NMKL Newsletter
No. 53/03
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Newsletter for
The Nordic Committee on Food Analysis

CONTENTS:

Preparation, handling and quality assurance of culture media.

NMKL arranges courses at:
- ✓ Reykjavik, Iceland, 4 September (Language: English)
- ✓ Copenhagen, Denmark, 18 September (Language: Norwegian)
- ✓ Horsens, Denmark, 19 September (Language: Norwegian)
- ✓ Uppsala, Sweden, 26 September (Language: Norwegian)

Course fee: NOK 1000.
Registration: **immediately** to the NMKL general secretariat (nmkl@vetinst.no)
Lecturers: Anne Grændsen og Nina Dyrnes, Norsk Matanalyse

PRELIMINARY PROGRAM.

Kl.09.30: Registration
Kl.10.00: Welcome, introduction
Kl.10.15: About culture media in general
- The composition of the media
- Use of supplements and admixtures
- The influence of the indicator on the culture media
- Purchase and storage of dehydrated culture media

Kl.11.5: Preparation of culture media
- Procedures
- Personnel
- Laboratory
- Water quality
- Equipment

Kl.12.00: Lunch
Kl.13.00: Control of culture media
- Available standards and procedures
- Physical appearance.
- pH; measuring and control
- Sterile control
- Volume control

Kl.14.00: Control of culture media
- Qualitative and quantitative control

Kl.15.00: Coffee break
Kl.15.15: Handling, storage and shelf life of ready-to-use culture media
Kl.16.00: Summing up, closure

Home page:
www.nmkl.org
E-mail:
nmkl@vetinst.no

NMKL welcomes any input or comments on the NMKL newsletter and on NMKLs's working programme.
NMKL Secretary General Hilde S Norli, National Veterinary Institute, PB 8156 Dep, N-0033 Oslo, Norway.
Tel: +47 64870046, e-mail: nmkl@vetinst.no
Chairman of NMKL: Ole Bjørn Jensen, Scanpharm A/S, Denmark.

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NMKL method No 6, 4th. Ed., 2003: **Nitrogen**. Determination in foods and feeds according to Kjeldahl.

Leif Bøgh-Sørensen, Danish Veterinary and Food Administration, Denmark has revised this NMKL method.

This method describes a reference method for quantitative determination of nitrogen in foods and feeds. The reference method includes block digestion and (semi) automatic distillation and titration, as well as the conventional Kjeldahl method. The main emphasis of the method is placed on block digestion and semi automation, as this is gradually the most applied technique in the Nordic countries.

On some points, the method deviates from the following standards: IDF 20, ISO 937 and ISO 8968. The Kjeldahl method is so robust, that it has to be assumed that all these methods give consistent results. The method is not validated in a collaborative study.

The nitrogen content corresponds to the amount of ammonia developed and determined as described in the method. The nitrogen content is expressed as mass percentage content (w/w).

The sample is digested by heating it with concentrated sulphuric acid and potassium sulphate, using copper sulphate as catalyst. Hereby, organic nitrogen is converted into ammonium ions. After cooling, an excess of sodium hydroxide is added, and the formed ammonia is distilled into a boric acid solution including indicator. The amount of ammonia, and thereby the nitrogen content, is determined by titration with a hydrochloric acid solution. This procedure is known as the Kjeldahl method. Nitrogen in the form of nitrite/nitrate will not or only partly be determined by this method. Heterocyclic bound nitrogen would only be determined to a varying degree.

NMKL method No 39, 3rd Ed., 2003: **Iodine value**. Determination in Fats and Oils. (Wijs Method).

This is originally an IUPAC-AOCS-AOAC method reedited for NMKL by the NMKL secretary general, Hilde Skaar Norli. Thanks are given to Nina Engebretsen at Defnofa, Norway, for valuable input.

It was meant to be an editorially revision only, but as the original method used carbon tetrachloride as solvent, the revision became more extensive.

The iodine value is a measure of the number of double bonds (unsaturated bonds) in fats and oils, calculated as the amount in grams, of iodine absorbed per 100 g of sample (% iodine adsorbed).

This method is applicable to the determination of iodine values for fats and oils that do not contain conjugated double bonds.

Fat or oil is mixed with iodine monochloride solution to halogenate double bonds. The excess of iodine monochloride is reduced to free iodine in the presence of potassium iodide. The free iodine is measured by titration with sodium thiosulphate using starch as indicator.

This method is validated in two collaborative studies conducted in 1989 and 1990, with 11 and 18 participating laboratories, respectively. The results of the studies conducted, is given in the method and show that the repeatability (at 95% probability) is expected to be less than or equal to 3.9% and the limit of reproducibly is less than or equal to 7.0%.

NMKL method No 67, 5th Ed., 2003: ***Bacillus cereus*. Determination in foods**

This NMKL method has been editorially revised by Laurits Rossebø, Municipal Food Control Authority of Haugaland, Haugesund, Norway. Ia Pudas and Christina Normark at the National Food Administration of Sweden arranged the collaborative study of this method.

The purpose of the revision was to harmonize the method with other NMKL methods in addition to include the collaborative study results in the method. Thirteen laboratories participated in the study. The results show that the repeatability is expected (with 95% probability) to be less than or equal to 0,35 $\log_{10}$ CFU/ml and the reproducibility less or equal to 0,99 $\log_{10}$ CFU/ml.

B. cereus is determined quantitatively by plating known amounts of sample on blood agar, or alternatively by replicate plating on blood agar and Bacillus cereus selective agar. After incubation at 30 °C for 24 ± 3 hours typical colonies with a hemolytic zone are counted. The colonies are confirmed on Bacillus cereus selective agar. *B. cereus* forms bluish colonies surrounded by egg yolk reaction (lecithinase) on selective agar.
The method does not distinguish between *B. cereus* and *B. thuringiensis*. This distinction must be performed microscopically by examining whether the bacteria produce parasporal crystals. Both species form spores after 1-2 days on most media. Because they are very closely related and both may produce enterotoxins, differentiation in foods is rarely necessary.

NordVal Validation

News from NordVal:
NordVal is a Nordic forum validating alternative microbiological methods (test kits).

The following test-kits are validated by NordVal:

Method	Company	Scope/Matrix
Bioline Salmonella	Bioline Denmark	Foods and feeds of animal origin
EiaFoss Salmonella	Foss Electric Denmark	Foods
Transia Plate Salmonella Gold	Diffchamb France	Foods
Transia Plate Listeria	Diffchamb France	Foods
Vidas Salmonella	Biomerieux France	Foods
Vidas Listeria	Biomerieux France	Foods
Vidas Listeria monocytogenes II	Biomerieux France	Foods
Oxoid Listeria Rapid Test	Oxoid UK	Foods
AccuProbe Listeria Monocytogenes	Genprobe USA	Foods
AccruProbe Campylobacter	Genprobe USA	Foods
LumiProbe 24 Salmonella	Euoroprobe France	Foods
3M Petrifilm Enterobacteriaceae Count Plate	3M Health Care USA	Foods
3M Petrifilm Aerobic Count Plate	3M Health Care USA	Foods
3M Petrifilm Coliform Count Plate	3M Health Care USA	Foods
3M Petrifilm E.coli/Coliform Count Plate	3M Health Care USA	Foods
3M Petrifilm Yeats and Mold Count Plate	3M Health Care USA	Foods
3M Petrifilm Staph Express Count System	3M Health Care USA	Foods

The national food administration in each of the Nordic countries nominates an expert to join the steering group. The chairman of NordVal is Sven Qvist, the Danish Veterinary and Food Administration. **(e-mail: sq@fdir.dk).**

Members of NordVal, Juni 03: Maija Hatakka (Finland), Sven Qvist (Denmark), Semir Loncarevic (Norway) Franklin Georgsson (Iceland), Per Norberg (Sweden)

Join the symposium:

New trends within instrumental food analysis!

13-15 October 2003,
at the Royal Veterinary and Agricultural University (KVL), Denmark.

New trends within analysis and
in evaluation of the analytical results.
See **www.nmkl.org** for information.

Don't miss the opportunity to learn about multivariate data analysis! Register for the seminar 13 of October at KVL:

An introduction to multivariate analyses – a tool to understand complex food data

See program at www.nmkl.org

13 of October at KVL also arranges the symposium:

International method cooperation within food analyses

Languages: **Scandinavian**.
Are there any needs for official methods? International rules for validation, different method organisations, and cooperation
See www.nmkl.org for info.