

EXAMPLE 2

The procedure of Example 1 was followed to provide 13.5 kg of concentrated soybean proteins. Two 1 kg portions of the concentrates were separately dispersed in 10 liters of water. One dispersion was adjusted with aqueous ammonia to pH 8.0 (Sample E) and the other with a sodium hydroxide aqueous solution to pH 8.0 (Sample F). To each of the dispersions was added 3 grams of papain (Japanese Pharmacopoeia), and the mixtures were subjected to enzymatic decomposition at 55° C. for 3 hours. Both of the dispersions were adjusted with aqueous ammonia and a sodium hydroxide aqueous solution over this period of time to maintain their pH values at 8.0. After completion of the reaction, hydrochloric acid was added to adjust the pH to 7.0, and a heating treatment was conducted in a water bath at 90° C. for 20 minutes. The dispersions were spray-dried to produce soybean proteins. The products from these dispersions were labeled Sample E and Sample F, respectively. Table 2 shows their compositions.

TABLE 2

	Sample E	Sample F
Moisture	5%	5%
Protein (detected as anhydride)	82.3%	78.0%
Ash	6.0%	9.8%

It was found that Sample E, with an ammonia-adjusted pH value, had a smaller ash content and a higher protein purity than the Sample F adjusted with sodium hydroxide. In both cases, the flavor of the proteins was favorable.

EXAMPLE 3

Five kilograms of defatted soybean was washed with a 75 w/w% aqueous ethanol solution in a ratio of solvents of 10 w/w% at 55° C. and then filtered. This procedure was performed twice to produce, after drying at room temperature, 3.4 kg of soybean protein concentrates. It had a moisture content of 8.0%, a crude protein (D/B) content of 69.8% and an NSI of 14.

Three 1 kg portions of the soybean protein concentrates were separately dispersed in 10 liters of water and adjusted with aqueous ammonia to pH 7.5. The dispersions were then heated to 45° C. and maintained at this temperature. To each of them was added 3 grams of papain (Japanese Pharmacopoeia) to subject the dispersion to enzymatic decomposition for 30 minutes (Sample G), for 2 hours (Sample H), and for 5 hours (Sample I). After being heated at 95° C. for 20 minutes, each of the dispersions was centrifuged to separate out the soybean proteins which were then spray-dried to three kinds of purified soybean proteins. They were measured for flavor, moisture content, crude protein (D/B) and the like. The results are shown in Table 3.

TABLE 3

	Yield (g)	Flavor	Moisture	Crude Protein (D/B)	TCA soluble rate of Decomposed Dispersion
Sample G	300	Good	6.5%	75.2%	10%
Sample H	500	Good	6.5%	82.0%	25%
Sample I	600	Bitter taste	6.5%	84.5%	41%

It may be seen from Table 3 that, when the TCA soluble rate was 10%, the product yield was somewhat low, while when the TCA soluble rate was 41%, a bitter taste was produced.

What we claim is:

1. A process for manufacturing soybean proteins comprising the steps of:
 - a. providing an aqueous dispersion of alcohol-denatured soybean protein concentrates obtained by washing defatted soybean with an alcoholic aqueous solution and adjusting the pH with ammonia to within a neutral to slightly alkaline range;
 - b. solubilizing the soybean proteins by the reaction of a neutral protease on said soybean proteins in said dispersion, said solubilizing proceeding to a level short of the onset of a bitter taste in said dispersion; removing insolubles from said dispersion to produce an aqueous solution containing said solubilized proteins; and
 - c. recovering said solubilized proteins by spray drying said aqueous solution.
2. A process according to claim 1, wherein the alcoholic aqueous solution contains alcohol in an amount between approximately 50 and approximately 80 percent by weight.
3. A process according to claim 1, wherein the amount of the alcoholic aqueous solution is from 5 to 20 times the weight of the defatted soybean.
4. A process according to claim 1, wherein the washing with the alcoholic aqueous solution is conducted at a temperature below the boiling point thereof.
5. A process according to claim 1, wherein the reaction of the neutral protease on said proteins is terminated before a bitter taste is produced in the dispersion.
6. A process according to claim 1, wherein the action of the neutral protease is continued until the soluble rate of soybean proteins as measured with trichloroacetic acid falls within the range of approximately 20 to approximately 30 percent.
7. A process according to claim 6, wherein the neutral protease is papain.
8. A process according to claim 5 or 6, comprising terminating the action of the neutral protease by heating.
9. A process for manufacturing soybean proteins comprising the steps of:
 - a. providing an aqueous dispersion of alcohol-denatured soybean protein concentrates obtained by washing defatted soybean with an alcoholic aqueous solution and adjusting the pH with ammonia to within a neutral to slightly alkaline range;
 - b. solubilizing the soybean proteins by the reaction of a neutral protease on said soybean proteins in said dispersion, wherein the reaction with the neutral protease is continued until the soluble rate of soybean proteins as measured with trichloroacetic acid falls within the range of approximately 20 to approximately 30 percent, and wherein the reaction of the neutral protease is terminated by heating;
 - c. removing insolubles from said dispersion to produce an aqueous solution containing said solubilized proteins; and,
 - d. recovering said solubilized proteins by spray drying said aqueous solution.
10. A process according to claim 9, wherein the alcoholic aqueous solution contains alcohol in an amount between approximately 50 and approximately 80 percent by weight.
11. A process according to claim 9, wherein the amount of the alcoholic aqueous solution is from 5 to 20 times the weight of the defatted soybean.
12. A process according to claim 9, wherein the washing with the alcoholic aqueous solution is conducted at a temperature below the boiling point thereof.

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