

PROTEIN HYDROLYSATE (PEPTONE) FROM COTTONSEED MEAL



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Introduction

Cotton (*Gossypium* sp.) is mainly grown for lint and the seed obtained after ginning is considered as a by-product. Traditionally, cottonseeds are fed as such to cattle in India. Realising the importance of oil and protein in the meal, emphasis has been laid on crushing cottonseeds scientifically during which linters, hulls, oil and meal are obtained as by-products.

As much as 37 million metric tonnes of cottonseeds are available in India and by resorting to scientific extraction of cottonseed oil, about 12 million metric tonnes of high quality cottonseed meal can be obtained.

What are Peptones?

Peptones are partially hydrolysed proteins obtained by treating the meal by using acids or enzymes. They are used as nitrogen source in microbiological media to produce enzymes, antibiotics, vitamins etc. They are completely soluble in water and do not precipitate at high temperature unlike the meal.

Scenario

In India, as much as 125 metric tonnes of peptones are being consumed as against the production of 100 metric tonnes. They are usually prepared from meat, groundnut and soya proteins.



Actinomycetes Colonies

About 25 metric tonnes of speciality grade peptone is being imported to meet the deficit.

Process

CIRCOT has developed and patented an enzymatic method to prepare peptones from cottonseed meal. Pancreatin and papain are the two enzymes employed in the process. The hydrolysed material was extracted in water and spray dried.

Properties of Cottonseed Meal Peptone*

Yield of Hydrolysate (%)	pH	Total Nitrogen (%)	Amino Nitrogen (%)	Degree of hydrolysis (%)	Ash (%)	Carbohydrate (%)
68	5.1	9.7	2.8	28.6	11.3	4.0

* Comparable with imported product

Application

- For growing microorganisms
- For producing enzymes
- For manufacturing antibiotics
- For preparation of bio-pesticides
- In bakery products

Economics

	Rs./Kg
Raw Material (Cottonseed)	8
Cottonseed meal	20
Processing cost (Peptone preparation)	125 - 1000 (Depending on quality)
Cost of Peptone	300-1500 (Depending on quality)
Net Profit	175-500



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