Foreword

This Bangladesh Standard was adopted by the Bangladesh Standards and Testing Institution on ……., after the recommendation by the Sectional Committee for the Fruits, Vegetables and their Derived Products had been approved by the Agricultural and Food Products Divisional Committee.

Chutney is an important traditional condiment prepared from fruits, vegetables, or their combinations, blended with sugar, salt, spices, vinegar, or other permitted ingredients to impart a distinctive flavor, taste, and aroma. Considering its widespread consumption and importance in the national diet, it was necessary to prepare this standard to ensure that the product conforms to the required quality and safety specifications for safeguarding consumer health.

This standard BDS 521 Chutneys was first published in 1964, subsequently revised in 1991, 2011, and amended in 2018. The present version represents the third revision of this standard. Major modifications in this revision include the following:

i) definition for ‘chutney’ has been elaborated and terminology is updated;
ii) ingredients list has been modified;
iii) clauses for ‘ingredients’, ‘styles of presentation’, ‘pesticide residues’, ‘legal requirement’ and ‘compliance’ have been incorporated;
iv) the limits for ‘preservatives’ have been updated;
v) microbiological limit for *Salmonella* has been added; and
vi) requirements for labeling has been modified according to the current practices;

This standard provides guidelines on quality and safety requirements to ensure uniform and consistent product quality and to protect consumer interest. Although it was recognized that a suitable test method for determining fruit content is not currently available, manufacturers are required to maintain records showing the quantity of fruit ingredients added to each batch.

The Sectional Committee responsible for the preparation of this standard has taken into consideration the views of the members of this committee, local producers, consumers and technologists and has related the standard to the manufacturing and trade practices followed in the country in this field.

In the formulation of this standard, considerable assistance has been derived from the following publications which is acknowledged with thanks:

CXS 160:1987 Standard for Mango Chutney, last amended in 2023
Codex Alimentarius Commission

This standard is subject to periodical reviews and amendments, if necessary, in order to keep pace with the latest industrial and technological innovations. Any suggestions for improvement will be recorded and placed before the committee in due course.

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 BDS 103. The number of significant places retained in the rounded off value should be the same as that of the specified value in the standard.

This standard BDS 521:YYYY Chutneys (3rd Rev.) cancels and replaces BDS 521:2011 Chutneys (2nd Rev.), Amendment-1:2018 that has been technically revised.

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Bangladesh Standard
Specification for
Chutneys
(*Third Revision*)

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1. Scope

1.1 This standard specifies the requirements and the methods of test for chutneys prepared from fruits and vegetables intended for human consumption.

2. Normative References

2.1 The relevant standards listed in Annex-A are necessary adjuncts to this standard. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

3. Terminology

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

3.2 Chutneys – product prepared from substantially sound fruit(s) and/or vegetable(s), either fresh or preserved, that have reached appropriate maturity. The raw materials undergo operations such as sorting, trimming, washing, peeling, cutting, and other treatments to remove blemishes, bruises, tops, tails, cores, pits (stones), or other non-edible parts. None of the essential characteristic components of the fruits or vegetables shall be removed during processing.

3.2.1 In the case of mango chutney, when raw, peeled, and sliced papaya is added to the chutney as a tenderizing agent, it should not exceed 5 percent of the fruit's total weight.

3.3 Sound – produce that is free from fungal, bacterial, or viral infections, as well as any form of deterioration, including decay, breakdown, damage caused by pests or mechanical means, and physiological disorders, whether occurring in the field or during storage, that significantly affect the appearance, edibility, keeping quality, or market value of the produce.

4. Requirements

4.1 Ingredients

4.1.1 Essential ingredients – Any suitable varieties of fruits and vegetables complying with relevant national standards or regulations.

4.1.2 Optional ingredients – The following ingredients may be used in the preparation of fruit and/or vegetable chutney provided that they are complying with relevant national standards;

a) sugars and /or foodstuffs with sweetening properties such as honey, jaggery, date, syrup;
b) edible salt;
c) spices and condiments;
d) other fruits and vegetables such as onion, garlic and ginger; and
e) Other suitable food ingredients such as, vinegar, tamarind, dry fruits and nuts, edible oil etc.

4.2 Styles of presentation

4.2.1 Fruit and/or vegetable chutney can be of the following styles:

a) Pulp or crushed fruit and/or vegetable or both; and
b) pulp and pieces.

4.2.2 Other styles

Any other presentation of the product should be permitted provided that the product:

a) is sufficiently distinctive from other forms of presentation laid down in the standard;
b) meets all other requirements of the standard, as applicable; and
c) is adequately described on the label to avoid confusing or misleading the consumer.

4.3 Food Additives – The product may contain any food additives as permitted under the food category 04.1.2.6 in the latest available version of Codex General Standard for Food additives (CODEX STAN 192)'.

4.4 Food Preservatives – The product may contain only the following preservatives when tested according to the given methods in the table 1.

Table 1 Limit for preservatives

Sl. No.	Preservatives	Limit	Method of test
(1)	(2)	(3)	(4)
i.	Benzoic acid and/or its salts (as Benzoic acid), mg/kg, *Max*	1000	BDS ISO 22855
ii.	Sorbic acid and/or its salts (as Sorbic acid), mg/kg, *Max*	1000	BDS ISO 22855
iii.	Sulphur dioxide, Sulphites and/or its salts (as Sulphur dioxide), mg/kg, *Max.*	100	BDS ISO 5523
NOTE – When more than one preservative is used, the amount of each shall be such that, when expressed as a percentage of the amount permitted singly, the sum of these percentages does not exceed one hundred percent.			

4.5 Organoleptic Requirements – The Finished product of chutneys shall possess a good, uniform colour and appearance, shall be practically free from defects, shall possess a good texture and normal characteristic taste and flavour, and shall score not less than 85 points. The scoring shall be done according to the method prescribed in Annex-E. The number of points to be scored by different factors shall be as below:

Factors	Maximum	Minimum
Colour and texture	25	20
Taste and flavour	50	45
Absence of defects	25	20

4.5.1 Colour and texture – The chutneys shall possess a good practically uniform colour. It shall possess a good texture, shall not be unduly hard or tough and shall be free from development of softening to the extent that they break up during storage or transportation.

4.5.2 Taste and flavour – The chutneys shall possess a pleasant aroma and flavour characteristic of the product. The material shall be devoid of any objectionable or off taste, smell or odour.

4.5.3 Absence of defects – The chutneys shall be practically free from defects. The material shall be free from fungal growth.

4.6 Specific requirements – The material shall comply with the specific requirements in Table 2, 3 and Table 4.

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Table 2 Requirements for Chutneys

Sl No.	Characteristics	Requirements	Method of test
(1)	(2)	(3)	(4)
i)	Total soluble solids, degree Brix, *Min*.	50 º	AOAC 932.12/ BDS ISO 2173
ii)	Fruit content, percent by mass, *Min*.	a) 40 for mango fruit b) 15 for other single fruit c) 20 for mixed fruit	The manufacturers will maintain a record for showing the quantity of the fruit ingredient added to each batch
iii)	Other than fruit (seeds, peel, fiber etc.), percent by mass, *Max*.	10	Annex-B
iv)	Total ash, percent by mass, *Max*.	5.0	Annex-C
v)	Acid insoluble ash, percent by mass, *Max*.	0.5	Annex-D

Table 3 Maximum Limit for Heavy metals

Sl. No.	Characteristics	Limit	Method of test
(1)	(2)	(3)	(4)
i)	Arsenic (As), mg/kg, *Max.*	0.2	AOAC 986.15
ii)	Lead (Pb), mg/kg, *Max.*	0.3	AOAC 999.10
iii)	Copper (Cu), mg/kg, *Max.*	5.0	AOAC 990.10
iv)	Zinc (Zn), mg/kg, *Max.*	5.0	AOAC 986.15
v)	Tin (Sn), mg/kg, *Max.*	250.0	AOAC 980.19

Table 4 Maximum Limit for Microbiological Parameters

Sl. No.	Characteristics	Limit	Method of test
(1)	(2)	(3)	(4)
i)	Total Plate Count, cfu/g, *Max.*	50	BDS ISO 4833-1
ii)	Yeast and Mould count, cfu/g, *Max.*	<10	BDS ISO 21527-1
iii)	Total Coliform count, cfu/g, *Max.*	Nil	BDS ISO 4832
iv)	*Salmonella*/25g, *Max.*	Absent	BDS ISO 6579-1

4.6 Hygiene – During processing, handling, storage and transportation, effective measures must be taken to prevent cross contamination with chemicals, microbial or physical contaminants.

4.6.1 The product shall be processed and packed under strict hygienic conditions in premises maintained in accordance with BDS 822.

4.7 Pesticide residues – The product covered by this standard shall comply with the maximum residue limits for pesticide established by the Codex Alimentarius Commission.

4.8 Legal Requirement – The product shall in all other aspects comply with the requirements of the legislations enforced in the country.

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5. Packing and Marking

5.1 **Packing** – The product shall be packaged in containers made from food grade packaging material and sealed in a manner that will safeguard the hygienic, nutritional and organoleptic properties of the product throughout the shelf life of the product.

5.2 **Marking** – Each package shall be suitably labeled so as to give the following information:

a) Name of the product;

b) Name and address of the manufacturer/importer;

c) List of ingredients;

d) Batch or code number;

e) Net content in g;

f) Date of manufacture and expiry;

g) Storage condition;

h) Maximum Retail Price (MRP); and

i) Any other requirements as specified under the 'Packaged Commodities Rules, 2021 (Amendment-2025)' of BSTI.

5.2.1 Each package may also be marked with the BSTI Certification Mark.

NOTE – The use of BSTI Certification Mark is governed by the provisions of Bangladesh Standards and Testing Institution Act, 2018 and the Rules and Regulations made thereunder. Details of conditions, under which a license for the use of BSTI Certification Mark may be granted to manufacturers or processors, may be obtained from the Bangladesh Standards and Testing Institution.

6. Sampling

6.1 Representative samples shall be prepared as prescribed in col. 3 of BDS 1010.

7. Tests

7.1 Test shall be carried out as prescribed in the relevant column of Table 1, 2,3 and 4.

7.2 **Quality of Reagents** – Unless specified otherwise, pure chemicals shall be employed in tests and distilled water (BDS 833) shall be used where the use of water as a reagent is intended.

NOTE – 'Pure chemicals' shall mean chemicals that do not contain impurities, which may affect the result of analysis.

8. Compliance

8.1 When on testing, each of the samples is found to conform to the requirements specified in this Bangladesh Standard Specification, the lot, batch or consignment from which the samples have been drawn shall be deemed to comply with standard specification.

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Annex - A

[*Clause 2.1*]

List of Relevant Standards

BDS and ISO No.	Title
BDS 103	Methods of rounding off numerical value
BDS 822	Code of hygienic conditions for food processing units
BDS 833	Water for laboratory use
BDS 1010	Methods of sampling and test for processed fruits and vegetables in cans/containers
BDS ISO 2173	Fruit and vegetable products - Determination of soluble solids - Refractometric method
BDS ISO 4832	Microbiology of food and animal feeding stuffs- Horizontal method for the enumeration of coliforms- colony count technique
BDS ISO 4833-1	Microbiology of food chain – Horizontal method for the enumeration of microorganism – Part 1: Colony count at 30ºC by the pour plate technique
BDS ISO 5523	Liquid fruit and vegetable products – Determination of sulphur dioxide content (Routine method)
BDS ISO 6579-1	Microbiology of the food chain - Horizontal method for the detection, enumeration and serotyping of *Salmonella* – Part 1: Detection of. *Salmonella* spp
BDS ISO 21527-1	Microbiology of food and animal feeding stuffs – Horizontal method for the enumeration of yeasts and moulds- Part 1: Colony count technique in products with water activity greater than 0.95.
BDS ISO 22855	Fruit and vegetable products - Determination of benzoic acid and sorbic acid concentrations - High performance liquid chromatography method

Annex - B

[*Table 2, Item (iii)*]

Determination of the Fruit Content and Material Retained

B-1. Apparatus

B-1.1 BDS Sieve (2.00 mm)- Alternatively, BS Sieve 8 or ASTM Sieve 10 or Tyler Sieve 9 may be used as these are equivalent to 2.00mm BDS Sieve (BDS 392 Test sieves).

B-2. Procedure

B-2.1 Take 50g of the representative sample in a flask and stir it with 200ml of boiling water for about two minutes and transfer to a previously weighed BDS Sieve (2.00 mm). Allow to drain for two minutes. Weigh the sieve along with the remaining portion and calculate the percentage of fruit content.

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Annex-C

[*Table 2, Item (iv)*]

Determination of Total Ash

C- 1. Procedure

C- 1.1 Weigh accurately about 2g of the material in a tarred porcelain, silica or platinum dish, ignite with the flame of a Meeker burner for about one hour. Complete the ignition by keeping in a muffle furnace at 600º ± 20º C until grey ash results. Cool in a desiccators and weigh. Ignite the dish again in the muffle furnace for 30 minutes, cool and weigh, repeat this process unit difference in weight between two successive weighing is less than 1 mg. Note the lowest weight.

C- 1.2 Reserve the dish containing this ash for the determination of acid insoluble ash (See D-2)

C-2 Calculation

C-2.1 Total ash (on moisture free basis),

$$\text{Percent by mass} = \frac{100\,(W_2 - W)}{(W_1 - W)}$$

Where,

W_2 = the lowest weight in g of the dish with ash;
W= weight in g of the empty with ash; and
W_1= weight in g of the dish with the dried material taken for the test.

Annex-D

[*Table 1, Item (v)*]

Determination of Acid Insoluble Ash

D-1 Reagent

D-1.1 Dilute hydrochloric acid: Approximately 5 N. prepared from concentrated hydrochloric acid (Sp gr. 1.16)

D-2 Procedure

D-2.1 To the ash contained in the dish (see C-1.2) add 25 ml of dilute hydrochloric acid. Cover with a watch glass and heat on a water bath for 10 minutes. Allow to cool and filter the contents of the dish through a Whatman filter paper no 42 or its equivalent. Wash the filter paper with water until the washings are free from the acid and return to the dish. Keep it in an electric air-oven maintained at 135 ºC ± 2 ºC for about 3 hours ignite it in a muffle furnace at 600 ºC ± 20 ºC for one hour Cool the dish in a desiccator and weigh ignite the dish again in the muffle furnace for 30 minutes cool and weigh Repeat this process until the difference in weight between two successive weighings is less than 1 mg. Note the lowest weight.

D-3 Calculation

D-3.1 Acid insoluble ash (on moisture free basis).

$$\text{Percent by mass} = \frac{100\,(W_2 - W)}{(W_1 - W)}$$

Where,

W_2 = The lowest weight in g to the dish acid insoluble ash
W = weight in g of the empty dish; and
W_1 = weight in g of dish with the dried material (see W_1 in C -2.1)

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Annex–E

[*Clause 4.5*]

Method of Scoring for Chutneys

E–1 Apparatus

E-1.1 White porcelain Bowls-big enough to hold the contents of the container under examination.

E–1.2 Stainless Steel Spoons-table spoons.

E– 2 Procedure

E- 2.1 Panel of Judges – Grades of the product shall be judged by a panel of three to five judges. All the judges constituting a panel shall be conversant with the factors governing the quality of the product. The containers shall be opened and the contents poured separately into white porcelain bowls. Each judge shall independently examine the contents from each of the containers and indicate scores for different characteristics.

E–2.1.1 The judges shall consider the following characteristics, colour and texture, taste and flavour, and absence of defects.

E-2.2 System of scoring – The variations within each factor are so described in Table-5 that the scores may be ascertained for each factor and expressed numerically. The relative importance of each factor has been expressed numerically on a scale of 100. Each judge shall indicate the score for the individual factors, by the method described in Table-5 and record his observations in the score sheet.

E–2.2.1 The scores as number of points indicated by the judges for the contents of each container for the three factors (see E-2.1.1) shall be in a tabular from in the score card and the average score calculated for each factor with overall average for each container entered in the appropriate column (see Table-5 and E-2.3.2).

E-2.3 Ascertaining the score

E-2.3.1 Consistency among judges – To ascertain the consistency of judgment among the judges, the total score indicated by each of them for the contents of the same shall be calculated by adding up the score for the various individual characteristics. If the difference between the maximum and the minimum of the total scores so obtained does not exceed (k+5), where k is the number of judges, the scoring shall be deemed as consistent for the container under consideration. If the difference exceeds (k+5) the score that is farthest from its immediate neighbour (the scores being arranged in one order) shall be discarded and the consistency among the remaining judges shall be examined.

E-2.3.2 When the consistency (see E-2.3.1) is thus established the overall average sectors indicated by judges whose scoring has been found to be consistent shall be calculated for each container. The average score for each of the individual characteristic shall also be calculated by taking into account the corresponding scores as given by the same judges for the contents of the same container.

E– 2.3.3 The score for each factor individually shall be not less than 80 percent of the maximum score obtainable and the overall average score shall be not less than 85 points.

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Table – 5 Method for Giving Scores for Chutneys

(*Clause-4.5*)

Organoleptic Characteristic	Description	Point
(1)	(2)	(3)
Colour and Texture	Good, practically uniform colour, fleshy texture, not at all fibrous	21- 25
	Not quite uniform colour, slightly varying shades of the characteristic colour, slight discolouration	1- 20
	Black colour, nonuniform, total discolouration	0
Taste and Flavour	Pleasant aroma and taste characteristic of the product, free from objectionable or off-taste smell or odour	41- 50
	Slight variation in normal flavour, taste characteristic but tending to be slightly bitter	1- 40
	Objectionable taste, offensive smell	0
Absence of defects	Free from defects, such as stone or scrapings, grit and other extraneous material	21- 25
	One or two pieces of stone or scraping, astray piece of extraneous material	1- 20
	Gritty, lot of extraneous material, pieces of stone and scraping	0

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Score Sheet for Individual Judge

Sample Number:

Date of Sampling:

Details of the Sample:

(a) Product:

(b) Name of the manufacturer:

(c) Type:

(d) Batch No:

(e) Date of manufacture:

Sample Cans

Factors	Score points	1	2	3	4	5	6	7	8	9	10
Colour and Texture	20- 25										
Taste and Flavour	0- 50										
Absence of defects	0- 25										

Signature of the judge ……..... Date ……

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Score Card

Sample Number:

Date of Sampling:

Details of the Sample:

(a) Product:

(b) Name of the manufacturer:

(c) Type:

(d) Batch No:

(e) Date of manufacture:

Factor	Colour and Texture					Taste and Flavour					Absence of defects					Total Score					Average score for				Grade of the can
Judge	A	B	C	D	E	A	B	C	D	E	A	B	C	D	E	A	B	C	D	E	Colour and Texture	Taste and Flavour	Absence of defects	Total	
Can number																									

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