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AMINO ACID COMPOSITION OF COTTONSEED FLOUR

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In VNIKhTI (Tashkent) a technology has been developed for obtaining cottonseed flour from cottonseed meal, and a pilot plant has been set up for its production. At the present time, investigations are proceeding on the use of cottonseed flour as a source of nitrogen in place of soybean flour, which is the main component of the nutrient media for the biosynthesis of antibiotics.

Cotton seed flour is a water-insoluble yellow-brown powder. Its crude protein content is 46.0-48.0% by weight (including 70.4% of soluble components on the weight of the crude protein), the moisture and volatile matter make up 7.0%, carbohydrates 11.7%, fats 1.7%, cellulose 10.2%, ash 7.4%, and phosphorus 0.8%. The amount of total nitrogen was determined by the Kjeldahl method; it came to 7.3-7.6%. The factor for recalculating nitrogen to crude protein is 6.25.

We have studied the amino acid composition of cottonseed flour, which is of definite interest in the field of microbiology. In VNIIA [All-Union Scientific-Research Institute of Antibiotics], Moscow, when it was used as the source of plant nitrogen in the nutrient medium for the synthesis of antibiotics (penicillin and erythromycin), the yields of the latter were higher than when soybean flour was used.

Preparatory work to determine the amino acid composition was performed in accordance with a description given in the literature [3], using an AAA-881 amino acid analyzer. The

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TABLE 1. Amounts of Amino Acids (calculated to 100% crude protein) in Cottonseed Flour and the Wastes from it

Amino acids	Amount, %	
	Cottonseed flour	Production waste
Aspartic acid	16,0	12,5
Threonine	4,2	3,9
Serine	5,9	5,5
Glutamic acid	4,2	3,3
Proline	7,1	6,1
Glycine	5,5	4,7
Alanine	4,9	4,5
Valine	7,9	6,8
Methionine + isoleucine	4,9	4,2
Leucine	8,5	7,2
Tyrosine	8,3	7,3
Phenylalanine	11,5	9,4
Histidine	1,4	6,7
Lysine	4,5	5,9
Arginine	4,7	9,5

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yield of protein was 41.3% from the cottonseed flour, while from the production wastes it was 27.6% on the weight of the substances tested.

The amino acid composition of the wastes from the production of cottonseed flour was close to that of the cottonseed flour itself (Table 1), which permits their recommendation, after appropriate trials, as additives to cattle feed.

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