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

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**Manufacturing specification for processing of fresh and frozen
cultured Takifugu rubripes**

养殖红鳍东方鲀鲜、冻品加工操作规范

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1 Scope

The document sets out the requirements for the basic conditions, facilities and equipment, raw and auxiliary materials, temporary holding, processing operations, inspection, marking, packaging, metal detection and storage, and disposal of waste in the processing of cultured Takifugu rubripes, and describes the corresponding methods of verification.

It applies to the processing of fresh and frozen products from cultured Takifugu rubripes.

3 Terms and definitions

The document states that there is no term that needs to be defined.

4 Basic conditions

4.1 The plant area, the workshops and the facilities and equipment shall comply with the relevant provisions of GB/T 27304.

4.2 The processing water shall comply with the relevant provisions of GB 5749.

4.3 Staff shall have received specialized training. Those who accept the raw fish shall be able to identify the species *Takifugu rubripes*, and processing staff shall have mastered the safe processing technique for the species; both may take up their post only after passing an assessment.

5 Facilities and equipment

5.1 There shall be a dedicated facility for holding live fish, fitted with aeration and temperature control equipment. The holding tanks shall be leakproof and corrosion resistant, with a smooth surface that is easy to clean and disinfect.

5.2 The containers used for the fish, the killing and dressing implements and the waste containers used during processing shall each be dedicated to their own purpose and shall not be used interchangeably.

5.3 The containers for processing waste shall be sealable and lockable and shall be marked in a conspicuous position.

6 Raw and auxiliary materials

6.1 Raw fish. The raw fish shall come from a farmed puffer fish source base registered with the competent industry authority, and the species shall comply with SC 2018. The fish shall be normally active and of good quality. The raw fish shall be inspected on arrival at the plant and may be accepted and recorded only after passing.

6.2 Edible salt. Edible salt shall comply with GB/T 5461.

7 Temporary holding

7.1 Raw fish of different sizes and different batches shall be held separately. The water used shall comply with GB 11607, the water temperature shall be 20 °C +/- 2 °C and the dissolved oxygen shall be above 5 mg/L.

7.2 The holding density should not exceed 50 kilograms per cubic metre.

7.3 Management shall be reinforced during holding and the holding conditions shall be recorded.

8 Processing operations

8.1 Process flow. The process flow comprises bleeding, gutting, chilling, packing and further steps, and is shown in Annex A.

8.2.1 Bleeding. The fish is laid flat on the working table and a knife is inserted into the back

above and behind the eye; the fish is then put into a tank and should be soaked for 10 min in brine of 1.5 % to 3.5 %.

8.2.2 Eye removal. The eyeballs are picked and cut out with a tool and placed in the waste container.

8.2.3 Gutting and degilling. The belly is cut open from the vent towards the head; the viscera shall not be damaged during the cut, and the body is separated from the viscera and the membrane. All the gills are removed with a tool. The viscera and the gills are placed in the waste container.

8.2.4 Washing. Blood remaining inside the body is squeezed out from the tail upwards; residual blood, membrane and surface dirt shall be washed off under running water. After washing the fish is drained for 3 min to 5 min.

8.2.5 Packing. After draining, the fish is bagged and sealed or vacuum packed.

8.2.6 Chilling. The packed fish is put into ice water at 0 °C to 4 °C so that the core temperature falls below 4 °C.

8.2.7 Freezing. Frozen products shall be quick frozen so that the core temperature falls to minus 18 °C or below for storage.

9 Inspection

The processed product shall be inspected in accordance with SC/T 3124 and the inspection records shall be kept.

10 Marking, packaging, metal detection and storage

10.1 Marking. The product marking shall include at least a traceability two-dimensional code, the product name, the standard applied, the name and registration number of the processing enterprise, the name and registration number of the source base enterprise, the processing date, the shelf life, the storage conditions and the information on inspection conformity.

10.2 Packaging. The packaging shall comply with SC/T 3035. The packaging material shall be strong, clean, non-toxic and free of foreign odours and shall meet the requirements for thermal insulation and hygiene.

10.3 Metal detection. Metal detection shall be carried out before or after boxing. Where a product containing metal is detected, it shall be set aside with a conspicuous mark and dealt with separately. The sensitivity of the metal detector shall reach test pieces of iron (Fe) not more than 2.5 mm, stainless steel (SUS) not more than 4.0 mm and non-ferrous metal (Non-Fe) not more than 3.0 mm.

10.4 Storage. Products shall be stored in a clean environment free of toxic substances,

foreign odours and contamination. Chilled products shall be stored in a chill store at 0 °C to 4 °C and frozen products in a cold store at minus 18 °C or below.

11 Disposal of waste

Waste shall be collected and then treated so as to render it harmless, and records shall be kept.

12 Records

A file management system shall be established and the records shall be kept for at least 3 years.

A Annex A (informative) Process flow for fresh and frozen cultured Takifugu rubripes

The annex gives the process flow diagram for fresh and frozen products from cultured Takifugu rubripes as Figure A.1, comprising bleeding, gutting, chilling, packing and further steps. The diagram itself is not reproduced in the extracted text.