

## NORDIC COMMITTEE ON FOOD ANALYSIS

### What has happened since the last newsletter?

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NMKL method No. 164, *Escherichia coli* O157. Detection in food and animal feed, has been updated.

*Escherichia coli* O157 (H7 or H-) comprising *stx* genes and *eae* gene is a pathogenic *E. coli*, which may cause severe infections in humans. NMKL method No. 164 describes the qualitative determination of *E. coli* O157 in food and animal feed. The update includes information on sorbitol fermenting *E. coli* O157 (SF *E. coli* O157). Obligatory determination of presence of the major virulence genes *stx* and *eae* by a reference laboratory has been added as it is mandatory to test isolates of *E. coli* O157 for the presence of these genes. A new Annex 2 has been added, describing the method for analysis of samples from primary production (i.e. fecal samples and environmental samples from primary production).

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NMKL is working on arranging a symposium on authenticity in foods near Copenhagen, Denmark, in September 2020.

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We in the NMKL secretariat send all readers of the NMKL newsletter our season's greetings and wish you Happy New Year!

All NordVal International certificates  
are available on  
[www.nmkl.org](http://www.nmkl.org)  
under the tab "NordVal".



Colourbox photo

**UPDATED METHOD**

## *Escherichia coli* O157. Detection in food and animal feed (NMKL method No. 164, 2019)

*Escherichia coli* O157 (H7 or H-) comprising *stx* genes and *eae* gene is a pathogenic *E. coli*, which may cause severe infections in humans.

The typical STEC O157 strains harbor the shigatoxin genes *stx*<sub>1</sub> and/or *stx*<sub>2</sub> (also named *vtx*<sub>1</sub> and *vtx*<sub>2</sub>) and carry the intimin-encoding gene *eae*, coding for adhesion to the intestinal epithelium. Pathogenic strains contain a large plasmid, harboring additional genes associated with virulence (pO157 plasmid).

The reservoir for STEC O157 is ruminants, in particular, cattle and sheep, and humans are usually infected through contaminated food and direct contact with animals or through the environment such as contaminated water (recreational water). STEC does not survive heat treatment such as pasteurization but may survive well in different types of foods, and the infectious dose is low.

This method describes the qualitative determination of *E. coli* O157 in food and animal feed. The method is also applicable for primary production samples (animal fecal samples and environmental samples from primary production), although the performance of the method for such matrices is not validated. This method does not describe the characterization of potential virulence genes in the isolates.

The method has been updated to include information on sorbitol fermenting *E. coli* O157 (SF *E. coli* O157). Obligatory determination of presence of the major virulence genes *stx* and *eae* by a reference laboratory has been added. It is mandatory to test isolates of *E. coli* O157 for the presence of *stx* and *eae* genes as *E. coli* O157 without virulence factors is occasionally isolated from samples. A new Annex 2 has been added, describing the method for analysis of samples from primary production (i.e. fecal samples and environmental samples from primary production).

Gro S. Johannessen is a senior research scientist at the section for Food Safety and Animal Health at the Norwegian Veterinary Institute. She has broad experience with working with detection of foodborne pathogens and indicators along the food production chain. Gro is currently the chairperson of the microbiology subcommittee of NMKL, takes part in working groups in ISO TC 34/SC 9, and is the contact person for NRL STEC in Norway. She also takes part in different projects and research projects both in Norway and internationally.



Photo: Eivind Røhne

## NordVal International - Renewed certificates



- ◇ NordVal International Certificate 020 issued to Bio-Rad for “RAPID’*E.coli* 2 Agar” has been renewed. The method describes ready-to-use selective and chromogenic plates, which inhibit growth of Gram-positive bacteria and of principal Gram-negative bacteria other than *Enterobacteriaceae*. The method is applicable for detection of *E. coli* in a broad range of foods.
  
- ◇ NordVal International Certificate 039 issued to Qualicon Diagnostics for “BAX® System Real-Time PCR Assay *Campylobacter jejuni/coli/lari*” has been renewed. The method is a direct method without enrichment step and with ready to use tubes for the BAX instrument. The method is applicable for detection of *Campylobacter jejuni, coli* and *lari* in poultry faeces on cloacae swabs.
  
- ◇ Bio-Rad has applied for renewal of NordVal International Certificate 038, “iQ-Check® *Salmonella* II kit”. It is a qualitative method allowing the detection of *Salmonella* spp-specific DNA sequences after enrichment in buffered peptone water. It is based upon polymerase chain reaction and real-time detection using fluorescent probes. NordVal International evaluated the data for the method according to NordVal International Protocol 1 and ISO 16140-2:2016 and concludes that the method for detection of *Salmonella* spp. on a broad range of food, animal feed and primary production samples provides results equivalent to the results from the reference method. NordVal International has accepted to renew the certificate; the certificate can be downloaded from the NMKL homepage from and including 20 December 2019.

## NordVal International - Extended certificate

- ◇ NordVal International Certificate 033 issued to HyServe for “Compact Dry TC Method for enumeration of total count” has been extended. The method describes ready-to-use chromogenic plates. An extension study was performed to extend the method with more matrices and to ensure compliance with ISO 16140-2 and NordVal Validation Protocol 1. By reviewing the results, NordVal International concludes, that the method provides results equivalent to the results from the reference method when applied for detection in a broad range of foods, pet food and primary production samples.

## NMKL procedures available

- No 1, 2nd Ed. 2005 Kalibrering och kontroll av vågar på laboratorier. *Calibration and performance checking of laboratory balances*
- No 3, 1996 Kontrollkort och kontrollprov i den interna kvalitetskontrollen på kemiska livsmedelslaboratorier. *Control charts and control materials in internal quality control in food chemical laboratories*
- No 4, 3rd Ed., 2009 Validering av kemiska analysmetoder. *Validation of chemical analytical methods*
- No 5, 2nd Ed. 2003 Skattnig och angivande av mätosäkerhet vid kemiska analyser. *Estimation and expression of measurement uncertainty in chemical analysis (3rd Ed. 2019)*
- No 6, 2nd Ed. 2016 Generelle retningslinier for kvalitetssikring af sensoriske laboratorier. *(Yleiset ohjeet aistinvaraisten laboratorioden laadunvarmistukseen)*
- No 7, 1998 Kontrol af UV/VIS spektrofotometre. *Checking of UV/VIS spectrophotometers*
- No 8, 4th Ed. 2008 Måleusikkerhet ved kvantitativ mikrobiologisk undersøkelse av næringsmidler. *Measurement of uncertainty in quantitative microbiological examination of foods*
- No 9, 2nd Ed., 2007 Utvärdering av det systematiska felet med användning av certifierade referensmaterial. *Evaluation of method bias using certified reference materials*
- No 10, 2nd Ed. 2017 Kvalitetskontroll av mikrobiologiske dyrkningsmedier. *Control of microbiological media*
- No 11, 2nd Ed. 2010 Sensorisk bedømmelse av drikkevann. *Procedure for sensory analysis of drinking water*  
Juomaveden aistinvarainen arviointi.
- No 12, 2nd Ed., 2014 Håndbok i prøvetaking av næringsmidler. *Guide on sampling for analysis of foods*
- No 13, 2003 Volumetrisk kontrol. *Volumetric control*
- No 16, 2005 (2007) Sensorisk Kvalitetskontroll. *Sensory quality control*. Aistinvarainen laadunvalvonta
- No 17, 2006 Kravspesifikasjoner ved kjøp av analysetjenester. *Guidelines for requirement specifications for food analyses*.
- No 18, 2006 Bruk av referansmaterialer, referansestammer og kontrollkort i mikrobiologiske næringsmiddellaboratorier. *The use of reference materials, reference strains and control charts in a food microbiological laboratory*
- No 19, 2007 Riktlinjer för sensorisk bedömning av livsmedelsförpackningar. *Guideline for sensorial Analysis of Food containers/packages*
- No 20, 2007 Evaluering av resultater fra kvalitative metoder. *Evaluation of results from qualitative methods*
- No 21, 2nd Ed. 2016 *Guide for sensory analysis of fish and shellfish* (Available in English and Finnish)
- No 22, 2008 Anvisningar för värdering av immunokemiska testkit för livsmedelsanalys. *Considerations regarding evaluation of immunochemical test kits for food analysis*
- No 23, 2008 Håndledning i kvalitetssikring for mikrobiologiske laboratorier. *Guide on quality assurance in microbiological laboratories*
- No 24, 2010 Veiledning i kvalitetssikring for kemiske levnedsmiddellaboratorier. *Guidelines for quality assurance for food chemical laboratories* (also available in Finnish)
- No 25, 2014 Utbyte (Recovery) vid kemiska analytiska mätningar. *Recovery information in analytical measurement*
- No 26, 2nd Ed., 2015 Kontroll och intern kalibrering av termometrar och temperaturkontroll på mikrobiologiske laboratorier. *Control and internal calibration of thermometers and temperature control on microbiological laboratories*
- No 27, 2013 Måleusikkerhet i sensoriske analyser. *Measurement uncertainty in sensory analysis*
- No 28, 2014 *Guidelines for reporting sensory data*
- No 29, 2014 *Guidelines for sensory analysis of meat and meat products (English and Finnish)*
- No 30, 2014 *Statistical Evaluation of Results from Quantitative Microbiological Methods (English)*
- No 31, 2015 *Guidelines for sensory evaluation of bread*
- No. 32, 2017 Verifikation af mikrobiologiske metoder. *Verification of microbiological methods*