE AERIAL PARTS OF BIDENS FRONDOSA L.

Abdullaeva R.A.**Farmanova N.T.****Abdullaeva X.Kh.**

Tashkent Pharmaceutical Institute, Tashkent city, Republic of Uzbekistan

e-mail: ranoabdullaeva1990@gmail.com

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Relevance. Medicinal plants contain a complex of chemical compounds that have a diverse and multifaceted effect on the human body. To properly assess their therapeutic effect, it is necessary, first of all, to analyse the properties of the main biologically active substances in their composition. Plants with anti-allergic and anti-inflammatory effects are always in demand in traditional medicine, and representatives of such plants include, in particular, species of the Asteraceae family, including *Bidens frondosa* L. According to the literature, the aerial part of the *Bidens frondosa* L. is rich in various biologically active substances. In particular, it contains flavonoids and their glycosides, polysaccharides, tannins, essential oils, bitter substances, ascorbic acid, okanin, α -tocopherol and luteolin. The complex composition of these substances determines the pharmacological activity of the plant. In particular, vitamins such as ascorbic acid and α -tocopherol exhibit the antioxidant activity of the plant, and the combination of these biologically active compounds confirms the medicinal properties of the *Bidens frondosa* L. and justifies its use in various pathological conditions.

Purpose of the study: The purpose of the study is to conduct a quantitative analysis of ascorbic acid and the main biologically active substances with therapeutic effects in *Bidens frondosa* L.

Materials and methods: The above-ground parts of the plant *Bidens frondosa* L., collected in the Tashkent region (Kibrai district, August–September 2023–2024) and dried under natural conditions by air drying at a temperature not exceeding 35–40 °C. Ascorbic acid, which belongs to water-soluble vitamins, was determined in the sample using high-performance liquid chromatography (HPLC, Agilent-1200, equipped with an auto-dispenser). A 5–10 g sample of plant material, weighed on analytical scales, was placed in a 300 ml flat-bottomed flask. Extraction was carried out twice using a water-alcohol extractant. The resulting filtrates were combined, placed in a 100 ml volumetric flask and brought to the mark with 40% ethanol (5–10% of the volume). The resulting solution was centrifuged at 7000 rpm for 10 minutes. The supernatant part of the solution was used for analysis.

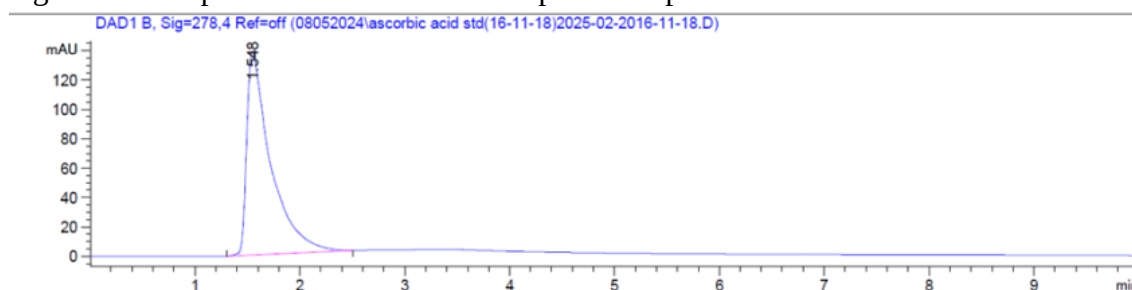


Figure 1. Chromatogram of the working standard solution of ascorbic acid

Working solutions of water-soluble vitamins with a concentration of 1 mg/ml were prepared.

Results: Initially, working standard solutions were introduced into the chromatograph, followed by prepared working solutions (Figs. 1, 2).

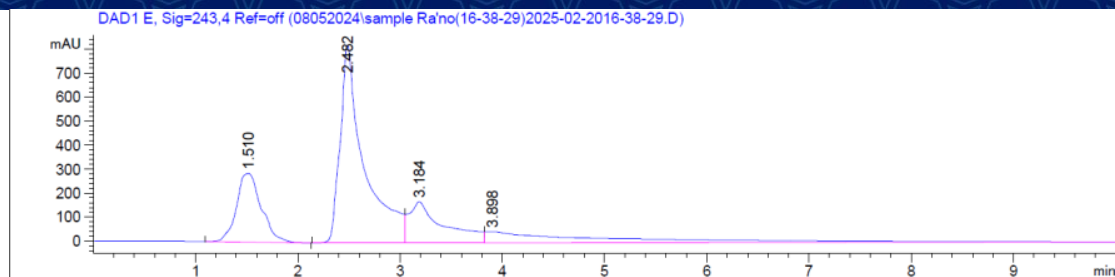


Figure 2. Chromatogram of ascorbic acid content in the above-ground part of *Bidens frondosa* L.

Conclusions: According to the results obtained, the amount of ascorbic acid in the *Bidens frondosa* L. raw material was 14.83 mg/g.