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“ज्ञान का अधिकार, जीने का अधिकार”
Mazdoor Kisan Shakti Sangathan
“The Right to Information, The Right to Live”

“पुराने को छोड़ नये के तरफ”
Jawaharlal Nehru
“Step Out From the Old to the New”

IS 15689 (2006): Bamboo shoot in brine [FAD 10: Processed Fruits and Vegetable Products]
Indian Standard

BAMBOO SHOOT IN BRINE — SPECIFICATION

ICS 67.080.20
FOREWORD

This Indian Standard was adopted by the Bureau of Indian Standards, after the draft finalized by the Processed Fruits and Vegetables Products Sectional Committee had been approved by the Food and Agriculture Division Council.

Bamboo shoot is rich in vitamins, cellulose, amino acids and trace elements and has the same nutritional value as an onion and is a good source of fibre. Bamboo shoot comprises 90 percent water. Bamboos shoots are traditionally consumed more often as a fresh vegetable during their season of availability and are preserved conventionally as salted, fermented and dried products in the North-East regions of India and as salted and pickled products in the Western Ghats of Karnataka. The preservation and processing methods used for bamboo shoots are dry salting, wet salting/preservation in brine, canning and drying.

Formulation of National Standards on various types of processed bamboo shoots would assist in the manufacture and sale of standardized, nutritious and hygienically processed products. Separate Indian Standards are being formulated to cover the requirements of canned bamboo shoots, dehydrated bamboo shoots, dry salted bamboo shoots, bamboo shoots in brine and bamboo shoots in plain water. This standard covers the requirements and methods of test for bamboo shoot in brine.

Due consideration has been given to the Prevention of Food Adulteration Rules, 1955 and Standards of Weights and Measures (Packaged Commodities) Rules, 1977. However, this standard is subject to restrictions imposed under these, wherever applicable.

For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated, expressing the result of a test or analysis, shall be rounded off in accordance with IS 2 : 1960 'Rules for rounding off numerical values (revised)'. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.
Indian Standard

BAMBOO SHOOT IN BRINE — SPECIFICATION

1 SCOPE
This standard prescribes the requirements and the methods of test for bamboo shoot in brine.

2 REFERENCES
The standards listed below contain provisions which through reference in this text, constitute provisions of this standard. At the time of publication, the editions indicated were valid. All standards are subject to revision and parties to agreements based on this standard are encouraged to investigate the possibility of applying the most recent editions of the standards indicated below:

<table>
<thead>
<tr>
<th>IS No.</th>
<th>Title</th>
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<tbody>
<tr>
<td>2491:1998</td>
<td>Food hygiene — General principles — Code of practice (second revision)</td>
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<tr>
<td>2860:1964</td>
<td>Methods of sampling and test for processed fruits and vegetables</td>
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<tr>
<td>7224:2006</td>
<td>Iodized salt — Specification (second revision)</td>
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<td>7732:2003</td>
<td>Apple juice preserved exclusively by physical means — Specification (first revision)</td>
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<tr>
<td>10171:1999</td>
<td>Guide on suitability of plastics for food packaging (second revision)</td>
</tr>
<tr>
<td>10500:1991</td>
<td>Drinking water — Specification (first revision)</td>
</tr>
</tbody>
</table>

3 TERMINOLOGY
For the purpose of this standard, the following definitions shall apply.

3.1 Sliced Round Thick Bamboo Shoot — Bamboo shoot sliced round transversely/horizontally into thick pieces more than 10 mm thickness.

3.2 Sliced Round Thin Bamboo Shoot — Bamboo shoot sliced round transversely/horizontally into thin pieces of less than 10 mm thickness.

3.3 Shredded Bamboo Shoot — Whole bamboo shoot shredded into thin pieces.

3.4 Bamboo Shoot Slivers — Bamboo shoot slivers of thin pieces.

3.5 Bamboo Shoot Cubes/Dices — Whole bamboo shoot cut into cubes/dices of practical dimensions.

3.6 Bamboo Shoot Cones — The tip of the bamboo shoot cut and retained as a cone of commercially practical dimensions.

3.7 Other Optional Styles — Other forms not specifically described in 3.1 to 3.6 of any commercially practical shape, like random sliced, chopped, etc., should be appropriately described on the label.

3.7.1 Only one type of shape can be filled in one pack.

3.8 Absence of Defects — The degree of freedom from extraneous material, such as remnants of peel and other inedible foreign matter and also freedom from damage due to mechanical injury.

3.9 Blemished Units — Units that are blemished with some injury caused by handling, insect damage, physiological damage, injury caused during transportation, black spots or enzyme activity on the surface or any other abnormality readily visible to the naked eye to a noticeable degree.

4 REQUIREMENTS

4.1 Hygienic Requirements
The material shall be prepared and handled under strict hygienic conditions, which have been laid down in IS 2491.

4.2 General Requirements
Bamboo shoot shall be prepared from selected, fresh, washed, clean and firm shoots of suitable variety. These shoots shall be practically free from blemishes and extraneous matter.

4.3 The product should be free from artificial colouring matter and flavouring agents.

4.3.1 The product may, however, contain natural spices, spice oils, aromatic herbs and their natural extracts, natural aromas and seasoning.
4.4 Styles
The product may be presented in any one of the following styles defined under 3:

a) Sliced round thick,
b) Sliced round thin,
c) Shredded,
d) Slivers,
e) Cubes/dices,
f) Cones, and
g) Other optional styles.

4.5 Types of Pack
Regular pack with brine solution.

4.6 Requirements for Covering Media

4.6.1 Bamboo shoot should be packed in brine solution at 3 to 5 percent when tested by the method prescribed in IS 2860. The brine shall be clear and the salt (sodium chloride) used for preparation of brine shall conform to IS 7224 and water used shall conform to IS 10500.

4.6.2 The pH of the covering liquid shall be not higher than 3.5 to 7, when tested by the method prescribed in IS 2860.

4.7 Requirement of the Finished Product
Packed bamboo shoot on opening shall display the following characteristic.

4.7.1 Colour
The product should possess a healthy and practically uniform colour, practically free from black spots or any other discoloration due to oxidation and other causes. Uneven distribution of pigments and changes in colour normally associated with proper processing shall not be considered as defects.

4.7.2 Texture and Uniformity of Size
The product shall possess a good texture, which means that the product shall be just firm but not hard or unduly soft and shall be characteristic of bamboo shoot. The product shall be practically uniform in size.

4.7.3 Flavour and Odour
Bamboo shoot shall be free from flavours and odours foreign to the product and their taste should be characteristic to the shoots used.

4.7.4 Absence of Defects
The product shall be practically free from defects. The product should be virtually free from peel, transportation damage and any other foreign material adhering to or excluded in the product.

4.7.5 The product shall also conform to the requirements prescribed in Table 1. It shall not contain the metallic contaminants in excess of the quantities specified in Table 2.

<table>
<thead>
<tr>
<th>Table 1 Requirements for Bamboo Shoot in Brine</th>
</tr>
</thead>
<tbody>
<tr>
<td>Characteristics</td>
</tr>
<tr>
<td>Fill of the container, percent by mass, Min</td>
</tr>
<tr>
<td>Drained mass contents of the pack as percentage of net mass, Min</td>
</tr>
<tr>
<td>Microbial requirements</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Table 2 Metallic Contaminants of Bamboo Shoot in Brine</th>
</tr>
</thead>
<tbody>
<tr>
<td>Characteristics</td>
</tr>
<tr>
<td>Arsenic, mg/kg, Max</td>
</tr>
<tr>
<td>Lead, mg/kg, Max</td>
</tr>
<tr>
<td>Copper, mg/kg, Max</td>
</tr>
<tr>
<td>Zinc, mg/kg, Max</td>
</tr>
<tr>
<td>Tin, mg/kg, Max</td>
</tr>
<tr>
<td>Iron, mg/kg, Max</td>
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</tbody>
</table>

4.8 Minimum Fill
Containers shall be filled as commercially as possible. However, the product should be completely immersed in the brine solution and shall occupy not less than 90 percent of the water capacity of the container when tested in accordance with the method prescribed in Annex A. The water capacity of the container is the volume of distilled water at 27°C, which the sealed container holds when completely filled.

4.8.1 When the product is packed in glass containers, water capacity shall be reduced by 20 ml.

4.9 Microbial Requirements
When tested by the method prescribed in 18 of IS 2860 the product shall be: (a) free from micro-organisms capable of development under normal conditions of storage, and
(b) shall not contain substances originating from microorganisms that may represent a hazard to health.

5 PRE-PACKING TREATMENT

The bamboo shoot after removal of the outer sheath should be held in water for 12 to 15 h or boiled in water for a total period of 30 min with a change of water after every 10 min of boiling. This treatment is necessary to leach out the bitter components present in raw bamboo shoot.

6 PACKING AND MARKING

6.1 Packing

The bamboo shoot after being treated as described in 5 should be washed thoroughly and should be packed in brine solution (5 percent) immediately within 12 h. The product shall be packed in food grade sanitized plastic containers (see IS 10171) or glass containers or plastic poly pouches or any other packaging material conforming to the packing material standards. The product should be sealed as quickly as possible. The packaging container should be inert to the corrosive action of the brine solution.

6.2 Marking

Each pack shall be marked with the following particulars. The labelling should be done according to the standard laid down in IS 7688 (Part 1).

   a) Name, type and style of the product with the brand name, if any;
   b) Indication of the source of manufacture;
   c) Net content in g;
   d) Month and year of manufacture;
   e) Batch or code number, if any;
   f) List of ingredients in descending order;
   g) List of additives, if used;
   h) The words ‘Best before ……….’ (Month and year to be indicated);
   i) Manufacturing licence number; and

6.3 BIS Certification Marking

The product may also be marked with the Standard Mark.

6.3.1 The use of the Standard Mark is governed by the provisions of the Bureau of Indian Standards Act, 1986 and the Rules and Regulations made thereunder. The details of conditions under which the licence for the use of the Standard Mark may be granted to manufacturers or producers may be obtained from the Bureau of Indian Standards.

7 SAMPLING

Representative samples of the product shall be drawn and tested for conformity to this standard by the methods prescribed in IS 2860.

ANNEX A

(Clause 4.8)

DETERMINATION OF WATER CAPACITY

A-0 GENERAL

This method is applied to metal containers and glass containers.

A-1 PROCEDURE

A-1.1 Metal Containers

A-1.1.1 Select a container which is undamaged in all respects.

A-1.1.2 Wash, dry and weigh the empty container after cutting out the lid without removing or altering the height of the double seam.

A-1.2 Glass Containers

A-1.2.1 Select a container which is undamaged in all respects.

A-1.2.2 Wash, dry and weigh the empty container.

A-1.2.3 Fill the container with distilled water at 27°C to 4.8-mm vertical distance below the top level of the container, and weigh the container thus filled.

A-1.3 Fill the container with distilled water at 27°C to the level of the top thereof, and weigh the container thus filled.
A-2 CALCULATION AND EXPRESSION OF RESULTS

A-2.1 Metal Containers
Subtract the mass found in A-1.1.2 from the mass found in A-1.1.3. The difference shall be considered to be the mass of water required to fill the container. Results are expressed as ml of water, percent.

A-2.2 Glass Containers
Subtract the mass found in A-1.2.2 from the mass found in A-1.2.3. The difference shall be considered to be the mass of water required to fill the container. Results are expressed as ml of water, percent.
Bureau of Indian Standards

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Amendments Issued Since Publication

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<th>Amend No.</th>
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