RESOLUTIONS OIV-OENO 662P-2023

HORIZONTAL METHOD FOR THE ENUMERATION OF MICROORGANISMS

THE GENERAL ASSEMBLY,

IN VIEW OF Article 2, paragraph iv of the Agreement of 3 April 2001 establishing the International Organisation of Vine and Wine,

CONSIDERING the work of the "Methods of Analysis" Sub-Commission on the development of methods of analysis for grape juices, concentrated grape juices, reconstituted grape juices and grape nectars,

CONSIDERING the ISO standard ISO 4833-1:2013 and ISO 4833-2:2013 on enumeration of microorganisms which can be access through the ISO website [1]

CONSIDERING the work of the OIV "Microbiology" Expert Group and the favourable opinion of the Scientific and Technical committee of the OIV to make reference to this ISO standard knowing that some of the elements of this ISO standard may be the subject of copyright protection,

AT THE PROPOSAL OF the Commission Oenology,

DECIDES to adopt the following microbiological method of analysis for grape juices, concentrated grape juices, reconstituted grape juices and grape nectars:

HORIZONTAL METHOD FOR THE ENUMERATION OF MICROORGANISMS

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.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular the

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The Director General of the OIV
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Pau ROCA

different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2, www.iso.org/directives.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received, www.iso.org/patents.

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

The committee responsible for this document is ISO/TC 34, Food products, Subcommittee SC 9, Microbiology.

This first edition, together with ISO 4833-1, cancels and replaces ISO 4833:2003.

ISO 4833 consists of the following parts, under the general title Microbiology of the food chain — Horizontal method for the enumeration of microorganisms:

- Part 1: Colony count at 30 °C by the pour plate technique
- Part 2: Colony count at 30 °C by the surface plating technique

Part 1: Colony count at 30 °C by the pour plate technique

1. Scope

This part of ISO 4833 specifies a horizontal method for enumeration of microorganisms that are able to grow and form colonies in a solid medium after aerobic incubation at 30 °C. The method is applicable to:

- a) products intended for human consumption and for animal feed;
- b) environmental samples in the area of food and feed production and handling.

This part of ISO 4833 is applicable to:

- 1) products that require a reliable count when a low limit of detection is specified (below 102/g or 102/ml for liquid samples or below 103/g for solid samples);

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The Director General of the OIV
Secretary of the General Assembly
Pau ROCA

- 2) products expected to contain spreading colonies that obscure colonies of other organisms, e.g. milk and milk products likely to contain spreading Bacillus spp.

The applicability of this part of ISO 4833 to the examination of certain fermented food and animal feeds is limited and other media or incubation conditions can be more appropriate. However, this method can be applied to such products even though it is possible that the predominant microorganisms in those products are not detected effectively.

For some matrices, the method specified in this part of ISO 4833 can give different results to those obtained using the method specified in ISO 4833-2.

2. Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

- ISO 6887 (all parts), Microbiology of food and animal feeding stuffs — Preparation of test samples, initial suspension and decimal dilutions for microbiological examination
- ISO 7218, Microbiology of food and animal feeding stuffs — General requirements and guidance for microbiological examinations
- ISO 11133, Microbiology of food, animal feed and water — Preparation, production, storage and performance testing of culture media

3. Terms and definitions

For the purposes of this document, the following terms and definitions apply.

3.1. microorganism

entity of microscopic size, encompassing bacteria, fungi, protozoa and viruses

[SOURCE:ISO/TS 11139:2006,3 2.26]

Note 1 to entry: For the purposes of this part of ISO 4833, microorganisms are bacteria, yeasts and moulds that are able to produce colonies under the conditions specified in this part of ISO 4833.

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The Director General of the OIV
Secretary of the General Assembly
Pau ROCA

Note 1 to entry: For the purposes of this part of ISO 4833, microorganisms are bacteria, yeasts and moulds that are able to produce colonies under the conditions specified in this part of ISO 4833.

Bibliography

- [1] ISO 835, Laboratory glassware — Graduated pipettes
- [2] ISO 8655-2, Piston-operated volumetric apparatus — Part 2: Piston pipettes
- [3] ISO/TS 11139:2006, Sterilization of health care products — Vocabulary
- [4] Piton C., Grappin R., A model for statistical evaluation of precision parameters of microbiological methods: Application to dry rehydratable film methods and IDG reference methods for enumeration of total aerobic mesophilic flora and coliforms in raw milk. J. Assoc. Off. Anal. Chem. 1991, 74 pp. 92–103
- [5] Scotter S., Aldridge M., Back J., Wood R., Validation of European Community methods for microbiological and chemical analysis of raw and heat-treated milk. J. Assoc. Public Anal. 1993, 29 pp. 1–32
- [6] Dahms S., Weiss H., Estimation of precision values for microbiological reference methods: Standardized pour plate technique. Milchwissenschaft. 1988, 53 pp. 555–559
- [7] WORLD DATA CENTRE FOR MICROORGANISMS. Reference strain catalogue pertaining to organisms for performance testing culture media. Available (viewed 2013-03-06) at: http://www.wfcc.info/pdf/WDCM_Reference_Strain_Catalogue.pdf

Part 2: Colony count at 30 °C by the surface plating technique

1. Scope

This part of ISO 4833 specifies a horizontal method for enumeration of microorganisms that are able to grow and form colonies on the surface of a solid medium after aerobic incubation at 30 °C. The method is applicable to:

- a) products intended for human consumption or for animal feed;

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The Director General of the OIV
Secretary of the General Assembly
Pau ROCA

- b) environmental samples in the area of food and feed production and food handling.

This part of ISO 4833 is applicable to:

- 1) products containing heat-sensitive organisms that are likely to form a significant proportion of the total flora (e.g. psychrotrophic organisms in chilled and frozen foods, dried foods, other foods that may contain heat-sensitive organisms);
- 2) products containing obligately aerobic bacteria that are likely to form a significant proportion of the total flora (e.g. Pseudomonas spp.);
- 3) products that contain small particles that can prove difficult to distinguish from colonies in a pour plate;
- 4) products whose intense colour prevents the recognition of colonies in a pour plate;
- 5) products for which distinction between different types of colony is required as part of the assessment of food quality.

In addition to the manual spread plating technique, this part of ISO 4833 also specifies the use of a spiral plater, a rapid method of performing surface colony counts (Annex A).

The applicability of this part of ISO 4833 to the examination of certain fermented food and animal feeds is limited and other media or incubation conditions can be more appropriate. However, this method can be applied to such products even though it is possible that the predominant microorganisms in these products are not detected effectively.

For some matrices, the method described in this part of ISO 4833 can give different results to those obtained using the method described in ISO 4833-1.

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Certified in conformity Jerez, 9th June 2023
The Director General of the OIV
Secretary of the General Assembly
Pau ROCA

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For the purposes of this document, the following terms and definitions apply.

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entity of microscopic size, encompassing bacteria, fungi, protozoa and viruses
[SOURCE:ISO/TS 11139:2006,3 2.26]
Note 1 to entry: For the purposes of this part of ISO 4833, microorganisms are bacteria, yeasts and moulds that are able to produce colonies under the conditions specified in this part of ISO 4833.

Bibliography

- [1] ISO 835, Laboratory glassware — Graduated pipettes
- [2] ISO 8655-2, Piston-operated volumetric apparatus — Part 2: Piston pipettes
- [3] ISO/TS 11139:2006, Sterilization of health care products — Vocabulary
- [4] ISO 17410, Microbiology of food and animal feeding stuffs — Horizontal method for the enumeration of psychrotrophic microorganisms
- [5] BS 4285-2.3:1984,1 Microbiological examination for dairy purposes — Methods of general application forenumeration of microorganisms — Enumeration of microorganisms by surface plate technique for colony count
- [6] AMERICAN PUBLIC HEALTH ASSOCIATION, Standard methods for the examination of dairy products.Washington, DC: APHA, Seventeenth Edition, 2004
- [7] AOAC INTERNATIONAL, 977.27 Spiral Plate method. In: Official methods of

Certified in conformity Jerez, 9th June 2023
The Director General of the OIV
Secretary of the General Assembly
Pau ROCA

analysis. Gaithersburg, MD: AOAC, Nineteenth Edition, 2012

- [8] Roberts D., Greenwood M., Enumeration of microorganisms. In: Practical food microbiology. Oxford: Blackwell, Third Edition, 2003, pp. 105–29.
- [9] Maturin L., Peeler J.T, Chapter 3. Aerobic plate count. In: Bacteriological analytical manual. Silver Spring, MD: US Food and Drug Administration, 2001. Available (viewed 2012-07-13) at: http://www.fda.gov/Food/ScienceResearch/LaboratoryMethods/BacteriologicalAnalyticalManualBAM/ucm063346.htm
- [10] Greenwood M.H., Coetzee E.F.C., Ford B.M., Gill P., Hooper W.L., Matthews S.C. et al., The microbiology of selected retail food products with an evaluation of viable counting methods. J. Hyg. (Lond.). 1984, 92 pp. 67–77
- [11] International Commission on Microbiological Specifications for Foods. Microorganisms in foods. 1 Their significance and methods of enumeration. London, ON: University of Toronto Press, Second Edition, 1978
- [12] Gilchrist J.E., Donnelly C.B., Peeler J.T., Campbell J.E., Collaborative study comparing the spiral plate and aerobic plate count methods. J. Assoc. Off. Anal. Chem. 1977, 60 pp. 807–812
- [13] Jarvis B., Lach V.H., Wood J.M., Evaluation of the spiral plate maker for the enumeration of microorganisms in foods. J. Appl. Bacteriol. 1977, 43 pp. 149–157
- [14] Kramer J.M., Gilbert R.J., Enumeration of micro-organisms in food: A comparative study of five methods. J. Hyg. (Lond.). 1978, 81 pp. 151–159
- [15] WORLD DATA CENTRE FOR MICROORGANISMS. Reference strain catalogue pertaining to organisms for performance testing culture media. Available (2013-03-07) at: http://www.wfcc.info/pdf/WDCM_Reference_Strain_Catalogue.pdf

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[1] https://www.iso.org/obp/ui/#iso:std:iso:4833:-1:ed-1:v1:en
https://www.iso.org/obp/ui/#iso:std:iso:4833:-2:ed-1:v1:en

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