GB

NATIONAL STANDARD OF THE

PEOPLE'S REPUBLIC OF CHINA

GB 20371-2016

National Food Safety Standard
– Plant Protein for Food Processing

Issued on: December 23, 2016 **Implemented on: June 23, 2017**

Issued by: National Health and Family Planning Commission of PRC;
China Food and Drug Administration

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Foreword

This Standard replaced GB/T 20371-2006 *Soy Protein for Food Industry*.

Compared with GB/T 20371-2006, this Standard has the major changes as follows:

--- Modify the standard name as “National Food Safety Standard – Plant Protein for Food Processing”;

--- Modify the scope;

--- Add Terms and definitions;

--- Modify the physical and chemical indicators;

--- Modify the hygienic requirements;

--- Add the mycotoxin limits;

--- Modify the appendix.

National Food Safety Standard – Plant Protein for Food Processing

1 Scope

This Standard is applicable to the plant protein products for food processing.

This Standard isn't applicable to the cottonseed protein and rapeseed protein.

2 Terms and Definitions

2.1 Plant protein

The products taking plant as raw materials, removing or partially removing the non-protein components (such as water, fat, carbohydrates, etc.) from the raw materials of plant, and the protein content is no less than 40%. The main products include beans (such as soybean, pea, broad bean) protein; grains (such as wheat, corn, rice, oat) protein; nuts and seeds (such as peanut) protein; tuberous crops (such as potato) protein; and other plant proteins.

2.2 Crude protein

The products made, by the primary extraction, through partially removing the non-protein components (such as water, fat, carbohydrates, etc.) from the raw materials of plant.

2.3 Concentrated protein

The products made, by extraction, concentration, separation and the like technologies, through removing or partial removing the non-protein components (such as water, fat, carbohydrates, etc.) from the raw materials of plant. It includes the potato coagulation protein made through extraction, heating coagulation and other technologies.

2.4 Separated protein

The products made, by extraction, concentration, separation, refining and the like technologies, through removing or partial removing the non-protein components (such as water, fat, carbohydrates, etc.) from the raw materials of plant.

2.5 Plant hydrolyzed protein

solutions in equal volume, then store in the brown bottle.

A.3 Specimen preparation

Grind the representative sample by the grinder (A.1.1), so that it can totally pass through the sample sieve (A.1.2). The special sample (the sample that can't be ground due to the high content of moisture and volatile) can be pre-dried under the laboratory temperature; then grind it; when calculating the results, the dry weight loss shall be calculated.

A.4 Test procedures

Take about 0.2g of prepared specimen (A.3) (accurate to 0.1mg) into the glass test tube (if the activity is very high, then take 0.05g of specimen); add 10mL of urea buffer solution (A.2.1); immediately cover the test tube, after shaking it vigorously; place the test tube into 30°C±0.5°C constant-temperature water bath (A.1.4); maintain for 30min±10s. The time interval required to each sample to be added to the urea buffer solution remains the same. When reaction stops, add 10mL of hydrochloric acid solution (A.2.2) at the same time interval; after shaking, swiftly cooling off to 20°C. Transfer all the matters in the test tube into the small beaker; use 20mL of water to wash the test tube for several times; use the acidity meter (A.1.6) to titrate pH to be 4.70 with sodium hydroxide standard solution (A.2.3). If the indicator is selected, transfer all the matters in the test tube into the 250mL conical flask; add 8-10 drops of mixed indicator (A.2.4), titrate the solution with sodium hydroxide standard solution (A.2.3) till the solution turns to blue-green.

Take another test tube to do the blank test; take about 0.2g of prepared specimen (A.3) (accurate to 0.1mg) into the glass test tube (if the activity is very high, then take 0.05g of specimen); add 10mL of hydrochloric acid solution (A.2.2); after shaking, add 10mL of urea buffer solution (A.2.1); immediately cover the test tube, after shaking it vigorously; place the test tube into 30°C±0.5°C constant-temperature water bath (A.1.4); maintain for 30min±10s. When reaction stops, swiftly cooling off the test tube to 20°C. Transfer all the matters in the test tube into the small beaker; use 20mL of water to wash the test tube for several times; use the acidity meter (A.1.6) to titrate pH to be 4.70 with sodium hydroxide standard solution (A.2.3). If the indicator is selected, transfer all the matters in the test tube into the 250mL conical flask; add 8-10 drops of mixed indicator (A.2.4), titrate the solution with sodium hydroxide standard solution (A.2.3) till the solution turns to blue-green.

A.5 Results calculation

A.5.1 Urea enzymes activity of X in the soybean protein can be calculated as per Formula (A.1). If the specimen is pre-dried before grinding, it shall be calculated as per Formula (A.2).

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