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NORDIC COMMITTEE ON FOOD ANALYSIS

CONTENTS

Course held on verification of microbiological methods

NMKL held a course in verification of microbiological methods in Oslo, Norway, at the beginning of June 2018.

Interest was big, both for participating in person and by streaming—and from both Norway and other Nordic countries. The course followed a similar NMKL course held in Helsinki, Finland, in November 2017.

The purpose of the course was to make participants familiar with how to verify their methods and/or read verified methods. Key point was the new NMKL procedure No. 32.

The certification organisation NordVal International participated as well.

Topics included:

- Introduction to validation incl. in-house validation and verification. The use of available validation data from NMKL methods, ISO standards and certificates issued by certification organisations
- What is needed in order to get a certification
- Experience with verification
- The verification process—selecting material—spiking of samples
- Verification of qualitative methods (LOD-detection limit)
- Verification of quantitative methods (precision and measurement uncertainty)

Learn more about verification of microbiological methods in NMKL procedure No. 32.

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AOAC Europe—NMKL—NordVal International symposium 2019 in Norge

Speeding Towards –omics

Chemical and microbiological food analysis

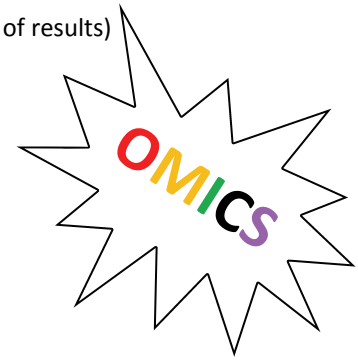
Registration information will follow — save the dates already now!

AOAC Europe – NMKL – NordVal International Symposium
3 - 4 June 2019 in Oslo, Norway

SCOPE
The aim of the symposium is to bring together scientists, technicians and companies discussing emerging technologies and techniques with an emphasis on recent advances and applications on food analysis.
We are speeding towards –omics (genomics, proteomics, transcriptomics, metabolomics, foodomics), - and the scope of this symposium is to discuss prospects of use, validation and application of –omics related to food.
Use of proprietary rapid methods have contributed to efficiency in providing analytical results. In order to ensure quality, independent parties review and certify these methods. At this symposium NordVal International celebrates its 20-years anniversary.

VENUE
KS Agenda, Haakon VIIs gate 9, in the city centre of Oslo, Norway (www.ksagenda.no)

TOPICS (chemical and microbiological analysis in foods - 2 parallel sessions)
- Genomics, proteomics, transcriptomics, metabolomics, foodomics
- New rapid methods
- Multi-methods
- Hand-held instrumentations
- Digitalisation of the analytical process (from sampling to interpretation of results)



LANGUAGE
English

CALL FOR ABSTRACTS - IMPORTANT DATES
Abstracts for oral presentations: 15 October 2018
Abstracts for poster presentations: 19 March 2019

ACCOMMODATION
There are many hotels close to the venue. Please make your own reservations in due time.

REGISTRATION FEE
Students: 200 €
Others: 400 €

EXHIBITION
There is room for 15 exhibitors (about 1 x 2 m tables). We are planning a joint dinner, sponsors are welcome.

NordVal International

NMKL

AOAC INTERNATIONAL EUROPE SECTION OF AOAC INTERNATIONAL

Workshop on digitalisation will be held in Sweden at the end of August

Workshop on digitalisation of laboratory activities will be held in Sigtuna, Sweden, on 29 August (deadline for registration was 15 June).

Digitalisation leads to possibilities for increased quality assurance and smoother data handling. However, the process to digitalisation is complicated and you often face the risk that the system does not comply with expectations. At this workshop we will present some of the systems available and discuss examples of problems and pitfalls when implementing a digitalisation system.

The agenda includes the following topics:

Welcome and opening of the seminar
Hans Lindmark, National Food Agency, Sweden

Digitalisation of the lab – what is the benefit?
Ralf Schröder, Waters Sverige AB, Sweden

SMART lab – Managing the end-to-end process in the digitalised future lab
Thomas Eriksson, PlantVision, Sweden

Digital transformation of the laboratory: today, tomorrow and in the future
Micheil Lee, Agilent, Sweden

The dream that became a reality
Torgny Rundlöf and Peter Ajdert, Medical Products Agency, Sweden

Using digital documentation in a GLP-regulated laboratory
David Pekar, Recipharm OT Chemistry AB, Sweden

Driving customer satisfaction using a digital LEAN approach
Fredrik Ström and Gabriella Brusquini-Calmervik, Synlab Analytics & Services Sweden AB

Conclusions and closure of the WS
Hans Lindmark, National Food Agency, Sweden

See upcoming events and register on the NMKL homepage, www.nmkl.org

Contact the NMKL secretariat if you have any questions,
write to NMKL@food.dtu.dk

NEW NMKL METHOD

New NMKL method: Methylmercury, determination by isotope dilution GC-ICPMS in foodstuffs (NMKL method No. 202, 2018)

INTRODUCTION

NMKL method No. 202 describes the quantitative determination of mono-methylmercury (MMHg) (10-5000 µg/kg dry weight) in mainly marine biota samples. The principle of the method is that the sample is spiked with an appropriate amount of Hg isotope-enriched MMHg and extracted. After derivatisation the sample is analysed using GC-ICPMS. The GC separates the different mercury species before MMHg is atomised and ionised in the high temperature of the ICP. The ions are extracted from the plasma, and in a mass spectrometer the ions are separated by their mass/charge ratio.

BACKGROUND

Mercury can exist in various forms with different toxicity. Methylmercury is the most toxic species of mercury found in foodstuffs and biota samples and hence it is important to determine this form of mercury. The Joint FAO/WHO Food Standards Programme Codex Alimentarius is currently developing maximum limits for methylmercury in several fish species.

ABOUT THE METHOD

This new NMKL method was developed at the National Institute of Nutrition and Seafood Research (now the Institute of Marine Research) in Bergen, Norway. After the method was in-house validated, the method became a draft NMKL method. The draft NMKL method was later selected by the European Committee for Standardization (CEN) as a candidate for a future European standard method and was successfully validated by CEN in a collaborative study and published as EN 16801 in 2016. The results from the collaborative validation study were published in Food Chemistry (https://doi.org/10.1016/j.foodchem.2015.08.041). The original draft NMKL method has now been approved and published by NMKL. The draft NMKL method was in-house validated on a range of reference materials of marine origin and these results have been published in the Journal of AOAC International (https://doi.org/10.5740/jaoacint.11-133).

The method comprises spiking the sample with methylmercury enriched in a stable mercury isotope, decomposition of the spiked sample as well as pH adjustment and derivatization followed by extraction and instrumental determination using gas chromatography inductively coupled plasma mass spectrometry (GC-ICP-MS). Calculation of the result is done using the isotope dilution equation. The use of the isotope dilution principle ensures that results obtained when using this method are of the highest quality, while GC allows for complete separation of methylmercury from other species and ICP-MS allows for element specific determination of mercury with high sensitivity. The working range of the method spans several orders of magnitude, and the method is applicable and fit for purpose to determine methylmercury in a wide range of foodstuffs and biota samples.

The NMKL method was elaborated by:

Stig Valdersnes, Institute of Marine Research (IMR), Norway (project leader)
Inge Rokkjær, Danish Veterinary and Food Administration, Denmark
Eija-Riitta Venäläinen, Finnish Food Safety Authority Evira, Finland
Guðjón Atli Auðunsson, Innovation Center Iceland, Iceland
Barbro Kollander, National Food Agency, Sweden
Hilde Kraggerud, TINE SA, Norway
Nina Skall Nielsen, Technical University of Denmark (DTU)/NMKL, Denmark

NordVal International certicates

New certificates

Chemical

- **New NordVal certificate 048 issued to DirectSens® for LactoSens® 0.01%**

DirectSens® has developed a biosensor for the determination of residual lactose in lactose-free milk products. Using a specific enzyme and an electrochemical measurement, the lactose concentration is detected using the LactoSens® Reader (LR01) with sensors from the LactoSens® Test Kit (LK0225). Further information is given in the certificate. A validation of LactoSens has been performed according to the NordVal Validation Protocol 2. The performance of the LactoSens® 0.01% assay was compared against the reference method ISO 22662 IDF 198 Milk and milk products – Determination of lactose content by HPLC. The results obtained are satisfactory and document that there is no statistical difference in the performances between the methods for lactose in milk (and milk products) for levels at or above 0.01%. LactoSens is validated for cow/bovine milk.

Microbiological

- **New NordVal International certificate , No. 049, issued to Bio-Rad for RAPID´*Staph***

RAPID'*Staph* is based on enumeration on an optimised Baird-Parker formula for enumeration of S. aureus in 24 h at 37°C. Some Staphylococcus coagulase positive strains can give colonies with a small or without halo after 24 hours of incubation. An additional incubation of 24 hours could be necessary to see the halo. RAPID´*Staph* is applicable for abroad range of foods. The validation is performed according to ISO 16140-2 and NordVal Validation Protocol 1.

- **New NordVal International certificate , No. 050, issued to HyServe for Compact Dry YM RAPID**

Compact Dry are ready-to-use dry media sheets comprising culture medium and a cold-soluble gelling agent. The Compact Dry YM Rapid method contains chromogenic medium and selective agents for the detection and enumeration of yeasts and moulds after 3 days of incubation. Further information is given in the certificate. A validation of CompactDry YM RAPID has been performed according to the NordVal Validation Protocol 1 and ISO16140-2. The performance of CompactDry YM RAPID was compared against the reference method ISO 21527-1:2008. The results obtained document that CompactDry YM RAPID provides equivalent results to the reference method in a broad range of foods with an aw of >0.95. Like the reference method, it is not intended for mould spores or for heat resistant mould species.

The certificates are available at www.nmkl.org, under tab "NordVal".

NordVal International certificates

Renewed certificates

- **NordVal International Certificate 037 issued to Bio-Rad for "iQ-Check® *Listeria monocytogenes* II" has been renewed**

The method describes sample preparation according to one of three protocols followed by real-time PCR using florescent probes. An extension study has been performed to ensure compliance with ISO 16140-2 and NordVal Validation Protocol 1. By reviewing the results, NordVal International concludes that "iQ-Check® *Listeria monocytogenes* II" for detecting *Listeria monocytogenes* provides results equivalent to the results from the reference method when applied for detection in a broad range of foods and environmental samples.

- **NordVal International Certificate 041 issued to Eurofins for "Salmonella detection method by real-time PCR" has been renewed**

The method describes a shortened pre-enrichment in buffered peptone water followed by DNA extraction and subsequent real-time PCR analysis. The Salmonella detection method using DNA extraction by boiling or King Fisher is applicable for raw meat and swabs from cattle and pig carcasses. The Salmonella detection method using DNA extraction by King Fisher is also applicable for poultry faeces sock swabs.

- **NordVal International Certificate 022 issued to Bio-Rad for RAPID´*L. mono* has been renewed**

A renewal study was carried out according to ISO 16140-2:2016 and NordVal Validation Protocol 1 to test for relative trueness and accuracy profile. The principle of the RAPID'*L. mono* medium is a chromogenic detection of the *Listeria monocytogenes* grown on medium containing a selective mixture. On this medium *Listeria monocytogoenes* forms characteristics blue (pale blue, grey blue to dark blue) colonies without a yellow halo. RAPID'*L. mono* detects Listeria monocytogenes in 24 hours and other Listeria species in 24 and 48 hours. The method is applicable for the enumeration of Listeria monocytogenes and for the detection of other Listeria species in a broad range of food and environmental samples.

- **NordVal International Certificate 030 issued to Qualicon for "BAX® System PCR Assay for *Salmonella*" has been renewed**

An extension study has been performed to ensure compliance with ISO 16140-2 and NordVal Validation Protocol 1. The Bax® System for detection of *Salmonella* is targeting a specific bacterial DNA fragment which is specific for *Salmonella* and which is not present in any other bacteria, and hence is an indicator of the presence of *Salmonella*. The method is applicable for the detection of *Salmonella* spp. in a broad range of foods, animal feed and environmental samples.

The certificates are available at www.nmkl.org, under tab "NordVal".

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 kjemiske analysemetoder. *Validation of chemical analytical methods*
- No. 5, 2nd Ed. 2003 Skattning och angivande av mätosäkerhet vid kemiska analyser. *Estimation and expression of measurement uncertainty in chemical analysis*
- No. 6, 2nd Ed. 2016 Generelle retningslinier for kvalitetssikring af sensoriske laboratorier. *(Yleiset ohjeet aistinvaraisten laboratorioiden 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, 2001 Kontroll av mikrobiologiske dyrkningsmedier. *Control of Microbiological Media (2nd Ed. 2018, English)*
- 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 Volumentrisk kontrol. *Volumetric control*
- No. 14, 2004 SENSVAL: Retningslinjer for egenkontroll i sensoriske analyselaboratorier. *SENSVAL: Guidelines for internal control in sensory analysis laboratories*
- 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 referansematerialer, 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 Anvisnigar för värdering av immunokemiska testkit för livsmedelsanalys. *Considerations regarding evaluation of immunochemical test kits for food analysis*
- No. 23, 2008 Handledning i kvalitetssäkring för mikrobiologiska 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 mikrobiologiska 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 *Verification of microbiological methods (in English)*