



Ghana Standards Board
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The UNECE/Codex Standard for Fresh Chilli Peppers

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for Fresh Fruits and Vegetables**

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Content

**1) Genetic Diversity and Fundamentals on Pungency
in *Capsicum* spp.**

**2) The UNECE/Codex Standard for Fresh Chilli
Peppers**

Genetic Diversity of Capsicum spp.



Taxonomy of *Capsicum* spp.

- Solanaceae
- Genus *Capsicum*: 25-30 species.
- 5 cultivated species: *annuum*, *baccatum*, *chinense*, *frutescens* and *pubescens*.



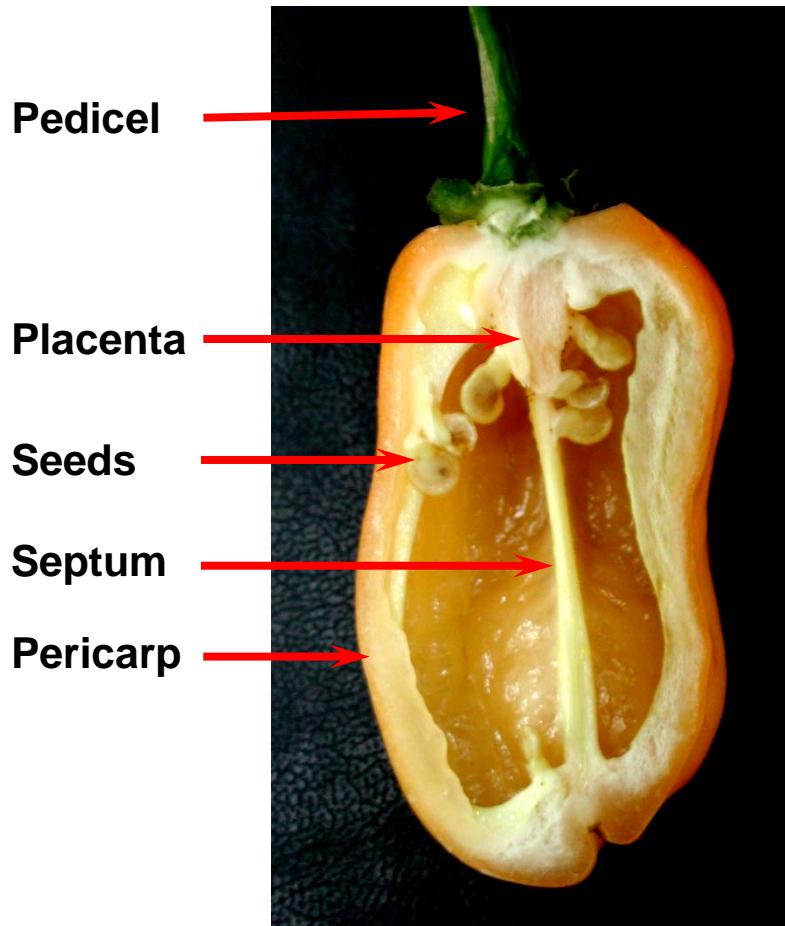
C. annuum



C. chinense

(Bosland & Votava, 2000; Moscone *et al*, 2003)

Anatomy of Habanero Pepper Fruit



2 locules

3 locules

4 locules

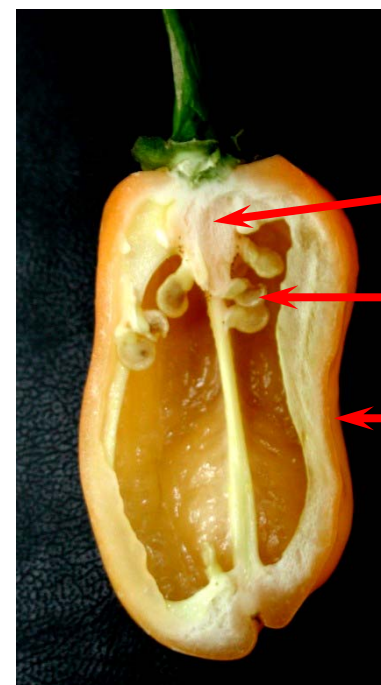
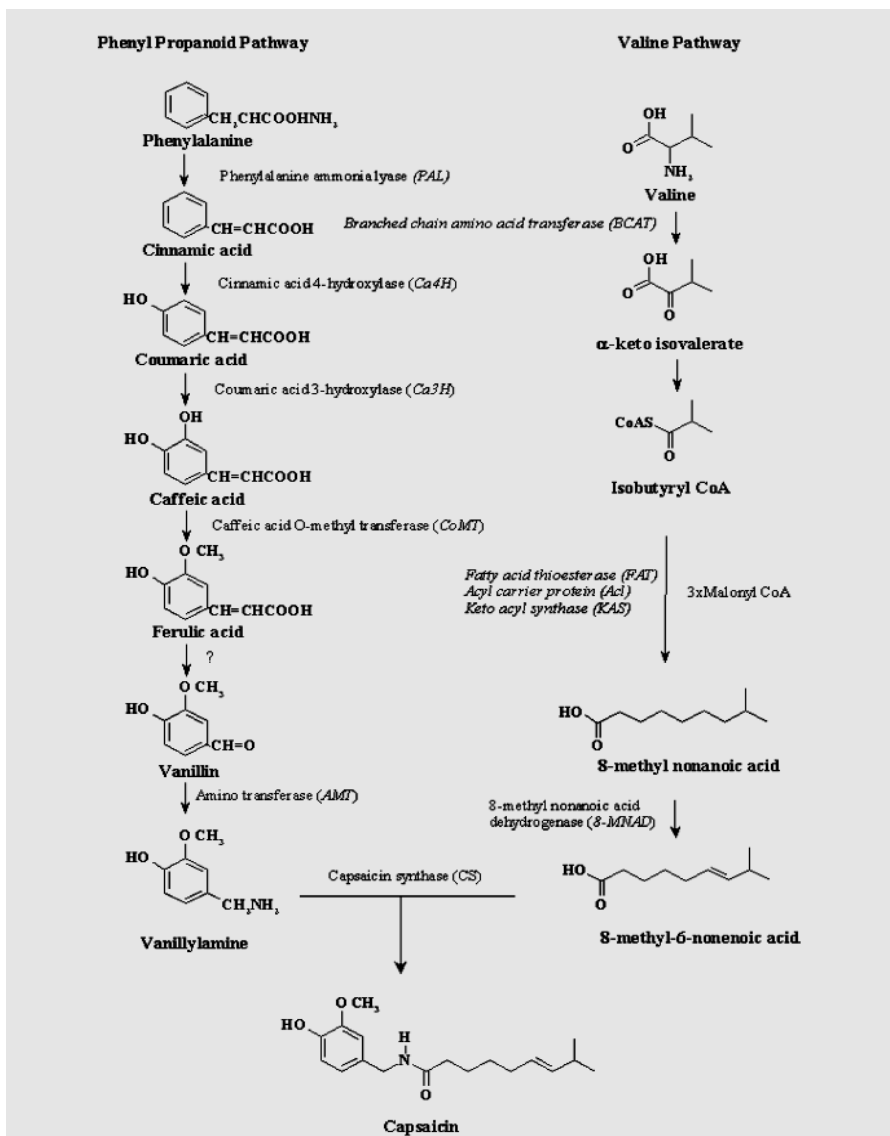


5 locules

6 locules

8 locules

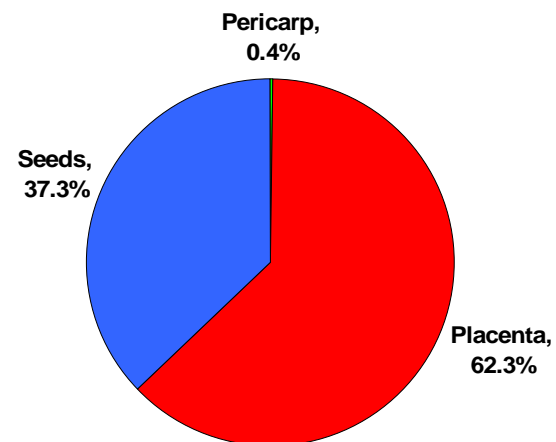
Biosynthesis of Capsaicinoids



Placenta

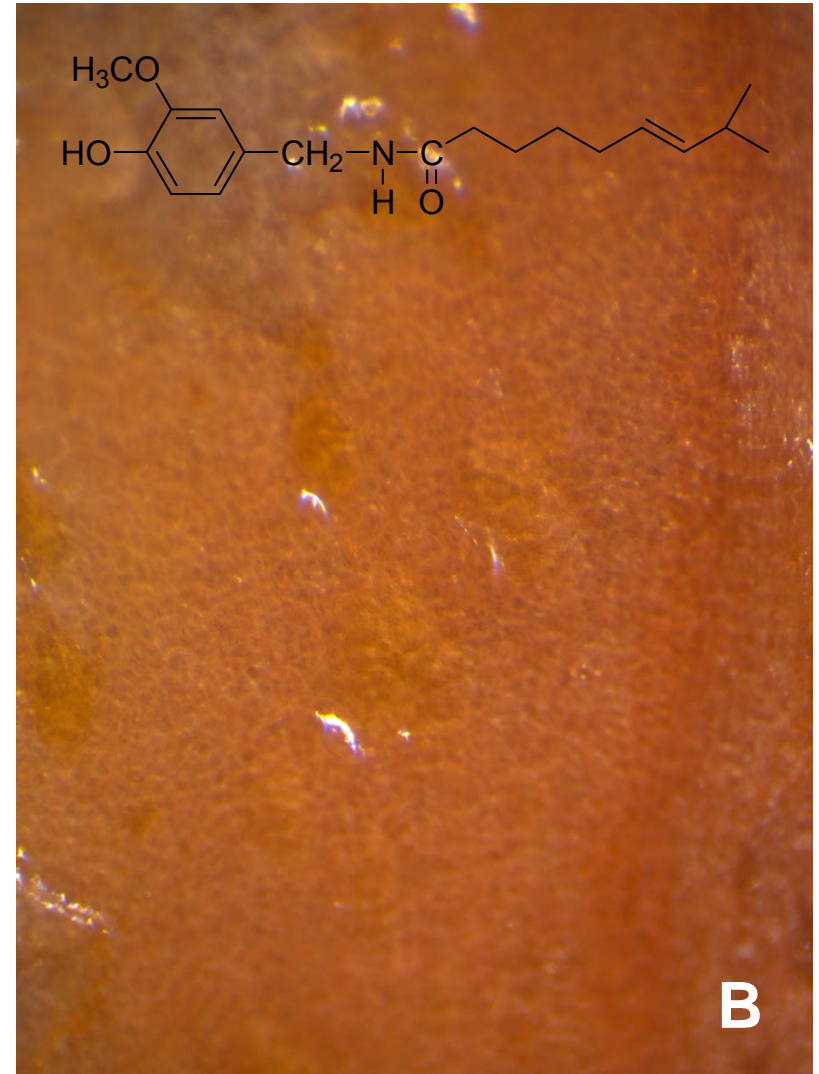
Seeds

Pericarp

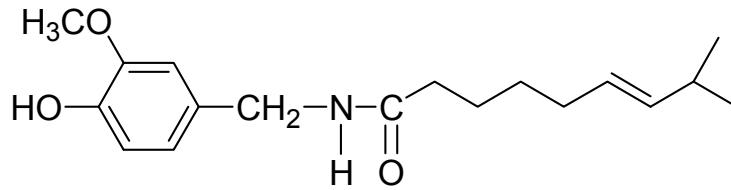


Prasad *et al*, 2006

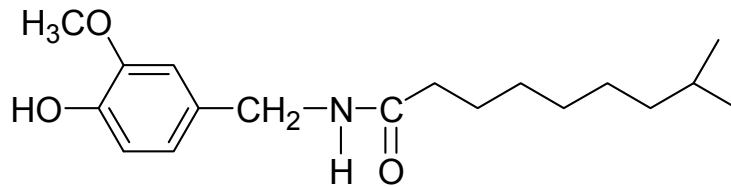
Placental Tissue in Chilli Peppers



Pungency and capsaicinoids



Capsaicin



Dihydrocapsaicin

Capsaicinoid	%
Capsaicin	69
Dihydrocapsaicin	22
Nordihydrocapsaicin	7
Homocapsaicin	1
Homodihydrocapsaicin	1

<p>Capsaicin + Dihydrocapsaicin = >90% total caps</p>
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Harmonizing Layout of UNECE/Codex Standards

- 1. DEFINITION OF PRODUCE**
- 2. PROVISIONS CONCERNING QUALITY**
- 3. PROVISIONS CONCERNING SIZING**
- 4. PROVISIONS CONCERNING TOLERANCES**
- 5. PROVISIONS CONCERNING PRESENTATION**
- 6. MARKING OR LABELLING**
- 7. CONTAMINANTS**
- 8. HYGIENE**

DEFINITION OF PRODUCE

This Standard applies to commercial varieties of chilli peppers grown from *Capsicum spp.*, of the *Solanaceae* family, to be supplied fresh to the consumer, after preparation and packaging.

Chilli peppers for industrial processing are excluded.

DEFINITION OF PRODUCE



Minimum Requirements

In all classes, subject to the special provisions for each class and the tolerances allowed, the chilli peppers must be:

-intact, the stalk (stem) may be missing, provided that the break is clean and the adjacent skin is not damaged;





Not intact – calyx missing, adjacent flesh damaged

- sound; produce affected by rotting or deterioration such as to make it unfit for consumption is excluded;



Not sound – fungal infection

- clean, practically free of any visible foreign matter;
- practically free from pests
- free from damage caused by pests affecting the flesh;





Right – not fresh in appearance (out of grade)

- clean, practically free of any visible foreign matter;
- practically free from pests
- free from damage caused by pests affecting the flesh;
- free of abnormal external moisture excluding condensation following removal from cold storage;
- free of any foreign smell and/or taste;
- free of damage caused by low and/or high temperatures.

‘Extra’ Class

Chilli peppers in this class must be of superior quality. They must be characteristic of the variety and/or commercial type.

They must be free from defects, with the exception of very slight superficial defects affecting an area of up to 0.5% of the product surface, provided these do not affect the general appearance of the produce, the quality, the keeping quality and presentation in the package.



Extra Class



Turning colour – not a colour defect.

For Extra – either all green or red.

Acceptable in Class I

Class I

Chilli peppers in this class must be of good quality. They must be characteristic of the variety and/or commercial type.

The following slight defects, however, may be allowed, provided these do not affect the general appearance of the produce, the quality, the keeping quality and presentation in the package:

- a slight defect in shape
- a slight defect in development
- a slight defect in colouring
- slight skin defects affecting an area of up to 2.0% of the product surface



Class I



Top - typical shape

Bottom - slight shape defect at the tip, Class II



Class I slight skin defects



Class I skin defect (fine cracking)

Class II

This class includes chilli peppers that do not qualify for inclusion in the higher classes but satisfy the minimum requirements specified above.



Class II

Class II

The following defects may be allowed, provided the chilli peppers retain their essential characteristics as regards the quality, the keeping quality and presentation:

- defects in shape



Severe shape defect – out of grade



Class II skin defects



Severe skin defects – out of grade



Out of grade



Out of grade skin defects

Size is determined by length of the chilli pepper in accordance with the following table:

Size code	Length (in centimetres)
1	≤ 4
2	$4 < 8$
3	$8 < 12$
4	$12 < 16$
5	> 16

QUALITY TOLERANCES

“Extra” Class

5% by number or weight of chilli peppers not satisfying the requirements of the class, but meeting those of Class I or, exceptionally, coming within the tolerances of that class.

QUALITY TOLERANCES (cont.)

Class I

10% by number or weight of chilli peppers not satisfying the requirements of the class, but meeting those of Class II or, exceptionally, coming within the tolerances of that class.

QUALITY TOLERANCES (Cont.)

Class II

10% by number or weight of chilli peppers satisfying neither the requirements of the class nor the minimum requirements, with the exception of produce affected by rotting or any other deterioration rendering it unfit for consumption.

SIZE TOLERANCES

For all classes, 10% by number or weight of chilli peppers corresponding to the size immediately above and/or below that indicated on the package.

UNIFORMITY

The contents of each package must be uniform and contain only chilli peppers of the same origin, quality, size and variety. The visible part of the contents of the package must be representative of the entire contents.

CONSUMER PACKAGES

Nature of Produce

If the produce is not visible from the outside, each package shall be labelled as to the name of the produce and the variety and may be labelled as to the level of pungency.

NON-RETAIL CONTAINERS

Identification

Name and address of exporter, packer and/or dispatcher.
Identification code (optional).

Nature of Produce

Name of the produce if the contents are not visible from the outside. Name of the variety, Level of pungency (optional).

NON-RETAIL CONTAINERS (Cont.)

Origin of Produce

Country of origin and, optionally, district where grown or national, regional or local place name.

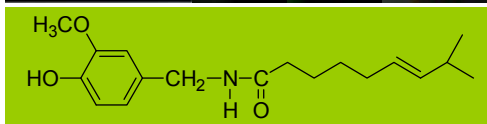
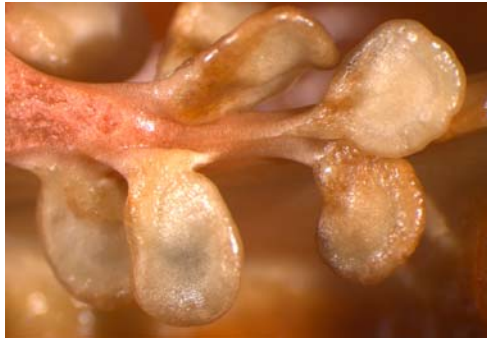
Commercial Identification

Class; Size; Variety; Pungency.

Official Inspection Mark (optional)

LEVEL OF PUNGENCY

Pungency	Scoville Units	Total Capsaicinoids (micrograms/gram dry weight)
Mild	900 - 1,999	60 - 133
Medium	2,000 - 19,999	134 - 1,333
Hot	20,000 - 100,000	1,334 - 6,600
Extra Hot	>100,000	>6,600



Thank you !