



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

GB 4789.46-2024

**National Food Safety Standards - Food Microbiology Testing - Sampling
and Sample Processing of Fresh Fruits and Vegetables and Their
Products, Edible Fungi Products, Nuts and Seeds**

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1 Scope

This standard specifies the sampling and sample processing methods for fresh fruits and vegetables and their products, edible fungus products, and nut and seed foods.

This standard applies to the sampling and sample processing for fresh fruits and vegetables and their products, edible fungus products, and nut and seed foods. This standard does not apply to beverages or frozen drinks made from fruits and vegetables.

2.1 Sampling tools

Sampling tools shall be made of stainless steel or other materials of appropriate strength, with smooth surfaces, rounded corners, and no gaps. Sampling tools shall be cleaned, sterilized, and kept dry before use. Sampling tools include stirring utensils, sampling spoons, scoops, knives, sampling drills, scissors, tweezers, etc.

2.2 Sample container

The material (such as glass, stainless steel, and plastic) and structure of the sample container shall be able to fully ensure the original state of the sample. Containers and lids shall be clean, sterile, and dry. The sample container shall be of sufficient volume so that the sample can be fully mixed before testing. Sample containers include sampling bags, sampling tubes, sampling bottles, etc.

2.3 Other supplies

The alcohol lamp, thermometer, aluminum foil, sealing film, marker pen, sampling registration form, etc. are included.

3.1 Sampling principles and sampling plans

possible, both prepackaged and bulk samples shall be mixed in the original packaging

container.

4.2.2 For vegetables and their products containing antibacterial substances, such as

onions, garlic (garlic sprout), leeks, and scallions, it is necessary to reduce the antibacterial activity of the sample before testing, such as increasing the dilution, or adding potassium sulfite (K_2SO_3) to the initial diluent, so that the final concentration reaches 0.5%.

4.2.3 If required by the test method, the initial diluent and enrichment solution of the

sample can be adjusted to pH 7.0 $\pm$ 0.5 with 1 mol/L NaOH or 1 mol/L HCl.

4.2.4 For products with high-fat content, such as nut and seed pastes and purees, an

appropriate proportion of sterilized Tween 80 can be added to the diluent or enrichment solution used in sample processing according to different fat contents for emulsification and mixing; the additive amount can be calculated by adding 1 g/L for every 10% fat content (for example, if the fat content is 40%, add 4 g/L).

4.3.1 Fresh fruits

4.3.1.1 For fresh-cut fruits, chop all the test samples and mix them evenly; weigh 25 g, put them into a sterile homogenizing bag containing 225 mL of diluent or enrichment solution, homogenize, and then test.

4.3.1.2 For fruits that need to be peeled in whole, such as watermelons, kiwis, citrus

fruits, and bananas, first rinse the surface with tap water, then disinfect it with 75% ethanol, and open it aseptically; take the edible part, put it into a sterile container, and homogenize it with a homogenizer for 1 min~2 min.

4.3.1.3 For fruits that do not need to be peeled, such as tomatoes and pears, take the

whole fruit, cut it into small pieces under sterile conditions, mix it or homogenize it with a homogenizer for 1 min to 2 min; weigh 25 g, put it into a sterile homogenizing bag containing 225 mL of diluent or enrichment solution, and inspect it after homogenization.

4.3.2 Fresh vegetables

Use sterile scissors or a chopper to cut the edible part of the sample into small segments

(pieces), and mix thoroughly and evenly. Weigh 25 g, put it into a sterile homogenization bag containing 225 mL of diluent or enrichment solution, and inspect after homogenization.

4.4.1 Dehydrated, frozen foods (fruits, vegetables, edible fungi, etc.) and preserved

fruits

4.4.1.1 Frozen samples shall be thawed for inspection. They can be thawed below 45 °C

for no more than 15 minutes, at 18 °C to 27 °C for no more than 3 hours, or at 2 °C to 5 °C for no more than 18 hours (unless there are special provisions in the inspection method).

4.4.1.2 Use sterile scissors to cut the sample into small segments (pieces), and mix

thoroughly and evenly; weigh 25 g, put it into a sterile homogenization bag containing 225 mL of diluent or enrichment solution, and inspect after homogenization.

4.4.1.3 For dehydrated products, increase the additive amount of diluent or enrichment

solution appropriately according to the situation.

4.4.2.1 Use sterile tools to stir the test sample evenly or use a homogenizer to

homogenize it for 1 to 2 minutes. Weigh 25 g, put it into a sterile homogenization bag containing 225 mL of diluent or enrichment solution, and inspect after homogenization.

4.4.2.2 The direct counting inspection of molds in tomato sauce or tomato juice of

supplementary food for infants and young children shall be carried out in accordance with the provisions of GB 4789.15.

4.4.3.1 According to eating habits, take the solid part or mix the liquid and solid for

inspection.

4.4.3.2 If the solid part is taken, use sterile scissors to cut the solid into small segments

(pieces), and then mix thoroughly and evenly. Weigh 25 g, put it into a sterile homogenization bag containing 225 mL of sterile distilled water or enrichment solution, and

inspect after homogenization.

4.4.3.3 If mixing is necessary, homogenize all the solids and liquids of each sample for

1 to 2 minutes; weigh 25 g, put it into a sterile homogenization bag containing 225 mL of distilled water or enrichment solution, and inspect after homogenization.

4.4.3.4 For foods with high sugar or salt content, the amount of diluent or enrichment

solution shall be appropriately increased to reduce the inhibitory effect on bacteria.

4.5.1 For shelled nuts, use a sterile tool (hammer, etc.) to open them, and mix the edible

part (without removing the coating) thoroughly; weigh 25 g, put it into a sterile