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**NATIONAL STANDARD OF THE
PEOPLE'S REPUBLIC OF CHINA**

GB 28304-2012

Curdlan food additives.

食品添加剂 可得然胶

(English Translation)

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1 Scope

This standard applies to *Agrobacterium albicans* (A. faecalisvar.) Or radioactive *Agrobacterium* (A.radiobacter) for the production of bacteria to sucrose or glucose as the main raw material, the specific biological fermentation and purification, dry Dry, crushed food additives can be made from the glue.

2.1 Chemical name

beta-1,3-glucan

2.2 Molecular formula

(C₆H₁₀O₅)_n

3 Technical requirements

3.1

sensory requirements. should be consistent with the provisions of Table 1.

Table 1 sensory requirements

The project requires a test method Color white or near white Odorless or almost tasteless
State powder Take appropriate sample in a clean, dry glass in the natural light, observe the color and State, smell the smell

3.2

Physical and chemical indicators. should be consistent with the provisions of Table 2.

Table 2 Physical and chemical indicators

Item Index Test Method Gel strength/(g/cm²) ≥ 450 A.3 in Appendix A the amount of available (in anhydrous glucose), w /% ≥ 80 A.4 in Appendix A.

pH (1% aqueous solution) 6.0 to 7.5 GB/T 9724 Dry reduction, w /% ≤ 10 GB 5009.3 direct drying method a Ash, w /% ≤ 6.0 GB 5009.4 Total nitrogen, w /% ≤ 1.5 GB/T 609 Lead (Pb)/(mg/kg) ≤ 0.5 GB 5009.12 a Drying temperature and time are 105 °C and 2.5h respectively.

3.3

Microbiological indicators. should be consistent with the provisions of Table 3.

Table 3 Microbiological indicators

Item Index Test Method Total number of colonies/(CFU/g) ≤ 10000 GB 4789.2 Escherichia coli/(MPN/g) Appendix A Testing method A.1 General provisions the reagents and water used in this standard, when not specified in other requirements, refer to the analysis of pure reagents and GB/T 6682-2008 in the provisions of the three Water level. Standard titration solution used in the test, the standard solution for the determination of impurities, preparations and products, without any other requirements, GB/T 601, GB/T 602, GB/T 603. The solution used in the test refers to water when it is not specified with the formulation of the solvent Solution.

A.2 Identification test A.2.1 Solubility test the sample is insoluble in water and ethanol.

A.2.2 Alkaline solubility test Weigh 0.2g sample, add to 5mL water, stirring to form a suspension, add 1mL concentration of 3mol/L sodium hydroxide solution Liquid, non-stop oscillation, sample dissolved.

A.2.3 Gel test

Weigh 0.2g sample, placed in 10mL water containing 18mm x 180mm test tube, stirring to form a suspension in the boiling water bath Heat 10min, cooled to room temperature, gel formation.

A.2.4 Sedimentation test with copper tartrate A 2% (mass fraction) sample suspension was prepared, 10 mL was added, 5 mL of concentrated sulfuric acid was added, heated in a boiling water bath for 30 min, cooled to Room temperature, with BaCO₃ neutralization, the mixture centrifuged 10min, take 1mL supernatant, add to 5mL hot forest solution, generate red precipitation.

A.3 Determination of gel strength A.3.1 Instruments and equipment Gel instrument or texture analyzer.

A.3.2 Determination conditions A.3.2.1 Setting Mode. No. 4.

A.3.2.2 Probe shape and size. 0.5cm diameter stainless steel piston cylinder.

A.3.2.3 Probe movement speed. 250mm/min.

A.3.3 Analysis steps 0.3 g of the sample was taken in 15 mL of water and stirred at 3500 rpm for 5 min using a columnar emulsifier and then suspended the solution was transferred

to a test tube of 18 mm x 180 mm, baked in a vacuum for 3 min, and then the tube was quickly placed in a boiling water bath 10 min, cooled in cold water for 30 min. Remove the gel from the tube and remove a 10 mm of coagulation from the bottom 20 mm and 30 mm the gel was measured with a gel or a texture analyzer and the gel strength was calculated from the recorded load-time (ft) curve.

A.3.4 Calculation of results the gel strength is in w_1 and the value is expressed in grams per square centimeter (g/cm^2), calculated according to formula (A.1) $w_1 = f_0.196$ (A.1) where.

f - load - time (ft) curve in the curve of the gel rupture curve sharp decline in the inflection point in grams (g);

0.196 --- cylindrical probe cross-sectional area of the value, the unit is square centimeters (cm^2).

A.4 Determination of available gum content (based on anhydrous glucose) A.4.1 Reagents and materials A.4.1.1 Glucose.

A.4.1.2 Sulfuric acid.

A.4.1.3 Sodium hydroxide solution. $c(\text{NaOH}) = 0.1 \text{ mol/L}$.

A.4.1.4 Phenol solution. 5% mass fraction.

A.4.2 Instruments and equipment Spectrophotometer.

A.4.3 Analysis steps A.4.3.1 Preparation of sample solution Accurately weighed 100mg sample, placed in a 100mL volumetric flask, add about 90mL sodium hydroxide solution, the sample dissolved, with Sodium hydroxide solution volume to the scale and shake. From which to absorb 5mL solution to 100mL volumetric flask, add water to the volume after the shake.

And then learn from the 1mL solution to a small volume of bottles or test tubes, and add 1mL phenol solution and 5mL sulfuric acid, shake vigorously, into the cold Cooling in water.

A.4.3.2 Preparation of blank solution Replace the sample with 0.1 mL of water and prepare a blank solution according to the procedure for A.4.3.1.

A.4.3.3 Preparation of standard solutions Accurately weigh 100 mg of glucose, instead of the sample, prepare the standard solution according to the procedure of A.4.3.1.

A.4.3.4 Determination in a suitable spectrophotometer, with 1cm of the cuvette to blank solution as a reference, at 490nm wavelength, respectively, the sample Solution and standard solution absorbance.

A.4.4 Calculation of results the available gel content is expressed as a mass fraction of w_2 of anhydrous glucose, expressed in%, calculated according to formula (A.2) $w_2 = ATAS \times 0.9 \times mS \text{ mT} \times 100\%$ (A.2) where.

AT --- absorbance value of sample solution;

AS --- the absorbance value of the standard solution;

0.9 --- ratio of anhydrous glucose to molecular weight of glucose;

mS --- standard solution preparation process of glucose sample size of the value in milligrams (mg);

mT - the value of the sample quality in milligrams (mg).