

Researchers experiment on high-level protein foods

Working with grains and beans which normally have a low-protein concentration, scientists at the UN-L Food and Nutrition Lab are producing high-protein products.

Under the direction of Dr. Satterlee, lab personnel are working on such projects as making high-protein cookies out of beans or on making food products out of the waste produced by distilling alcohol.

Satterlee noted that the reasons for the experimentation is not to produce cheaper food but to use what products are available to maximum efficiency.

"If you take a look ahead into 1985," he said, "There will be a real protein crunch. Americans never feel the shortages of the rest of the world, but we must either give the other peoples food or they'll starve to death."

"And they are starving to death," he said. "There are seven kids a minute dying from starvation. South America is probably going to be one of the worst countries hit, because of the rate their population is increasing."

"What we're trying to do here is to do work on the problem before it becomes a crisis."

Graduate assistants and lab technicians are working on extracting high quality protein from grains such as alfalfa, bran, wheat or beans. The point of the research, said John Woerman, graduate assistant in Food Science and Technology, is to take a product fairly low in protein, and produce from this a substance high in protein.

One student, he said, has succeeded in producing a bean product that is 80 per cent protein. The original beans in his experiment contained only 21 per cent protein.

Another student has produced from alfalfa, which has a nine per cent protein content, a concentrate that has 75 per cent, he said.

The basic process involved, he explained, is that each of the amino acids in the product is extracted and then put together in a new food form.

But even after the protein concentrate has been made, he said, the by-products from the production are used. The by-products, Woerman said, are high in carbohydrates and have a fairly high digestibility. They can be used in animal feed.

Satterlee noted that at present a great deal of food is wasted through processing. But, he said, 100 per cent of the material produced from these experiments can be used. "Every one of our products is a utilization product," he said.

to produce alcohol, he said, "takes a lot of potential food products from persons needing food." However, he noted, distillers use only the sugar and starch from the grain, they dispose of all the protein.

In the lab the scientists are

important factor to consider in making new food products because most people do not buy food because it's good for them. Most buy food because it tastes good or because it's cheap.

At present the food products



John Woertman and Deanna Rhinehart check the rats being used to test the quality of protein foods.

One of the main thrusts of the research, he said, is on cereals because they're so low in protein. They are trying, he said, to "move snack foods (such as cheese curls) from nine per cent to 26 per cent protein so that a teenager living on coke and snacks will get some protein."

One of the areas the scientists are doing research on, he said, is on producing usable food products from the grain used in making alcohol.

Using large amounts of grain

studying the distilling process to discover how best to isolate the protein. Satterlee said they hope to pull out the protein and test its value as a human feed.

One of the problems in this, he said, is in discovering where a toxic substance found in damaged grains, mycotoxin, goes during the distilling process. If this toxin is carried to the protein it could be unfit for human consumption.

"We have to prove to the FDA (Food and Drug Administration) that in no ways are people going to be harmed by eating food from the by-products of making alcohol," he said.

In the grain experiments loaves of wheat bread have been made that had 17.4 per cent protein, Woerman said. This is compared to about nine per cent found in the usual loaf of wheat bread, he said.

For the added protein, Satterlee said, a loaf of bread would probably go up five cents. However, he said, about 95 per cent of the population is unaware of nutritional requirements or content. Therefore, he said, the price is an

are still in the experimental stage and have not been tested on humans, although the lab personnel have tried their samples, Woertman said.

The experiments are in various stages, he said. Protein is being extracted from some grains, the amount and type of amino acids is being analyzed to determine if it is feasible to make human food out of the product. The most advanced stage of testing at this time, he said, is where the technicians are feeding the food products to rats in order to discover factors such as the quality of the protein.

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