

CHEMICAL COMPOSITION AND HEALING PROPERTIES (*Zingiber officinale*)

Ismoilov Muminjon Yusupovich

Candidate of Technical Sciences, Associate Professor,
Fergana State University, Republic of Uzbekistan, Fergana

Elchiyev Sardorbek Xabibullo o'g'li

Graduate Student of Fergana State University

Annotation

This research work is devoted to the extraction of biologically active substances from the medicinal plant ginger (*Zingiber officinale*), amino acids in extracts and analysis of the results obtained.

Keywords: medicinal plants, ginger, biologically active substance, extract, amino acids, minerals.

Аннотация

Настоящая исследовательская работа посвящена экстракции биологически активных веществ из лекарственного растения имбиря (*Zingiber officinale*), аминокислот в экстрактах и анализу полученных результатов.

Ключевые слова: лекарственные растения, имбирь, биологически активные вещества, экстракт, аминокислоты, минеральные вещества.

Introduction

(*Zingiber officinale*) is a perennial plant up to 1-2 m in height. On a straight stem are long lanceolate leaves. The rhizome is an underground storage organ in the form of palmately divided pieces, covered on top with a black thin bark, under which there is a fleshy flesh of a light yellowish hue with a slight peculiar peppery smell [1]. Adventitious roots of a fibrous type extend downward from it, and above-ground shoots extend upward. Ginger originated in South Asia, but today it is widely distributed in Asia and Europe, where it is grown outdoors in warm areas and in greenhouses and indoors in colder areas [2].

1- picture *Zingiber officinale*

Chemical composition. The chemical composition of the rhizome determines its medicinal properties. The rhizome contains up to 3% of ginger essential oil, which gives a peculiar aroma, a large set of macro- and microelements. Of the amino acids, the chemical composition includes tryptophan, threonine, methionine, phenylalanine, valine, etc. Ginger has a high content of B, A, and C vitamins. Gingerol gives the pungent taste to ginger [3].

Ginger components zingiberene, camphene, bisabolene, citral and others in combination with amino acids and other substances create a stable therapeutic complex [4]. Ginger rhizome is used all over the world as a prophylactic and for various diseases of an anti-inflammatory and bactericidal nature, choleric, anthelmintic, antispasmodic, for the treatment of diseases of the gastrointestinal tract, liver [5]. In East Asia, traditional healers have recommended ginger preparations to improve memory. It was considered a good natural stimulant for prolonging youth [6].

Identification of FTC-amino acids is carried out on an Agilent Technologies 1200 chromatograph on a 75x4.6 mm Discovery HS C18 column. Solution A: 0.14 M CH₃COONa + 0.05% TEA pH 6.4, B: CH₃CN. Flow rate 1.2 ml/min, absorbance 269nm. Gradient %B/min: 1-6%/0-2.5min; 6-30%/2.51-40min; 30-60%/40.1-45min; 60-60%/45.1-50min; 60-0%/50.1-55min.

Table 1. The content of amino acids in the composition (*Zingiber officinale*)

Nº	Amino acids	Quantity, mg/g
1	Aspartic acid	0.894438
2	Glutamine acid	0.602388

Nº	Amino acids	Quantity, mg/g
11	Proline	0
12	Tyrosine	0.5194465

3	Serene	0.678687
4	Glycine	0.658116
5	Asparagine	0.663402
6	Glutamine	0.847714
7	Cysteine	0.594109
8	Threonine	0.539624
9	argenin	0.56209
10	Alanine	0.80958

13	Valine	0.514286
14	Methionine	0.216077
15	Isoleucine	0.889492
16	Leucine	0.926678
17	Histidine	0
18	tryptophan	0.539297
19	Phenylalanine	0.162733
20	Lysine	0.613374

Σ 11.23155 mg/g

According to the results, out of 20 studied amino acids in the composition (Zingiber officinaie) contains, 18 amino acids, all essential, were quite high, and the total amount of amino acids found was 11.2 mg/g. Of the 20 amino acids studied, proline and histidine were not found in ginger. The results obtained are presented in table 1.

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