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Meat and meat products — Determination of hydroxyproline content

*Viandes et produits à base de viande — Détermination de la teneur en
hydroxyproline*



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Foreword

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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 3496 was prepared by Technical Committee ISO/TC 34, *Agricultural food products*, Subcommittee SC 6, *Meat and meat products*.

This second edition cancels and replaces the first edition (ISO 3496:1978), which has been technically revised.

Annex A of this International Standard is for information only.

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Meat and meat products — Determination of hydroxyproline content

1 Scope

This International Standard specifies a method for the determination of the hydroxyproline content of all kinds of meat and meat products, including poultry.

It is applicable to meat and meat products containing less than 0,5 % (*m/m*) hydroxyproline.

2 Definition

For the purposes of this International Standard, the following definition applies.

2.1 hydroxyproline content of meat and meat products: Content of hydroxyproline determined according to the procedure specified in this International Standard.

The content is expressed as a percentage by mass.

3 Principle

Hydrolysis of a test portion in sulfuric acid at 105 °C. Filtration and dilution of the hydrolysate. Oxidation of the hydroxyproline by chloramine-T, followed by the formation of a red compound with *p*-dimethylaminobenzaldehyde. Photometric measurement at a wavelength of 558 nm.

4 Reagents

Use only reagents of recognized analytical quality and distilled or demineralized water or water of equivalent purity.

4.1 Sulfuric acid solution, $c(\text{H}_2\text{SO}_4) \approx 3 \text{ mol/l}$.

Add 750 ml of water to a 2 litre one-mark volumetric flask. Add slowly, with agitation, 320 ml of concen-

trated sulfuric acid ($\rho_{20} = 1,84 \text{ g/ml}$). Cool to room temperature and make up to the mark with water.

4.2 Buffer solution, pH = 6,8, consisting of:

26,0 g of citric acid monohydrate ($\text{C}_6\text{H}_8\text{O}_7 \cdot \text{H}_2\text{O}$);

14,0 g of sodium hydroxide;

78,0 g of anhydrous sodium acetate [$\text{Na}(\text{CH}_3\text{CO}_2)$].

Dissolve the reagents in 500 ml of water and transfer quantitatively into a 1 litre one-mark volumetric flask. Add 250 ml of propan-1-ol and make up to the mark with water.

When stored at 4 °C in the dark, this solution is stable for several weeks.

4.3 Chloramine-T reagent

Dissolve 1,41 g of sodium *N*-chloro-*p*-toluene-sulfonamide trihydrate (chloramine-T) in 100 ml of the buffer solution (4.2).

Prepare this solution immediately before use.

4.4 Colour reagent

Dissolve 10,0 g of *p*-dimethylaminobenzaldehyde in 35 ml of perchloric acid solution [60 % (*m/m*)] and then slowly add 65 ml of propan-2-ol.

Prepare this solution on the day of use.

If purification of *p*-dimethylaminobenzaldehyde is necessary (see note 3 in 8.4), proceed as follows. Prepare a saturated solution of *p*-dimethylaminobenzaldehyde in hot 70 % (*V/V*) ethanol. Cool, first at room temperature and finally in a refrigerator. After about 12 h, filter on a Buchner funnel. Wash with a little 70 % (*V/V*) ethanol. Again dissolve in hot