

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.

Synthetic syrup is a popular sweetened liquid product obtained by blending syrup made from sugar, dextrose, or liquid glucose, with or without the addition of fruit juice and other suitable ingredients. It may also contain permitted colours, preservatives, and flavouring agents appropriate to the product. In Bangladesh, synthetic syrup is widely used in the preparation of soft drinks, desserts, and various food products. Considering its widespread production and consumption, it was considered necessary to prepare this standard to ensure uniform quality, safety, and consumer protection.

This standard BDS 1255 Synthetic Syrup was first published in 1990. The present version represents the first revision of this standard. Major modifications introduced in this revision include the following:

- i) definition for 'synthetic syrup' has been elaborated and terminology updated;
- ii) the list of ingredients have been reviewed and modified;
- iii) new clauses for normative references', 'hygiene', 'pesticide residues', 'legal requirement' and 'compliance' clause have been incorporated;
- iv) limits for 'preservatives' have been revised;
- v) limits for new parameter 'acidity' and 'pH' have been included;
- vi) limits for microbiological parameters have been included; and
- vii) requirements for labeling has been modified according to the current practices;

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:

- i. IS 4393:2018 Synthetic Syrup — Specification (First Revision)
Bureau of Indian Standards

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 1255:YYYY Synthetic Syrup (1st Rev.) cancels and replaces BDS 1255:1990 Synthetic Syrup, which has been technically revised.

Bangladesh Standard Specification for Synthetic Syrup (First Revision)

1. Scope

1.1 This standard specifies the requirements and the methods of test for synthetic syrup for edible purposes.

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 **Synthetic Syrup** – a product obtained by blending syrup made from sugar, dextrose, or liquid glucose. It may contain fruit juice and other ingredients appropriate to the product. The syrup shall be free from burnt or objectionable taints, off-flavours, artificial sweetening agents, extraneous matter, and crystallization. It may contain citric acid, permitted colours, permitted preservatives, and permitted flavouring agents.

3.3 **Absence of Defects** – Freedom from extraneous matter like grit, dirt, crystallized sugar, and an oily layer at the surface.

4. Requirements

4.1 **Preparation** – Synthetic syrups shall be prepared from sucrose, invert sugar, dextrose, liquid glucose, water, herbs, dry fruits, edible flower petals and essences. In the preparation of synthetic syrups artificial sweetening agents shall not be used.

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

4.3 **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. (1)	Preservatives (2)	Limit (3)	Method of test (4)
i.	Benzoic acid and/or its salts (as Benzoic acid), mg/kg, <i>Max</i>	1000	BDS ISO 22855
ii.	Sorbic acid and/or its salts (as Sorbic acid), mg/kg, <i>Max</i>	1000	BDS ISO 22855
iii.	Sulphur dioxide, Sulphites and/or its salts (as Sulphur dioxide), mg/kg, <i>Max</i> .	70	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.

4.4 Specific requirements – The finished product shall comply with the specific requirements in Table 2, 3 and Table 4.

Table 2 Requirements for Synthetic Syrup

SI No.	Characteristics	Requirements	Method of test
(1)	(2)	(3)	(4)
i)	Total soluble solids, percent by mass, <i>Min.</i>	65	AOAC 932.12 BDS ISO 2173
ii)	Specific Gravity	1.0-1.5	Cl. 9 of BDS 1010
iii)	pH	<4.5	BDS ISO 1842

Table 3 Maximum Limit for Heavy metals

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

Table 4 Maximum Limit for Microbiological Parameters

SI. No.	Characteristics	Limit	Method of test
(1)	(2)	(3)	(4)
i)	Yeast and Mould count, cfu/g, <i>Max.</i>	<100	BDS ISO 21527-1
ii)	Total Coliform count, cfu/g, <i>Max.</i>	<10	BDS ISO 4832
iii)	<i>Salmonella</i> /25g, <i>Max.</i>	Absent	BDS ISO 6579-1

4.5 The Finished product shall be clear, transparent, free from scum, residue or suspended particles, shall be of a uniform colour, shall possess a pleasant taste and flavour truly characteristic of the flavouring material used and shall score not less than 80 points. There shall be no crystallization of sugar. The scoring shall be done according to the method prescribed in Annex-B. 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	40
Absence of defects	25	20

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.

5. Packing and Marking

5.1 Packing – Synthetic syrup shall be packed in glass bottle or such other food grade container, which shall not react with it.

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

- a) Name of the material with the brand name, if any (see Note);
- b) Name and address of the manufacturer/importer;
- c) Batch or code number;
- d) List of additives, if used;
- e) Net content in Litre/ml;
- f) Date of manufacture and expiry;
- g) Storage condition;
- h) Maximum Retail Price (MRP);
- i) Dilution instruction: Not for direct consumption, the syrup and diluting liquid ratio shall not be less than 1:5; and
- j) Any other requirements as specified under the 'Packaged Commodities Rules, 2021 (Amendment-2025)' of BSTI.

NOTE – The container of synthetic syrups shall not bear any label which may lead the consumer into believing that it is genuine fruit product. In addition, the label shall have the word 'SYNTHETIC' distinctly and clearly displayed on it. Rose, KHUS, KEWRA, SANDAL and other such syrups may not be declared as 'SYNTHETIC' but shall not bear picture of fruits on the label.

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.

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 1842	Fruit and vegetable products - Determination of pH
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 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 <i>Salmonella</i> – Part 1: Detection of <i>Salmonella</i> 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

[Clause 4.5]

Method of Scoring for Synthetic Syrup**B-1 Apparatus**

B-1.1 White Porcelain Bowls — Of appropriate size to hold the contents of the container/bottle under examination.

B-1.2 Stainless Steel Spoons table spoons.

B- 2 Procedure

B- 2.1 Panel of Judges For awarding scores to synthetic syrups they shall be judged by a panel of 3 to 5 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 contents poured separately into white porcelain bowls. Each judge shall independently examine the contents from each of the containers and assign scores for different characteristics.

B-2.1.1 The judges shall consider the following characteristics:

- a) Colour,
- b) Taste and flavour, and
- c) Absence of defects.

B-2.2 System of scoring – The variations within each factor are so described 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 give a score for the individual factors, by the method described in Table 2 and record his observations in the Score Sheet.

The scores as number of points given by the judges for the contents of each container for the 3 factors shall be recorded in a tabular form 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 B-2.3.2).

B-2.3 Ascertaining the score

B-2.3.1 Agreement Among Judges – To ascertain uniformity of judgement among the judges, the total score assigned by each of them for the contents of the same container shall be calculated by adding up the scores for the various individual characteristics. If the difference between the maximum and the minimum of the total score so obtained does not exceed $(K + 5)$, where K is the number of judges, the scoring shall be deemed as uniform for the container under consideration. If the difference exceeds $(K + 5)$, the most outlying score, that is, the one which is farthest from its immediate neighbour (the scores being arranged in one order), shall be discarded and the uniformity among the scores of remaining judges examined.

B-2.3.2 When the consistency (see B-2.3.1) is thus established the overall average scores given by the 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 score as given by the same judge for the contents of the same container.

Table 5 Scoring for Synthetic Syrups

(Clause-4.5)

Organoleptic Characteristic	Description	Point
(1)	(2)	(3)
Colour	Good, bright, practically uniform colour; free from discolouration due to oxidation or other causes; changes normally associated due to processing shall not be considered as defects	25
	Good, bright, reasonably uniform colour	20
Taste and Flavour	Pleasant taste, flavour characteristic of the flavouring material used; free from burnt or any other objectionable odour or off-taste	50
	Pleasant taste; slight flavour (aroma) indicating scorching or burning, but such as not to render the product unacceptable	40
Absence of defects	Clear, practically free from haziness, sediment, grit, dirt or other objectionable extraneous material; free from any crystallized sugar. There shall not be present an oily ring at the surface	25
	Reasonably clear; reasonably free from haziness, slight sedimentation; no oily ring present at the surface	20

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	Sample Container									
		1	2	3	4	5	6	7	8	9	10
Colour	20- 25										
Taste and Flavour	40- 50										
Absence of defects	20- 25										

Signature of the judge

Date

Score Card

Sample Number:

Date of Sampling:

Details of the Sample:

- (a) Product:
- (b) Name of the manufacturer:
- (c) Batch No:
- (d) Date of manufacture:

Factor	Colour					Taste and Flavour					Absence of defects					Total Score					Average Score for			
	A	B	C	D	E	A	B	C	D	E	A	B	C	D	E	A	B	C	D	E	Colour	Taste and Flavour	Absence of defects	Total
Judge																								
Container number																								

Remark.....

Signature.....

Date