
**Microbiology of the food chain —
Horizontal method for the detection
and enumeration of
Enterobacteriaceae —**

**Part 1:
Detection of *Enterobacteriaceae***

*Microbiologie de la chaîne alimentaire — Méthode horizontale par
la recherche et le dénombrement des Enterobacteriaceae —*

Partie 1: Recherche des Enterobacteriaceae



Reference number
ISO 21528-1:2017(E)



COPYRIGHT PROTECTED DOCUMENT

© ISO 2017, Published in Switzerland

All rights reserved. Unless otherwise specified, no part of this publication may be reproduced or utilized otherwise in any form or by any means, electronic or mechanical, including photocopying, or posting on the internet or an intranet, without prior written permission. Permission can be requested from either ISO at the address below or ISO's member body in the country of the requester.

ISO copyright office
Ch. de Blandonnet 8 • CP 401
CH-1214 Vernier, Geneva, Switzerland
Tel. +41 22 749 01 11
Fax +41 22 749 09 47
copyright@iso.org
www.iso.org

Contents

Page

Foreword	iv
Introduction	v
1 Scope	1
2 Normative references	1
3 Terms and definitions	1
4 Principle	2
4.1 Enrichment in non-selective medium	2
4.2 Isolation and selection for confirmation	2
4.3 Confirmation	2
5 Diluent, culture media and reagent	2
6 Equipment and consumables	2
7 Sampling	3
8 Preparation of test sample	3
9 Procedure	3
9.1 General	3
9.2 Test portion and initial suspension	4
9.3 Enrichment	4
9.4 Isolation and selection for confirmation	4
9.4.1 Isolation	4
9.4.2 Selection of colonies for confirmation	4
9.5 Subculturing selected colonies	4
9.6 Biochemical confirmation tests	4
9.6.1 Oxidase reaction	4
9.6.2 Fermentation test	5
10 Expression of results	5
11 Precision	5
11.1 Interlaboratory study	5
11.2 Sensitivity	5
11.3 Specificity	5
12 Test report	5
13 Quality assurance	6
Annex A (informative) Enumeration by MPN technique	7
Annex B (normative) Culture media and reagents	10
Annex C (informative) Method validation studies and performance characteristics	15
Bibliography	17

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 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 (see 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 (see 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.

For an explanation on the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT) see the following URL: www.iso.org/iso/foreword.html

This document was prepared by the European Committee for Standardization (CEN) Technical Committee CEN/TC 275, *Food analysis — Horizontal methods*, in collaboration with ISO Technical Committee ISO/TC 34, *Food products*, Subcommittee SC 9, *Microbiology*, in accordance with the agreement on technical cooperation between ISO and CEN (Vienna Agreement).

This second edition cancels and replaces the first edition (ISO 21528-1:2004), which has been technically revised with the following main changes:

- the MPN method has become an informative [Annex A](#);
- the pre-enrichment step in BPW followed by enrichment in EE broth has been changed to enrichment in BPW[[Z](#)] and confirmation now takes place in Glucose OF medium instead of using glucose agar;
- performance testing for the quality assurance of the culture media has been added;
- performance characteristics for this method have been added to [Annex C](#).

A list of all the parts in the ISO 21528 series can be found on the ISO website.