INTERNATIONAL STANDARD

ISO 882-1

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Cardamom [*Elettaria cardamomum* (Linnaeus) Maton var. *minuscula* Burkill] — **Specification** —

Part 1: Whole capsules

Cardamome [Elettaria cardamomum *(Linnaeus) Maton var.* minuscula *Burkill*] — *Spécifications* —

Partie 1: Capsules entières

Reference number
ISO 882-1:1993(E)

Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

International Standard ISO 882-1 was prepared by Technical Committee ISO/TC 34, *Agricultural food products*, Sub-Committee SC 7, *Spices and condiments*.

This first edition of ISO 882-1 together with ISO 882-2 cancel and replace ISO 882:1980.

ISO 882 consists of the following parts, under the general title *Cardamom* [Elettaria cardamomum *(Linnaeus) Maton var.* minuscula *Burkill*] — *Specification*:

— *Part 1: Whole capsules*

— *Part 2: Seeds*

Annexes A and B of this part of ISO 882 are for information only.

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Cardamom [*Elettaria cardamomum* (Linnaeus) Maton var. *minuscula* Burkill] **— Specification —**

Part 1: Whole capsules

1 Scope

This part of ISO 882 specifies the requirements for cardamom [*Elettaria cardamomum* (Linnaeus) Maton var. *minuscula* Burkill] as whole capsules.

Recommendations relating to storage and transport conditions are given in annex A.

2 Normative references

The following standards contain provisions which, through reference in this text, constitute provisions of this part of ISO 882. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this part of ISO 882 are encouraged to investigate the possibility of applying the most recent editions of the standards indicated below. Members of IEC and ISO maintain registers of currently valid International Standards.

ISO 927:1982, *Spices and condiments — Determination of extraneous matter content.*

ISO 928:1980, *Spices and condiments — Determination of total ash.*

ISO 939:1980, *Spices and condiments — Determination of moisture content — Entrainment method.*

ISO 948:1980, *Spices and condiments — Sampling.*

ISO 2825:1981, *Spices and condiments — Preparation of a ground sample for analysis.*

ISO 6571:1984, *Spices, condiments and herbs — Determination of volatile oil content.*

3 Definitions

For the purposes of this part of ISO 882, the following definitions apply.

3.1 empty and malformed capsules: Capsules which have no seeds or are scantily filled with seeds.

3.2 immature and shrivelled capsules: Capsules which are not fully developed.

3.3 Blacks and splits

3.3.1 blacks: Capsules having visible blackish to black colour.

3.3.2 splits: Capsules which are open at the corners for more than half the length.

3.4 unclipped capsules: Capsules with tips which have not been trimmed.

3.5 bleached and/or half-bleached capsules: Capsules, fully developed and dried, which have been bleached and/or half-bleached by sulfur dioxide. The colour of such capsules ranges from pale cream to white.

4 Description

For a drawing of the whole plant, see figure 1.

Cardamom capsules [see figure 2 a)] are the dried, nearly ripe fruits of cardamom [*Elettaria cardamomum* (Linnaeus) Maton var. *minuscula* Burkill]. The capsules range in colour from light green to brown, or pale cream to white. They are oblong in shape with a rounded part, or are three-

cornered with a ribbed appearance. The capsules may be clipped and the pedicels removed. They shall be well formed and contain sound cardamom seeds. The capsules may also be bleached.

5 Requirements

5.1 Odour and flavour

The odour and flavour of cardamom capsules shall be characteristic and fresh. The product shall be free from foreign odours or flavours, including those of rancidity and mustiness.

5.2 Freedom from insects, moulds, etc.

Cardamom capsules shall be free from live insects and shall be almost free from moulds, dead insects, insect fragments and rodent contamination visible to the naked eye (corrected, if necessary, for abnormal vision) or with such magnification as may be necessary in any particular case. If the magnification used is greater than × 10, this fact shall be stated in the test report.

NOTE 1 Thrip marks alone on cardamom capsules should not lead to the conclusion that the capsules have been infested with insects.

5.3 Extraneous matter

Cardamom capsules shall be free from visible dirt or dust. The proportion of pieces of calyx and stalk and other extraneous matter shall be not more than 5 % (*m*/*m*), as determined using the method specified in ISO 927.

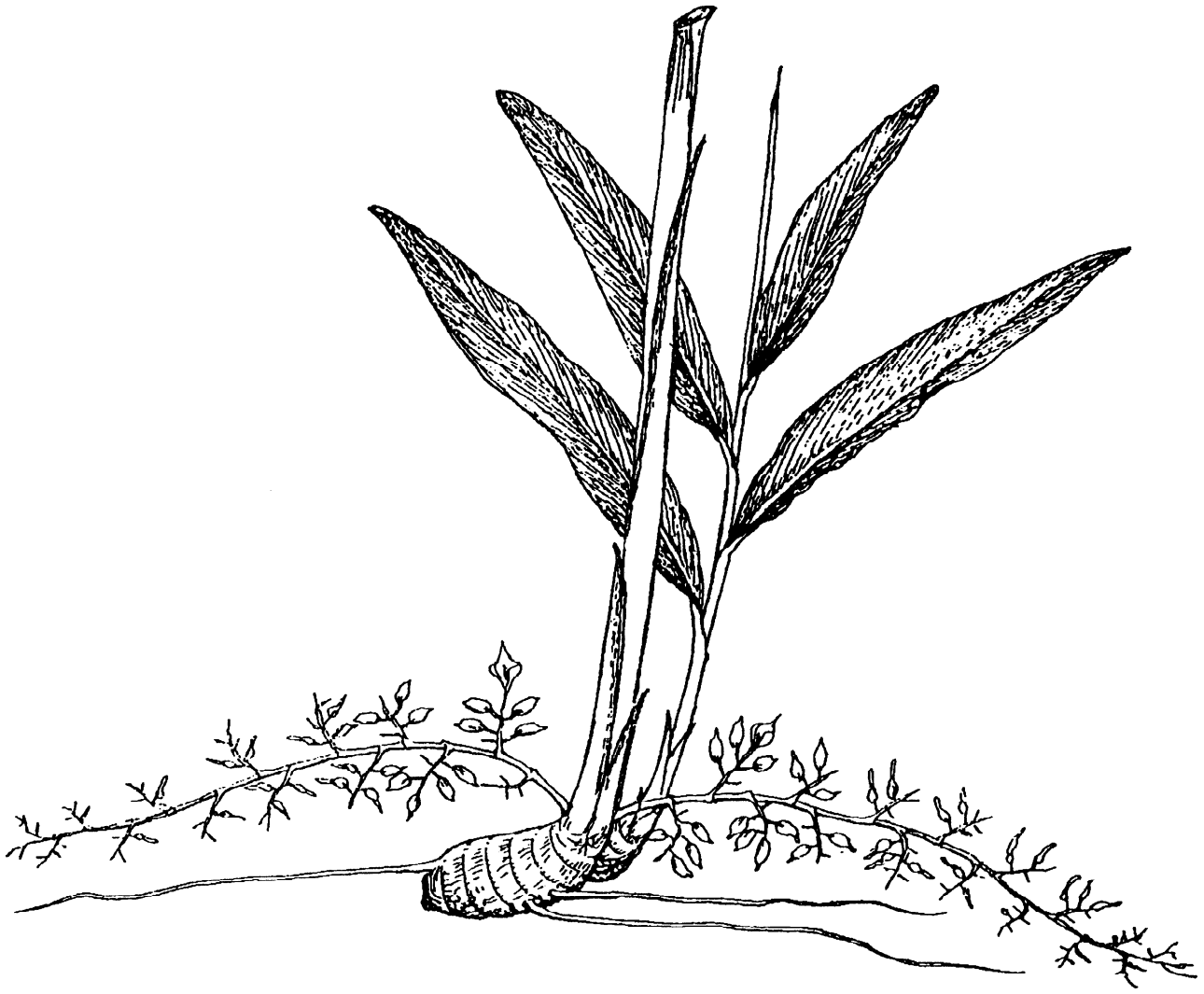

Figure 1 — Cardamom plant in the flowering stage

a) Whole capsule

b) Representation of seeds inside a capsule

c) Seeds

Figure 2 — Cardamom capsules and seeds

5.4 Empty and malformed capsules

The proportion of empty and malformed capsules shall be not more than 5 % by count.

For this purpose, 100 capsules, taken at random from the sample, shall be opened and the number of empty and malformed capsules counted.

5.5 Immature and shrivelled capsules

The proportion of immature and shrivelled capsules, determined after separation using the method specified in ISO 927, shall be not more than 7 % (*m*/*m*).

5.6 Chemical requirements

The cardamom capsules shall comply with the chemical requirements given in table 1.

Table 1 — Chemical requirements for cardamom capsules

Characteristic	Requirement	Test method
Moisture content, % (*m*/*m*) max.	13	ISO 939
Volatile oil content, % (ml/100 g), min., on dry basis	3,5	ISO 6571
Total ash, % (*m*/*m*) max., on dry basis	9,5	ISO 928

6 Grading

The cardamom capsules may be graded on the basis of colour, clipping, size and whether they are bleached or unbleached, and as a function of the proportion of extraneous matter, or their place of origin.

In the absence of an international grading system for cardamom capsules, grading may be carried out in accordance with a relevant national standard, if available.

NOTE 2 For information, the Indian grade designations and respective requirements for cardamom capsules are given in annex B.

7 Sampling

Sampling shall be carried out in accordance with ISO 948.

8 Test methods

Prepare the ground sample for analysis using the method specified in ISO 2825.

The sample thus ground shall be tested for conformity with the requirements of this part of ISO 882 using the test methods specified in 5.3 to 5.5 and in table 1.

9 Packing and marking

9.1 Packing

Cardamom capsules shall be packed in clean, sound and dry tin-plate containers, or in wooden cases or new jute bags, suitably lined with, for example, water-proof paper, craft paper or plastic material.

9.2 Marking

The following particulars shall be marked on each container, or on a label attached to the container:

a) name of the product (botanical name) and trade name or brand name, if any;

b) name and address of the manufacturer or packer;

c) batch or code number;

d) net mass;

e) grade of the product (if graded) in accordance with national standard(s) (to be specified);

f) producing country;

g) year of harvest, if known.

Annex A
(informative)

Recommendations relating to storage and transport of cardamom capsules

A.1 The containers of cardamom capsules should be stored in covered premises, well protected from the rain, sun and excessive heat.

A.2 The store should be dry, free from objectionable odours, and proofed against entry of insects and other pests. The ventilation should be controlled so as to give good ventilation under dry conditions and to be fully closed under damp conditions. Suitable facilities should be available for fumigation.

A.3 The containers should be handled and transported in such a manner that they are protected from rain, sun or other sources of excessive heat, and from objectionable odours, infestation and contamination, especially in the holds of ships.

Annex B
(informative)

Grade designations of cardamom capsules and their requirements

The values given in table B.1 are taken from Indian Standard IS 1907:1984, *Cardamom*.

Table B.1

Grade designation	Trade name	Extraneous matter % (*m*/*m*) max.	Empty and malformed capsules % by count max.	Unclipped capsules % by count max.	Immature and shrivelled capsules % (*m*/*m*) max.	Blacks and splits % by count max.	Diameter of holes in sieve on which retained mm	Mass g/l min.	Colour	General characteristics
Alleppey green										
AGEB	Cardamom extra bold	Nil	2,0	Nil	2,0	Nil	7,0	435	Deep green, green or light green	Kiln-dried three- cornered with a ribbed appearance
AGB	Cardamom bold	Nil	2,0	Nil	2,0	Nil	6,0	415		
AGS	Cardamom superior	Nil	3,0	Nil	5,0	Nil	5,0	385		
AGS1	Shipment green 1	Nil	5,0	Nil	7,0	10,0	4,0	350		
AGS2	Shipment green 2	Nil	5,0	Nil	7,0	12,0	4,0	320		
AGL	Light	Nil	—	Nil	—	15,0	3,5	260		
Coorg green										
CGEB	Extra bold	Nil	Nil	Nil	Nil	Nil	8,0	450	Golden to light cream	Global shape, skin ribbed or smooth; the pedicels separated
CGB	Bold	Nil	2,0	Nil	3,0	Nil	7,5	435	Creamy, light greenish to greenish or brownish or brown	
CG1	Superior	Nil	3,0	Nil	5,0	Nil	6,5	415		
CG2	Coorg green or Motta green	Nil	5,0	3,0	7,0	Nil	6,0	385		
CG3	Shipment	Nil	5,0	5,0	7,0	10,0	5,0	350		
CG4	Light	Nil	—	—	—	15,0	3,5	280		

Grade designation	Trade name	Extraneous matter % (*m*/*m*) max.	Empty and malformed capsules % by count max.	Unclipped capsules % by count max.	Immature and shrivelled capsules % (*m*/*m*) max.	Blacks and splits % by count max.	Diameter of holes in sieve on which retained mm	Mass g/l min.	Colour	General characteristics
Bleached or half-bleached										Fully developed capsules, bleached, global or three-cornered with skin ribbed or smooth
BL1		Nil	Nil	Nil	Nil	Nil	8,5	340	Pale, creamy or dull white	
BL2		Nil	Nil	Nil	Nil	Nil	7,0	340		
BL3		Nil	Nil	Nil	Nil	Nil	5,0	300		
Bleachable white										
BW1	Mysore/ Mangalore bleachable cardamom A, clipped	Nil	1,0	Nil	Nil	Nil	7,0	460		
BW2	Mysore/ Mangalore bleachable cardamom A, unclipped	Nil	1,0	Nil	Nil	Nil	7,0	460		
BW3	Mysore/ Mangalore bleachable bulk cardamom, clipped	Nil	2,0	Nil	Nil	Nil	4,3	435	White, light green or light grey	Fully developed capsules suitable for bleaching
BW4	Mysore/ Mangalore bleachable bulk cardamom, unclipped	Nil	2,0	Nil	Nil	Nil	4,3	435		

Grade designation	Trade name	Extraneous matter % (*m*/*m*) max.	Empty and malformed capsules % by count max.	Unclipped capsules % by count max.	Immature and shrivelled capsules % (*m*/*m*) max.	Blacks and splits % by count max.	Diameter of holes in sieve on which retained mm	Mass g/l min.	Colour	General characteristics
Mixed										
MEB	Mixed extra bold	—	2,0	—	2,0	Nil	7,0	435		Dried and mixed capsules of different varieties of *Elettaria cardamomum*
MB	Mixed bold	—	2,0	—	2,0	Nil	6,0	415		
MS	Mixed superior	—	3,0	—	5,0	Nil	5,0	385		
MS1	Mixed shipment I	—	5,0	—	7,0	10,0	4,0	350		
MS2	Mixed shipment II	—	5,0	—	7,0	12,0	4,0	320		
ML	Mixed light	—	—	—	—	15,0	3,0	260		

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Descriptors: agricultural products, seasonings, spices, cardamom, specifications, tests, packaging, marking, storage, transportation.

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