

# PROTEIN BIOSYNTHESIS IN THE RUMEN MUCOSA

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## Introduction

Rumen mucosa plays an important role in the interrelations between the ruminant and the microorganisms-symbionts. It absorbs, releases and transforms various substances, having also other functions (Kalachnyuk, 1976). There is no direct evidence, however, concerning the protein biosynthesis there. That is why we have carried out special investigations in this direction. A fragment of these is presented in the present paper.

## Materials and Methods

The tissues of rumen mucosa, liver and dorsal longissimus muscle were taken from calves aged more than 3 months. Transfer ribonucleic acid (tRNA) and aminoacyl-tRNA-synthases (ARS) preparations were isolated from the tissues. Optimum conditions for the aminoacylation reaction having been established, the intensity of  $^{14}\text{C}$ - and  $^{35}\text{S}$ -amino acids acceptance by tRNA was studied.

## Results and Discussion

The obtained results are presented on the table 1.

The data of the table 1 demonstrate that in the rumen mucosa RNA aminoacylation processes occur on a high level, as compared with those in the liver and muscle. Acceptance of certain amino acids (tyrosine, phenylalanine, lysine and glutamate) in the rumen mucosa is significantly higher than that in the liver, whereas binding abilities of other amino acids (except glycine) are almost on the same level.

More detailed knowledge of this problem can be helpful in clarifying the mechanisms of absorption of nutrients from the ration, as well as the regulation of microorganisms-symbionts develop-

TABLE 1. THE INTENSITY OF  $^{14}\text{C}$ ,  $^{35}\text{S}$ -AMINO ACIDS ACCEPTANCE BY THE TRANSFER RNA OF TISSUES (SPECIFIC ACTIVITY EXPRESSED IN NMOLES OF AMINO ACIDS PER mg tRNA $\cdot 10^3$ )

$^{14}\text{C}$ , $^{35}\text{S}$ -amino acids	Tissues		
	Rumen mucosa	Liver	Dorsal longissimus muscle
Lysine	230 $\pm$ 12.6	172 $\pm$ 2.5	136 $\pm$ 5.6
Methionine	91 $\pm$ 1.4	111 $\pm$ 1.8	non studied
Leucine	60 $\pm$ 11.1	52 $\pm$ 14.5	"
Tyrosine	210 $\pm$ 15.4	55 $\pm$ 10.9	"
Glutamate	153 $\pm$ 6.7	109 $\pm$ 3.3	"
Phenylalanine	194 $\pm$ 4.4	55 $\pm$ 3.8	"
Serine	109 $\pm$ 15.4	91 $\pm$ 8.6	"
Valine	55 $\pm$ 2.6	30 $\pm$ 0.9	"
Alanine	151 $\pm$ 6.5	119 $\pm$ 9.4	"
Glycine	58 $\pm$ 3.5	118 $\pm$ 4.5	"

ment, which involves rumen mucosa, in various conditions of ruminant nutrition in particular (Kalachnyuk et al., 1987).

(Key Words: Calves, Rumen Mucosa, Aminoacylation, tRNA, Amino Acids)

## Literature Cited

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