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MS 1236 (1991) (English): SPECIFICATION FOR TAMARIND PULP

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MALAYSIAN STANDARD

MS 1236 : 1991
UDC 634.46

SPECIFICATION FOR TAMARIND PULP

SIRIM STANDARDS & INDUSTRIAL RESEARCH INSTITUTE OF MALAYSIA

This Malaysian Standard, which had been approved by the Food and Agricultural Industry Standards Committee and endorsed by the Council of the Standards and Industrial Research Institute of Malaysia (SIRIM) was published under the authority of the SIRIM Council in November, 1991.

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The following references relate to the work on this standard:
Committee reference: SIRIM 481/18
Draft for comment: D197 (ISC A)

Amendments issued since publication

Amd. No.	Date of issue	Text affected

CONTENTS

Committee representation

The Food and Agricultural Industry Standards Committee under whose supervision this Malaysian Standard was prepared, comprises representatives from the following Government Ministries, trade, commerce and manufacturer associations and scientific and professional bodies.

Federal Agricultural Marketing Authority

Federation of Malaysian Consumers Associations

Federation of Malaysian Manufacturers

Malaysian Agricultural Research and Development Institute

Ministry of Agriculture

Department of Agriculture

Malaysian Oil Palm Growers' Council

Malaysian Rubber Producers' Council

Rubber Research Institute of Malaysia

Universiti Pertanian Malaysia

The Technical Committee on Spices and Condiments which prepared this Malaysian Standard consists of the following representatives:

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FOREWORD

This Malaysian Standard was prepared by the Technical Committee on Spices and Condiments under the authority of the Food and Agricultural Industry Standards Committee.

Cakes of the tamarind pulp are commonly used as a spice and condiment mainly in the preparation of Indian and Malay curries. With the existence of this standard, a guideline of quality control and grading can be followed by traders and large-scale purchasers.

In the preparation of this standard, the following were referred to:-

1) Indian standard IS 6364:1971 'Specification for tamarind pulp'.

2) Agriculture Produce [Grading and Marketing Act (1937)] with rules made from 1980 to 1985. Indian Ministry of Agriculture 'Tamarind grading and marketing rules'.

3) 'Malayan Fruits' by B.M. Allen (1967) published by Ho Printing Co. Singapore.

4) Malaysian Standard MS 81:1973 'Methods of test and sampling for spices and condiments'.

5) International Standards Organization ISO 1208:1982 'Spices and condiments - Determination of filth'.

6) ISI Handbook of Food Analysis. Parts V - VII (1982) published by Indian Standards Institution, New Delhi, India.

7) 'Seedless Tamarind Grading and Marking Rules'. Indian Marketing series 193. Agricultural Produce (Grading and Marketing Act 1937 with rules made from 1st January 1980 to 31st March 1985 (Compendium - vol. II) embodying all amendment finally notified up to 31st March 1985.

SPECIFICATION FOR TAMARIND PULP

1. SCOPE

1.1 This Malaysian Standard prescribes the quality and methods of sampling and test of tamarind pulp obtained from the mature fruits of *Tamarindus indica* Linn.

2. DEFINITION

2.1 **Tamarind pulp**. The pulp is obtained from the mature fruits of *Tamarindus indica* Linn by removing first the rind, then the fibrous skeleton enclosing the pulp and the seeds. Seeds may or may not be removed depending on the product marketed. The colour of the pulp shall be uniform. The pulp shall have the characteristic taste and flavour and shall be free from any objectionable odour.

2.2 **Extraneous matter**. Shall be taken to mean foreign matter such as stones, sand, dust and parts of the fruits (eg. fibre strand, rind but excluding tamarind seed and seed fragments), leaf, stem or any other vegetable matter.

3. REQUIREMENTS

3.1 The material shall be practically free from living and/or dead insects, insect fragments, rodent contamination and moulds visible to the naked eye (corrected, if necessary for abnormal vision), with such magnification as may be necessary in any particular case. In the case of dispute, contamination should be determined by the method prescribed in ISO 1208 : 1982 'Spices and condiments - Determination of filth'.

3.2 The material shall also comply with the requirements specified in table 1.

Table 1. Requirements of tamarind pulp

Item No.	Characteristic	Requirements	Methods of test
1.	Extraneous matter, % m/m, max.	0.75	A
2.	Tamarind seed content, (including seed fragments) % m/m, max.	38.0	B
3.	Moisture, % m/m, max.	37.0	C
4.	Total ash (on dry basis), % m/m, max.	23.0	D
5.	Acid insoluble ash (on dry basis), % m/m, max.	0.70	E

NOTE. For estimation of moisture, total ash and acid insoluble ash and content, the material should be practically free from seeds and seed fragments.

4. HYGIENE

4.1 The material shall be processed and packed under hygienic conditions in premises licensed in accordance with the public health legislations currently enforced in Malaysia.

5. SAMPLING

5.1 Representative samples for testing the conformity of tamarind pulp to this standard shall be drawn according to MS 81 'Methods of sampling and test for spices and condiments'.

6. TESTING

6.1 Tamarind pulp shall be tested according to the relevant appendices in this standard.

7. PACKING AND MARKING

7.1 Packing

7.1.1 The material shall be packed in suitable, clean, sound and dry containers and shall also be free from insect infestation or fungal contamination and from objectionable odour.

7.2 Marking

7.2.1 The following particulars shall be suitably marked or labelled on each container:

a) Name and type of the material

b) Trade name

c) Code or batch number

d) Net weight

e) Date of packing

f) Name and address of manufacturer/packer.

8. LEGAL REQUIREMENTS

8.1 The product shall in all other aspects comply with the current legislations enforced in Malaysia.

Appendix A

Determination of extraneous matter

A1. APPARATUS

A1.1 *Sieve* 425 μm.

A1.2 *Forcep.*

A1.3 *Beaker*

A1.4 *Watch glass or filter paper*

A2. PROCEDURE

A2.1 Weigh 100 g sample in a beaker. Add in 200 ml water and mix well. Sieve the mixture through 425 μm sieve. Isolate the extraneous matter on to a tared filter paper or watch glass and dry in the oven at 105 $\pm$ 2°C for 12 hours. Cool and weigh (W_3).

A3. CALCULATION

A3.1 Extraneous matter, % by m/m,

$$= \frac{W_3 - W_2}{W_1} \times 100$$

where,

W_1 is the weight, in g of sample;

W_2 is the weight, in g of filter paper;

W_3 is the weight in g of the filter paper and extraneous matter after drying.

Appendix B

Determination of seed content

B1. APPARATUS

B1.1 *Knife*

B1.2 *Forcep*

B1.3 *Weighing balance*

B2. PROCEDURE

B2.1 Thoroughly mix the sample and weigh about 500 g of the sample. Separate seeds and seed fragments preferably by a knife and forcep. After separation of seeds, free them from any adhering pulp. Weigh the seeds and report the percentage.

B3. CALCULATION

B3.1 Seed and seed fragment content, % m/m

$$= \frac{w_1}{w_o} \times 100$$

where,

w_o is the mass in g of the sample;

w_1 is the mass in g of the seed and seed fragments.

Appendix C

Determination of moisture

C1. APPARATUS

C1.1 *Dish*, porcelain, silica or platinum.

C1.2 *Air oven*, at 105 $\pm$ 2°C.

C1.3 *Desiccator*

C2. PROCEDURE

C2.1 Weigh accurately about 5 g of the material (practically free from seeds and seed fragments) and dry in a previously weighed porcelain, silica or platinum dish in an air oven maintained at 105 $\pm$ 2°C for 10 hours. Cool the dish in a desiccator and weigh with the lid on. Heat again at 105 $\pm$ 2°C in the air oven for 4 hours. Cool the dish in the desiccator and weigh.

C3. CALCULATION

C3.1 Moisture, % m/m $= \dfrac{100\ (W_1 - W_2)}{W_1 - W}$

where,

W is the mass in g of the empty dish;

W_1 is the mass in g of the dish with the material before drying;

W_2 is the mass in g of the dish with the material after drying.

Appendix D

Determination of total ash

D1. APPARATUS

Usual laboratory apparatus not otherwise specified, and the following items.

D1.1 *Dish.* Flat-bottomed, having a surface area of at least 15 cm^2, made of platinum or of other material unaffected by the conditions of the test.

D1.2 *Muffle furnace.* Regulated at 550 $\pm$ 25°C.

D1.3 *Filter paper.* Ashless, medium-fine.

D2. REAGENTS

D2.1 *Ethanol*

D3. PROCEDURE

D3.1 Test portion

D3.1.1 Weigh, to the nearest 0.001 g, about 2 g of the sample (practically free from seed and seed fragments) into the tared flat-bottomed dish.

D3.2 Determination

D3.2.1 Pour about 2 ml of ethanol on the material in the tared dish (D1.1) and ignite it. When the ethanol is burnt off, heat the dish carefully over a small flame to char the material. Then ignite in the muffle furnace (D1.2) at 550 $\pm$ 25°C for 2 hours. Cool and wet the ash with several drops of water, evaporate carefully to dryness and heat in the muffle furnace for further 1 hour at 550 $\pm$ 25°C. If the wetting shows the ash to be carbon-free, remove the dish to a desiccator containing fresh, efficient desiccant, allow to cool to room temperature and weigh without delay. If the wetting shows the presence of carbon, repeat the wetting and heating until no specks of carbon are visible and ignite in the muffle furnace for 1 hour after the disappearance of carbon. if carbon is still visible, leach the ash with hot water, filter through the ashless filter paper, wash the filter paper thoroughly, transfer the filter paper and contents to the ashing dish, dry and ignite in the muffle furnace at 550 $\pm$ 25°C until the ash is white. Cool the dish, add the filtrate and evaporate it to dryness on a water bath. Heat in the muffle furnace again at 550 $\pm$ 25°C, cool in the desiccator and weigh as previously. Repeat these operations until the difference in mass between two succcessive weighings is less than 0.002 g. Record the lowest mass. Retain the total ash for determining acid-insoluble ash.

D4. CALCULATION

Total ash (on dry basis), % m/m

$$= (W_2 - W_0) \times \frac{100}{W_1 - W_0} \times \frac{100}{100 - M}$$

where,

W_0 is the mass in g of the empty dish;

W_1 is the mass in g of the dish and test portion;

W_2 is the mass in g of the dish and total ash;

M is the moisture content of the sample as received (see Appendix C).

Appendix E

Determination of acid insoluble ash

E1. APPARATUS

E1.1 As in D1.

E2. REAGENTS

E2.1 *Hydrochloric acid solution.* Dilute 1 volume of hydrochloric acid (p_{20} = 1.19 g/ml) with 9 volumes of water.

E2.2 *Silver nitrate solution.* 10 percent (v/v).

E3. PROCEDURE

E3.1 **Test portion.** Use the total ash obtained in D3.2.

E3.2 **Determination.** Add to the test portion 15 to 25 ml of the hydrochloric acid and boil for 10 minutes covering the dish with a watch-glass to prevent spattering. Allow to cool and filter the contents of the dish through the ashless filter paper (medium fine). Wash the filter paper with hot water until the washings are free from hydrochloric acid, as tested by silver nitrate soluttion, and return it to the dish. Evaporate carefully at 550 $\pm$ 25°C for 1 hour. Cool the dish in the desiccator and weigh. Cool the dish in the dish in the desiccator and weigh. Repeat the operations of ingiting for 1 hour, cooling and weighing till the difference in mass between two successive weighings is less than 1 mg. Note the lowest mass.

E4. CALCULATION

E4.1 Acid insoluble ash (on dry basis), % m/m =

$$= (W_2 - W_0) \times \frac{100}{W_1 - W_0} \times \frac{100}{100 - M}$$

where,

W_0 is the mass in g of the empty dish;

W_1 is the mass in g of the dish and test portion;

W_2 is the mass in g of the dish and acid-insoluble ash;

M is the moisture content of the sample as received (see Appendix C).

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Printed and Published by: Standards and Industrial Research Institute of Malaysia.

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