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Fruits, vegetables and derived products — Determination of carotene content —

Part 2: Routine methods

*Fruits, légumes et produits dérivés — Détermination de la teneur en
carotènes —*

Partie 2: Méthodes pratiques



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Foreword

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International Standard ISO 6558-2 was prepared by Technical Committee ISO/TC 34, *Agricultural food products*, Sub-Committee SC 3, *Fruit and vegetable products*.

ISO 6558 consists of the following parts, under the general title *Fruits, vegetables and derived products — Determination of carotene content*:

- *Part 1: Reference method*
- *Part 2: Routine methods*

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Fruits, vegetables and derived products — Determination of carotene content —

Part 2: Routine methods

1 Scope

This part of ISO 6558 specifies two routine methods for the determination of the carotene ($C_{40}H_{56}$) content present in the edible parts of, or added to, fruits, vegetables and derived products.

Method A is for the determination of the carotene content in products having a fat content of less than or equal to 5 % (m/m)¹⁾.

Method B is for the determination of the carotene content in products having a fat content of more than 5 % (m/m)¹⁾.

2 Method A: Determination of carotene content in products having a fat content of less or equal to 5 % (m/m)

2.1 Principle

Extraction of carotenes using a mixture of petroleum ether and acetone. Elimination of the acetone, separation of the carotenes from the carotenoids by column chromatography and determination of the carotene content by spectrometry.

2.2 Reagents and materials

Use only reagents of recognized analytical grade and distilled or demineralized water or water of at least equivalent purity.

2.2.1 Petroleum ether, boiling range 50 °C to 70 °C.

2.2.2 Extraction mixture, prepared as follows.

Dissolve 0,2 g of hydroquinone in 40 ml of acetone and then add 160 ml of the petroleum ether (2.2.1).

2.2.3 Sodium sulfate, anhydrous.

Dry at 100 °C for 2 h to 3 h and keep in a hermetically closed container.

2.2.4 Quartz sand, acid washed and dried in a muffle furnace.

2.2.5 Column packing, use one of the column packings specified in 2.2.5.1 to 2.2.5.4.

2.2.5.1 Aluminium oxide, deactivated by suspension in water, prepared as follows.

Heat the aluminium oxide for 3 h in a muffle furnace at 500 °C, cool and keep in a desiccator. Before use, transfer 50 g of the aluminium oxide thus prepared into a flask with a ground glass joint, add 5,5 ml of water and mix thoroughly until a fine uniform suspension is obtained. The pH of the suspension thus obtained is between 9 and 10. The suspension may be kept in a closed flask for 24 h.

2.2.5.2 Magnesium oxide/powdered glass mixture, 1 part to 2 parts by mass.

2.2.5.3 Aluminium oxide/anhydrous sodium sulfate mixture, 3 parts to 1 part by mass.

2.2.5.4 Aluminium oxide/calcium hydroxide mixture, 1 part to 1 part by mass.

2.2.6 Sodium chloride, 300 g/l solution.

1) The limit of 5 % (m/m) adopted for the fat content is arbitrary.