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AGENCE FRANÇAISE
DE SECURITE SANITAIRE
DES ALIMENTS

EU COMMUNITY REFERENCE LABORATORY FOR MILK

Site de Maisons-Alfort

LABORATOIRE D'ETUDES ET DE RECHERCHES
SUR L'HYGIENE ET LA QUALITE DES ALIMENTS

2007 Programme of Work of the Community Reference Laboratory for Milk & Milk Products

The AFSSA-LERQAP (Laboratory for Studies & Research on Quality of Foods & on Food Processes) foresees to undertake, as Community Reference Laboratory (CRL) for milk, the following works in 2007 according in particular to (a) the actions planned at the 8th Workshop of the National Reference Laboratories (NRLs) (30 June-1 July 2005), the 9th Workshop dedicated to the instrumental methods for total flora in raw milk (11&12 September 2006), and (b) the work programme defined in Annex I of the Framework Partnership Agreement between EC/DG SANCO and the CRL for the period 2006-2010.

These actions are part of the new role of the CRL, restricted to the control of liquid milk as raw material (total flora, somatic cells count, phosphatase), in the frame of the Regulation 853/2004 *laying down specific hygiene rules for food of animal origin* (its Section IX is dedicated to raw milk and dairy products). This new regulation is applicable from 1st January 2006.

The CRL foresees to provide a particular support to the NRLs for the implementation of the Regulation 853/2004 recently applicable, as well as of derived legislation still under preparation.

NB: In brackets under each item, the scheduled duration of the action is indicated: either annual (limited to 2007) , either multi-annual (on-going programme on several years).

1. Inter-laboratory proficiency testing

The inter-laboratory proficiency testing trials organised by the CRL for the NRLs aim at evaluating the ability of the NRLs to apply satisfactorily the methods for the analyses performed in the frame of official controls prescribed by Regulation 853/2004.

1.1 Total flora at 30°C

(annual)

Frame : In Section IX of Regulation 853/2004, microbiological criteria have been fixed for raw milk (Chapter I, III) and for dairy products (Chapter II, III-criteria for the use of raw cow's milk for further processing). They include criteria on plate count at 30°C for raw cow's milk and from other species.
The draft Regulation amending Regulations 853, 854, 2074, 2075 and 2076 (SANCO/644/2006) includes the description of testing methods for raw milk and heat-treated milk, including the reference method for total flora at 30°C, Standard EN ISO 4833 as well as conditions for the use of alternative methods.

The CRL (Team CHPL-HMPL) will organize an inter-laboratory trial on the enumeration of total flora at 30°C by the reference method, the Standard EN ISO 4833 (total plate count method).

At the 2006 Workshop of the NRLs on total flora by alternative methods, it was agreed that in addition to the NRLs, it would be needed to include in the trial additional participants, i.e. the laboratories in charge in each country to establish the conversion relationship between the reference method and the instrumental methods. The correct implementation of the reference method is indeed a critical point for the correct establishment of conversion factors. The participation will therefore be larger than usual for that trial.

1.2 Determination of alkaline phosphatase activity
(annual)

Frame: In Section IX of Regulation 853/2004, a reference to a negative phosphatase test is made to characterize the heat treatment applied to certain raw milks at the primary production stage (Chapter I, I.3).
Chapter II(II) of Section IX is dedicated to requirements on heat treatment of raw milk or dairy products, applicable to food business operators. A cross reference is made to the general requirements of Regulation 852/2004, Annex II, Chapter XI.
The draft Regulation amending Regulations 853, 854, 2074, 2075 and 2076 (SANCO/644/2006) includes more detailed requirements for heat treatment, with a reference to the phosphatase test. It also defines the reference method, the Standard ISO 11816-1, the legal limit for negativity of the test (350 mU/l for cow's milk) and conditions to use alternative methods.

Following the first proficiency test on AP and its relatively poor outcome, the CRL (Team CHPL-QUALAS) envisages to organize a second trial on the use of the reference method, focused on only one or two types/species of milk. Participants' attention would be drawn to the need to strictly stick to the reference method. NRLs using an alternative method will be also invited to participate in order to get an impression of how the alternative methods match with the reference method.

2 Analytical development

These works are conducted in the CRL laboratory alone.

2.1 Determination of total flora at 30°C
(multi-annual)

The reference method for evaluating this parameter is the Standard EN ISO 4833 (enumeration of bacteria on Petri dishes). However, this reference method is generally not used in routine analyses for the hygiene control of raw milk. Alternative methods are used instead, mainly instrumental ones based on flow cytometry (such as the Bactoscan apparatus). Their use is allowed in the draft Regulation SANCO/644/2006.

a. Coordination of the NRLs

Since the Standard ISO 21187 on the conversion factors between the routine method and the reference method has been recently published, the CRL will follow how the NRLs will supervise its implementation by the network of laboratories in charge of routine control of raw milk. The target is that by end of 2007, all conversion factors be recalculated according to the Standard in each Member State. In addition, it is intended to have only one conversion factor per country.

b. Study of the alternative methods

Once the equipment will be bought and installed, the CRL (Team CHPL-HMPL) will conduct experimental studies using a flow cytometer as an alternative method to the bacterial count, in order to investigate the questions linked to the correlation of this method to the reference method, especially the different factors influencing, for a same apparatus, the value of the conversion factor (variation in breeds, period of lactation,…).

A visit to the NRL-Kiel is intended to collaborate on that topic.

c. Scientific and technical support

In the frame of the revision of the Standard EN ISO 16140 by WG 3 "Method Validation" of ISO/TC 34/SC 9[1], the CRL will follow the incorporation of an annex detailing the specificities of validation of a routine method against a reference method for the determination of total flora in raw milk. This annex would be based on a document prepared by the IDF/ISO JAT "Routine analysis in quantitative microbiology".

2.2 Somatic cells count
(multi-annual)

Frame : In Section IX of Regulation 853/2004, microbiological criteria have been fixed for raw milk (Chapter I, III) and for dairy products (Chapter II, III-criteria for the use of raw cow's milk for further processing). They include criteria on somatic cells count for raw cow's milk and from other species.
The draft Regulation amending Regulations 853, 854, 2074, 2075 and 2076 (SANCO/644/2006) includes the description of testing methods for raw milk and heat-treated milk, including the reference method for somatic cells count, Standard ISO 13366-1 as well as conditions for the use of alternative methods.

At the 2004 Workshop of the NRLs dedicated to the reference microscopic method for somatic cells count (SCC), it was identified that a major aspect to ensure and to enhance the quality of this counting, in addition to the harmonisation and improvement of the reference method, was the availability of qualified reference samples to "calibrate" the analyses.

The CRL will prepare and send in 2007 a questionnaire to the organisations known to provide such reference samples to SCC, as to review the condition of their production, QA measures. On the basis of the outcome of this questionnaire, the CRL, in coordination with the NRLs, could then recommend the use of certain reference samples.

[1] Subcommittee 9 "Microbiology" of Technical Committee 34 "Food products" of ISO.

2.3 Determination of alkaline phosphatase activity
(multi-annual)

In 2007, the CRL (Unit CHPL-QUALAS) will conduct the following activities.

a. Determination of the phosphatase activity in other than cow's milk

The CRL (Team CHPL-QUALAS) will go on the pasteurisation studies on goat's and ewe's milk, whose purpose is to support EC advising an appropriate legal limit for ewe's and goat's pasteurised milk.

Experiments on pasteurisation of ewes' milk will be continued. The CRL faced big difficulties in 2006 with inactivation of phosphatase in this matrix because of its high fat and, consequently, phosphatase content. Contacts with UK and US partners aim to establish a more efficient protocol for 2007.

If more information is obtained and depending on the need, further investigation on camel's milk may be undertaken.

b. Determination of alkaline phosphatase in other dairy products than milk

Preliminary results on a pilot production of hard cheese (Emmental type) have shown the pertinence of phosphatase as a tracer of the quality of the milk used for the cheese production (raw, thermized, pasteurized).

More data will be generated in 2007 to support these first conclusions and then a study on commercial cheeses will be conducted. In parallel, the extraction procedure will be studied in more depth and detail. The results of this investigation will be presented within the relevant ISO/IDF Joint Action Team during Analytical Week 2007.

c. Criteria approach

The CRL will compare the "official" reference method prescribed in the draft Regulation SANCO/644/2006, with alternative methods in order to evaluate, with our UK colleagues, perspectives of a proposal of a criteria approach for the methods to be used for the phosphatase test (i.e. to replace the reference to a specific reference method in the Regulation by performance criteria to be met by any method).

The CRL would submit this proposal to the NRLs for endorsement before recommending it to DG SANCO.

3 Assistance to the NRLs

3.1 Training courses

Upon requests of NRLs, the CRL may also receive NRL staff for individual training on specific topics.

3.2 Visit of NRLs

If needed, the CRL may visit one or two NRLs.

4 NRLs Workshop

The CRL will organise in 2007 the 10th NRLs Workshop, this year of general scope :

- to make a point of works undertaken by the CRL since the last general Workshop of 2005, in particular further to the 2006 Workshop dedicated to the determination of total flora by alternative methods;
- to envisage the work programme for the following years.

5 Technical and scientific assistance to the European Commission

5.1 Participation to ISO/IDF standardization works

On behalf of DG SANCO (and official nomination as EC representative to CEN/ISO meetings), participation to

- the IDF/ISO works on the analytical methods specific to the analysis of raw milk:
  - somatic cells count: reference and alternative methods,
  - total flora: alternative methods,
  - phosphatase test: reference and alternative methods.
- the *IDF/ISO Analytical Week*, Germany, May 2007 and the meeting of the groups dealing with the topics mentioned above.