

# Trichoderma Harzianum-25/P Fungi Strain Producer Of Non-Substitute Amino Acids

B.K.Mukhammadiev<sup>1</sup> and N.A.Khasilava<sup>2</sup>

<sup>1</sup>TSAU, Ph.D., Associate Professor

<sup>2</sup>TSAU 1st year student

e-mail: mukhammadiev68@mail.ru

**Abstract:** *Aminokislотно composition of protein of a mushroom of Trichoderma harzianum-25/P in cultural liquid is studied. The maximum quantity незаменимых acids is noted for the 7th days of cultivation of Trichoderma harzianum-25/P on the Mandels environment. Prevailing aminoacids were Arginin of-0,37%, the Lysin - 0,32%, the Leucine – 0,23%, glutaminovaya acid – 0,74%*

**Key words:** mycelium, inoculum, centrifuge, amino acid, quality, modern, urbanization, quantities, sugar, fats, meat, milk.

## INTRODUCTION

In connection with the rapid growth in the development of heavy, light industry and various industries, agriculture, as well as the population in the World, acute problems arise in the depletion of food natural resources (forests, vegetation, crop yields, erosion and contamination of the Earth's cover, soil, etc.).

All these factors undoubtedly affect the quality and quantity of food (sugar, fats, meat and milk, eggs, etc.). Consequently, the rapid pace of urbanization and the emerging environmental problems of our time require an immediate solution to find alternative sources of energy, food products, etc.

In this regard, vegetable raw materials along with coal, oil and gas are an advanced type of organic raw material and are a lot of tonnage, easily-containing, easily accessible, cheap and non-recyclable.

## RESEARCH METHODS

The work used modern mycological, microbiological, biotechnological, spectrophotometric, physicochemical, biochemical, agrochemical, zootechnical methods.

## RESEARCH RESULTS

In order to obtain protein, the mycelium of Trichoderma harzianum-25 / P was grown on Mandels nutrient medium for 5 days at 30 ° C under submerged cultivation on a shaker at 220 rpm, the amount of inoculum introduced was 2% of the nutrient medium volume. Five-day-old mycelium was separated from the nutrient medium by centrifugation. The culture liquid was evaporated in a water bath. Further, the amino acid composition was determined in the evaporated precipitate.

On the 7th day of cultivation on Mandels medium, when wheat bran was used as a carbon source, the ratio of essential amino acids was 1.28% versus 1.18% control, 2.58% non-essential versus 1.34% control. The prevailing essential amino acids were Lysine-0.45%, Tyrosine-0.34%, Arginine-0.23% of the total amino acids. And the

nonessential amino acids were Glutamic acid - 0.65%), Aspartic acid - 0.45%, Alanine - 0.23% of the total amino acids.

When using camel thorn as a carbon source, essential amino acids were 1.55% versus 1.08% control, nonessential amino acids were 1.82% versus 1.43% control.

The predominant essential amino acids were Lysine-0.32%, Arginine-0.37% of the total amino acids, and of the nonessential amino acids were Glutamic acid-0.74%, Glycine-0.19% of the total amino acids.

When using wheat straw as a carbon source, essential amino acids accounted for 0.80% versus 0.71% control, and nonessential amino acids accounted for 2.03% versus 1.21% of the total amino acid control.

On the 15th day of cultivation of Trichoderma harzianum-25 / P when using a carbon source of wheat bran, the content of essential amino acids of 1.55%, and of nonessential amino acids 1.71% of the total amino acids, was noted. The prevailing essential amino acids were Arginine-0.30%, Lysine-0.22%, Leucine-0.30%, Threonine-0.16%, and non-essential Asparagine-0.20%, Glutamic acid-0.56%, Alanine -0.22% of the total amino acids.

When using the camel thorn as a carbon source, essential amino acids accounted for 1.05%, nonessential - 2.07% of the total amino acids. The predominant essential amino acids were Lysine-0.36%, Phenylalanine-0.22%, Threonine-0.16%, and the non-essential amino acids were Glutamic acid-0.62%, Aspartic acid-0.36% of the total amino acids.

When using wheat straw as a carbon source, essential amino acids accounted for 1.26%, and nonessential ones - 1.48% of the total amino acids. The predominant essential amino acids were Arginine-0.23%, Lysine-0.15%, Valine-0.16%, and nonessential Asparagine-0.24%, Glutamic acid-0.50%, Glycine-0.16% of the total the amount of amino acids.

### CONCLUSIONS

Thus, the maximum amount of essential amino acids was noted on the 7th day of cultivation of *Trichoderma harzianum*-25 / P on Mandels medium using 2% camel thorn as a carbon source (Table No. 1). The predominant amino acids were Arginine-0.37%, Lysine-0.32%, Leucine-0.23%, Glutamic acid-0.74% of the total amino acids.

### REFERENCES:

1. Russel S. Microorganisms and soil life –M., Kolos, 1977, -224 p.(Rus.)
2. Anisimova NI, Zalashko MV, Avseev A., Danilova MA Fermentation of whey with yeast *Saccharomyces* // *Sovrem. technol. cheese making and no waste. break. milk. Mater. Vses. scientific. conf. Yerevan, 1989 .-- 217-218. (Rus.)*
3. Rolz C. Caractericas guimasy biogimicas de le biomassa microbiana. //Arch. Latinoamer. nutr. 1990-40 N 2, p. 147-193.
4. Zakordonets L.A., Suprun S.M., Pustovalova. The use of fusariums for enriching forage // "Biotechnology". 1989. Vol.5. No. 1, p. 93-96. (Rus.)

**Table 1**  
**Amino acid composition of *Trichoderma harzianum*-25/P proteins in culture liquid (%)**

Amino acids	wheat bran	wheat straw	camelthorn plant	wheat bran	wheat straw	camelthorn plant	wheat bran	wheat straw	camelthorn plant
	7 суток			15 суток			контроль		
Asparagine Asp	0,45	0,23	0,13	0,36	0,20	0,24	0,18	0,25	0,25
Threonine* Thr	0,18	0,09	0,06	0,16	0,12	0,12	0,10	0,11	0,12
Serine Ser	0,16	0,31	0,08	0,15	0,17	0,14	0,10	0,15	0,16
Proline Pro	0,07	0,06	0,15	0,03	0,20	0,14	0,15	0,19	0,19
Glutamine Glu	0,65	0,43	0,74	0,62	0,56	0,50	0,32	0,53	0,54
Glycine Gly	0,17	0,49	0,19	0,14	0,19	0,16	0,11	0,16	0,15
Alanine Ala	0,23	0,46	0,18	0,14	0,22	0,18	0,12	0,16	0,15
Cystine Cys	-	-	-	-	-	-	-	-	-
Valine* Val	0,17	0,08	0,18	0,13	0,19	0,16	0,11	0,10	0,09
Methionine* Met	0,08	0,01	0,04	0,04	0,06	0,06	0,03	0,03	0,03
Isoleucine* Ile	0,14	0,08	0,14	0,12	0,12	0,10	0,06	0,06	0,06
Leucine* Leu	0,18	0,10	0,23	0,14	0,30	0,21	0,18	0,20	0,19
Tyrosine Tyr	0,34	0,10	0,16	0,15	0,13	0,11	0,06	0,10	0,09
Phenylalanine* Phe	0,24	0,09	0,026	0,22	0,16	0,13	0,09	0,10	0,10
Histidine * His	0,09	0,05	0,08	0,07	0,12	0,09	0,06	0,09	0,09
Lysine* Lys	0,45	0,09	0,32	0,36	0,22	0,15	0,13	0,13	0,10
Arginine * Arg	0,23	0,16	0,37	0,09	0,30	0,23	0,12	0,16	0,20
Sum amino acids, including	$\Sigma 3,86$	$\Sigma 2,83$	$\Sigma 3,37$	$\Sigma 3,02$	$\Sigma 3,26$	$\Sigma 2,72$	$\Sigma 1,92$	$\Sigma 2,5$	$\Sigma 2,51$
replaceable	<b>2,58</b>	<b>2,03</b>	<b>1,82</b>	<b>2,07</b>	<b>1,71</b>	<b>1,48</b>	<b>1,21</b>	<b>1,34</b>	<b>1,43</b>
irreplaceable	<b>1,28</b>	<b>0,80</b>	<b>1,55</b>	<b>1,05</b>	<b>1,55</b>	<b>1,26</b>	<b>0,71</b>	<b>1,18</b>	<b>1,08</b>