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Chemical Composition Of Fruits Of Lycium L. Series Species

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ABSTRACT: Lycium L. belongs to the family Solanaceae and is a shrub. L. depressum Stocks., L. ruthenicum Murr., L. dasystemum Pojark. species of the genus occur naturally in Uzbekistan. L.barbarum L. is one of the most promising medicinal plants introduced in our country. Representatives of the category include ascorbic acid, betaine, vitamin A, vitamins B1, B2, nicotinic acid. Also contains zeaxanthin, physalein, steroids: solasodine, β -sitosterol, polysaccharides, p-coumarinic acid, amino acids and proteins. It is widely used in medicine in the prevention and treatment of many diseases. Therefore, the study of the chemical composition of these species is of great practical importance.

KEYWORDS: Lycium L., medicinal, flavonoids, amino acid composition, fruits, L. barbarum L., L. ruthenicum Murr.

INTRODUCTION

The genus Lycium (Lycium L.) is distributed in subtropical zones (mainly South America), and several species grow in dry and saline soils. Representatives of this genus are thorny, hard-branched, shrubby plants. The leaves are 1-8 cm long. The flowers are needle-shaped, funnel-shaped, solitary or inflorescence, total diameter 6-25 mm. The petals are red, purple, white or green. The fruit is 2-celled, multi-seeded, juicy wet fruit, 8-20 mm in diameter, red, yellow or black [1,2]. The chemical composition of the Lycium L. series species has been studied by many foreign scientists and more than 355 compounds have been isolated [3,4] (Fig. 1). Various drugs are prepared from the roots, bark, leaves, fruits and young twigs of the species. Representatives of the genus Lycium family are mainly used in the treatment of liver and kidney diseases, in improving vision, in the prevention of diseases such as diabetes, hypertension. Some species are also widely used as an anti-aging, rejuvenating agent due to their antioxidant properties [5].

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Sekinaeva M.A., Lyashenko S.S., Denisenko O.N., Denisenko Yu.O. The amount of 16 amino acids in L.ruthenicum Murr and L. barbarum L fruits distributed in Russia was determined by [6]. But in our conditions Lycium L is the amino acid composition of many species.

The Main Findings and Results

The derivation (combination) of free amino acids with phenylthiocarbamyl (PTC) was performed on the basis of analysis of high-efficiency liquid chromatography (HELC). The proteins and peptides contained in the aqueous extraction of the samples were precipitated. 1 ml of the supernatant was removed and 1 ml of 20% was added. After 10 min, the rotation was centrifuged for 15 min at 8000 rpm, and 0.1 ml of the residual liquid was dried in a lyophilic dryer. PTC amino acid identification was performed on a 75x4.6 mm Discovery HS C18 column on an Agilent Technologies 1200 chromatograph. The following 0,14M CH3COONa + 0,05% pH 6,4, B:CH3CN compounds were used. Flow rate 1.2 ml per minute, absorption 269 nm. Gradient% B / min: 1-6% /0-2.5 min; 6-30% / 2.51-40 min; 30-60% / 40.1-45 minutes; 60-60% / 45.1-50 min; 60-0% / 50.1-55 min.

10 of the identified amino acids are non-exchangeable amino acids (threonine, argenine, valine, methionine, isoleucine, leucine, histidine, tryptophan phenylalanine, lysine), which are the sum of total amino acids L. barbarum L. in the fruits 28.99% , L. depressum Stocks. in the fruits 18.46%, L. ruthenicum Murr. in the fruits 24.85%, L. dasystemum Pojark. in the fruits 24.17% ,(table 1)

Table 1

Amount of amino acids in the fruits of Lycium L. species

Name of amino acids	*L.barbarum*	*L.depressum*	*L.ruthenicum*	*L.dasystemum*
	Concentration mg / gr			
Asparagine acid	0,055516	0,164084	0,08394	0,153309
Glutamic acid	0,126131	0,22292	0,234891	0,129927
Serin	0,198697	0,927203	0,512031	0,171034
Glycine	0,469157	1,700801	0,877011	0,554251
Asparagin	0,468142	1,688821	0,880275	0,582373
Glutamine	0,318723	0,70895	1,167876	0,295888
Tsistein	0,178673	1,456398	0,218957	0,286730
Treonin	0,490354	0,539862	0,658366	0,394094
Arginine	0,028727	0,133592	0,038577	0,064184

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Alanin	0,140811	0,786723	0,561006	0,208456
Prolin	2,559768	4,488471	1,114038	2,542692
Tyrosine	0,198146	0,193581	0,244793	0,29786
Valin	0,364338	0,379089	0,228980	0,321302
Methionine	0,500503	0,660678	0,390452	0,407538
Isolate	0,068060	0,204050	0,131025	0,060745
Leitsin	0,080096	0,317321	0,116459	0,084785
Gistidin	0,043371	0,151705	0,079924	0,064773
Tryptophan	0,206642	0,187359	0,082271	0,178147
Phenylalanine	0,059805	0,193475	0,224016	0,084561
Lysine	0,003845	0,027707	0	0,005146
Total	**6,559505**	**15,13279**	**7,84489**	**6,887793**

Also among the identified amino acids were proline L. barbarum L.2.559768 mg / g, L. dasystemum Pojark 2.542692 mg / gr, L. depressum Stocks. 4.488471 mg / g was the highest concentration in the species. In the L. ruthenicum Murr species, the amino acid glutamine was found to have the highest concentration.

CONCLUSION

In short, as a result of our research, L. barbarum L., L. ruthenicum Murr., L. dasystemum Pojark., L. depressum Stocks. The amount of 20 amino acids in the fruit was first determined. The total amino acid content of these species was found to be the highest in L. depressum Stocks. fruit at 15.13279 mg / g, while the percentage of non-exchangeable amino acids was found to be highest in L. barbarum L. 28.99% fruit.

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