



MINISTRY OF HIGHER EDUCATION,
SCIENCE AND INNOVATION OF
THE REPUBLIC OF UZBEKISTAN



MINISTRY OF HEALTH OF
THE REPUBLIC OF UZBEKISTAN



TASHKENT
PHARMACEUTICAL
INSTITUTE



INNOVATIVE
ACADEMY

THE ABSTRACT BOOK OF THE VI INTERNATIONAL SCIENTIFIC AND PRACTICAL CONFERENCE “MODERN PHARMACEUTICS: ACTUAL PROBLEMS AND PROSPECTS” OCTOBER 17, 2025



TASHKENT - 2025

**ANALYSIS OF FREE AMINO ACIDS OF FRUITS OF LUFFA ECHINATA ROXB.****Ganiev A.K.****Gulomjonova N.A.**

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<https://doi.org/10.5281/zenodo.17333562>

Relevance: The Decree of the President of the Republic of Uzbekistan dated January 29, 2025 No. PF-13 "On additional measures for the accelerated development of the pharmaceutical industry" sets out priority tasks such as the development of the biologically active additives industry in order to rapidly develop the pharmaceutical industry, provide the population with medicines of guaranteed quality, safety and effectiveness, localize production, organize medicinal plant plantations to form raw material bases for industry enterprises, and launch projects for the processing of medicinal plants grown on these plantations by the end of 2026.

Purpose of the study: Nowadays, much attention is paid to amino acids as biologically active substances that can be used in medical practice. The aim of our research was to study the composition and amount of free amino acids in the fruits of the burnaki plant - *Luffa echinata* roxb., which is widely used in folk medicine.

Methods and techniques: the composition and amount of free amino acids in the fruits of the burnaki plant was studied by precipitating proteins and peptides in the aqueous extract of the samples in centrifuge tubes. For this, 20% trichloroacetic acid was added to 1 ml (precise volume) of the sample under study. After 10 minutes, the precipitate was separated by centrifugation at 8000 rpm for 15 minutes. After separating 0.1 ml of the supernatant, it was lyophilized. The hydrolyzate was evaporated, the dry residue was dissolved in a mixture of triethylamine-acetonitrile-water (1:7:1) and dried. This process was repeated twice to neutralize the acids. According to the method of Stephen A., Cohen Daviel, phenylthiocarbonyl derivatives (FTK) of amino acids were obtained by reaction with phenylthioisocyanate. The determination of amino acid derivatives was carried out by high-performance liquid chromatography (HPLC). HPLC conditions: Agilent Technologies 1200 chromatography with DAD detector, column 75x4.6 mm Discovery HS C18. Solution A: 0.14 M CH₃COONa + 0.05% TEA pH 6.4, B: CH₃CN. Flow rate 1.2 ml/min, absorption 269 nm. Gradient %B/min: 1-6%/0-2.5 min; 6-30%/2.51-40 min; 30-60%/40.1-45 min; 60-60%/45.1-50 min; 60-0%/50.1-55 min.

Results: The composition of amino acids was determined by their light absorption time, and the amount (mg/g) was determined by the area of the peaks. According to the results of the study, the composition and amount of free amino acids (mg/g) in the composition of burnaki fruits are in the following decreasing order: Glutamic acid (1.421) > Proline (1.397) > Alanine (1.153) > Threonine (1.048) > Phenylalanine (0.849) > Histidine (0.648) > Aspartic acid (0.54) > Serine (0.427) > Glutamine (0.378) > Tyrosine (0.346) > Glycine (0.314) > Asparagine (0.304) > Leucine (0.26) > Methionine (0.233) > Valine (0.232) > Lysine (0.212) > Isoleucine (0.191) > Tryptophan (0.133) > Arginine (0.126) > Cysteine (0.121).

Conclusions: The results of the study show that burnaki fruits contain 20 types of amino acids, the total amount of which is 10,334 mg/g. 9 of the amino acids are essential amino acids, which account for 36.83% of the total amount of amino acids. These are: Leucine - participates in the regulation of blood sugar levels, tissue repair and protein synthesis. Isoleucine - supports energy metabolism and muscle tissue recovery. Valine - is important for muscle energy and the nervous



system. Lysine - is necessary for growth, calcium absorption and collagen synthesis. Methionine - is involved in fat metabolism and body detoxification. Phenylalanine - is necessary for the synthesis of dopamine, norepinephrine and adrenaline. Threonine - is necessary for liver function, immunity and collagen synthesis. Tryptophan - is necessary for the synthesis of serotonin and melatonin. Histidine is important for tissue growth and histamine production.



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