CECALAIT'S NEWSLETTER

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CENTRE D'EXPERTISE ET DE CONTROLE DES ANALYSES LAITIERES

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PUBLICATION OF OUR 2009 CATALOGUE OF SERVICES

CECALAIT's catalogue of services will be sent by post during week 43. You will then find it on-line in the "Catalogue" section on our website http://www.cecalait.com.

Two new items in 2009:

➢ The **proficiency test on pathogenic flora in cheese** formula 4 criteria will become **multi-criteria**. Indeed, next year, in addition to the initial criteria (detection of *Listeria* and *Salmonella*, enumeration of coagulase positive staphylococci and *Escherichia coli*) you will able to order the following new criteria on two of the dispatch dates (31/03/2009 and 29/09/2009):

- enumeration of microorganisms at 30°C,
- enumeration of enterobacteria,
- enumeration of ASR,
- enumeration of *Clostridium perfringens,* and
- enumeration of *Bacillus cereus*.

➢ A new **proficiency test for the detection of inhibitors in milk** will be available on 2 dispatch dates (11/05/2009 and 12/10/2009). Each test will be constituted of 10 freeze-dried samples (garanteeing very good stability) to be reconstituted in the laboratory just before the analysis. The type and level of contamination have been fixed according to the molecules most frequently met and the regulatory maximum residue limits.

For further information, you can consult pages 24 and 30 (for the proficiency test on pathogenic flora formula multi-criteria) and pages 34-35 (for the proficiency test on inhibitors) of our catalogue. We hope that many of you will use these new proficiency tests and we are at your disposal for any further information on this point.

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THE MERGING OF CECALAIT AND ACTILAIT

Since 1st July 2008, CECALAIT joined the Technical Institute of Milk and Dairy Products named **ACTILAIT.** This important step in CECALAIT's life brings about the dissolution of CECALAIT's Association, which merges with ACTILAIT which also brings together the ITFF (Institut Technique Français des Fromages), the Centre Fromager de Carmejane and the ITPLC (Institut Technique des Produits Laitiers Caprins).

This change in legal status does not modify CECALAIT's essential purpose, which will continue through ACTILAIT and under the commercial name of CECALAIT, to supply you with the same services at the same tariffs and with the same desire for quality.

The collaborators that form the ACTILAIT / CECALAIT team remain the same, your usual contacts are therefore unchanged. Our postal address remains identical. Our e-mail addresses will change soon (you will find them in the 2009 catalogue and in the "Organisation and services" section on our website). However, the current e-mail addresses ending in @cecalait.fr will be operational until the end of 2008.

We thank you for the confidence you have shown in CECALAIT until now and that we have no doubt you will continue to show in the future within the framework of ACTILAIT.

CHARACTERISATION OF COAGULANTS: A TOOL FOR THE CHEESE INDUSTRY

Coagulants are technological auxiliaries indispensable to the cheese industry that can be of many origins:

- **Animal, obtained mainly from the maceration of ruminants' abomasa and generally containing a mixture of enzymes: chymosin and pepsin in various concentrations according to the age and the feed type of the young ruminant.**

- **Microbial, obtained by fermentation in controlled conditions. The three main ones available at this time are:**

  - **Acid proteinase native of *Cryphonectria parasitica* (formerly *Endothia parasitica*)**
  - **Acid proteinase native of *Rhizomucor pusillus* (formerly *Mucor pusillus*)**
  - **Acid proteinase from *Rhizomucor miehei* (formerly *Mucor miehei*).**

- **Fermentative, produced after cloning of the gene producing prochymosin *Aspergillus niger var awamori* and *Kluyveromycès lactis*.**

METHODS

Various methods exist for analysing the qualitative and quantitative characteristics of these coagulants as well as their coagulating activity:

◆ Qualitative and quantitative determination

- **The official French method, published in the OJFR of January 1981** for the determination of chymosin and bovine pepsin content, which is split into 2 parts:

  - *A qualitative method (Part A)* to identify the enzymes present and to ensure that only chymosin and bovine pepsin are present in the rennet extract (by an immunodiffusion method with specific antibodies).

  - *A quantitative method (Parts B and C)* to determine the active quantities of chymosin and bovine pepsin (in mg/L) in the rennet extract. This method includes the separation of the two enzymes using a chromatographic technique on an ion exchange column and the measurement of the coagulation time at 30°C, of a powder milk substrate reconstituted in the presence of calcium chloride 0.1M (pH 6.35).

  This method corresponds to version A of the 1987 IDF 110 method.

- **The current version of the IDF 110 method (B: 1997),** which presents the following modifications in relation to IDF 110A:

  - After chromatographic separation of the enzymes, a referral to ISO 11815 / IDF 157 for the measurement of the coagulating activity of each enzyme **at a coagulation temperature of 32°C (versus 30°C in the IDF 110A standard)**, which is performed on a substrate reconstituted from milk powder in the presence of calcium chloride **(presenting a pH of 6.5)**.

  - Results are expressed in % of chymosin and pepsin (from IMCU/g or ml values: International Milk Clotting Unit) with the aid of standard chymosin and bovin pepsin powders, in addition to the concentration in mg/L present in the previous version.

◆ Determination of the coagulating activity

- **ISO 11815 / IDF 157 standard** applied to bovine animal rennet and fermentative chymosin for the determination of the total coagulating activity in milk.

The measurements are performed on a substrate reconstituted from milk powder and calcium chloride presenting a pH of 6.5 at 32°C in comparison with chymosin and pepsin standards titrating 1000 IMCU/g.
Firstly, the coagulating activity is calculated in relation to the standards, and then the calculation of the total coagulation is executed by interpolation with a reference solution presenting the same composition (cf IDF 110 standard).

- **ISO 15174 / IDF 176 standard** applied to microbial coagulants for the determination of the total coagulating activity in milk.

The measurement is performed on a substrate reconstituted from milk powder and calcium chloride with a pH of 6.5 at 32°C compared to a microbial coagulant standard (Rhizomucor miehei) titrating 1000 IMCU/g.

SERVICES PROVIDED ON-SITE IN POLIGNY

- CECALAIT / ACTILAIT (contact X. Quervel : x.quervel@cecalait.com) proposes the following services concerning coagulants:

  - Quantitative determination of the chymosin and pepsin content in animal rennet according to the **OJFR of 1981** method or the **IDF 110B** method.

  - Determination of the coagulant activity of bovine rennet according to **ISO 11815 / IDF 157** standard and microbial coagulants according to **ISO 15174 / IDF 176** standard.

  - The supply of a standard milk powder to perform the quantitative and coagulating activity tests with the coefficients K_c and K_p at a pH of 6.3 and 6.5, and correspondences mg/L ↔ IMCU for the chymosin and bovine pepsin contents.

- INRA, Poligny (contact O. Rolet-Répécaud: rolet@poligny.inra.fr) proposes:

  - The qualitative method according to the **OJFR of 1981** or the **IDF 110B** standard.
  - The fermentative origin chymosin research.

The totality of these on-site competencies in Poligny enables a complete analytical offer to be proposed to the various actors in the field for the characterisation of coagulants.

Ph. TROSSAT and X.QUERVEL

STANDARDS, DRAFT STANDARDS

Classification in alphabetic order by theme

ISO published standards

MICROBIOLOGY OF FOOD AND ANIMAL FEEDING STUFFS		
YEASTS / MOULDS / ENUMERATION	ISO 21527-1:2008 July 2008	MICROBIOLOGY OF FOOD AND ANIMAL FEEDING STUFFS Horizontal method for the enumeration of yeasts and moulds Part 1: Colony count technique in products with water activity greater than 0,95
YEASTS / MOULDS / ENUMERATION	ISO 21527-2:2008 July 2008	MICROBIOLOGY OF FOOD AND ANIMAL FEEDING STUFFS Horizontal method for the enumeration of yeasts and moulds Part 2: Colony count technique in products with water activity less than or equal to 0.95
MILK		
MILK / FAT CONTENT	ISO 488:2008 (IDF 105) September 2008	MILK Determination of fat content – Gerber butyrometers
MILK / FAT CONTENT	ISO 2446:2008 (IDF 226) September 2008	MILK Determination of fat content
MILK AND MILK PRODUCTS		
MILK / MILK PRODUCTS / SAMPLING	ISO 707:2008 (IDF 50) August 2008	MILK AND MILK PRODUCTS Guidance on sampling
MILK / MILK PRODUCTS / PESTICIDES	ISO 8260:2008 (IDF 130) July 2008	MILK AND MILK PRODUCTS Determination of organochlorine pesticides and polychlorobiphenyls – Method using capillary gas-liquid chromatography with electron-capture detection
MILK / MILK PRODUCTS / BENZOIC ACID / SORBIC ACID	ISO 9231:2008 (IDF 139) July 2008	MILK AND MILK PRODUCTS Determination of the benzoic and sorbic acid contents
MILK / MILK PRODUCTS / NITRATE CONTENT	ISO 20541:2008 (IDF 197) September 2008	MILK AND MILK PRODUCTS Determination of nitrate content – Method by enzymatic reduction and molecular-absorption spectrometry after Griess reaction

NEW EU REGULATIONS

Classification is established in alphabetical order of the first keyword

CASEIN / CASEINATES / CHEESE

O.J.E.U. L 205, 1st August 2008 – Commission Regulation (EC) n° 760/2008 of 31 July 2008 laying down detailed rules for the application of Council Regulation (EC) n° 1234/2007 as regards authorisations for the use of casein and caseinates in the manufacture of cheeses
http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2008:205:0022:0025:EN:PDF

FLAVOURING SUBSTANCES

O.J.E.U. L 163, 24th June 2008 – Commission Decision of 17 June 2008 amending Decision 1999/217/EC as regards the register of flavouring substances used in or on foodstuffs
http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2008:163:0042:0042:EN:PDF

FOOD ADDITIVES

O.J.E.U. L 253, 20th September 2008 – Commission Directive 2008/84/EC of 27 August 2008 laying down specific purity criteria on food additives other than colours and sweeteners
http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2008:253:0001:0175:EN:PDF

PESTICIDES

O.J.E.U. L 234, 30th August 2008 – Commission Regulation (EC) n° 839/2008 of 31 July 2008 amending Regulation (EC) n° 396/2005 of the European Parliament and of the Council as regards Annexes II, III and IV on maximum residue levels of pesticides in or on certain products
http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2008:234:0001:0216:EN:PDF

P.D.O. / P.G.I.

O.J.E.U. L 173, 3rd July 2008 – Commission Regulation (EC) n° 628/2008 of 2 July 2008 amending Regulation (EC) n° 1898/2006 laying down detailed rules of implementation of Council Regulation (EC) n° 510/2006 on the protection of geographical indications and designations of origin for agricultural products and foodstuffs
http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2008:173:0003:0005:EN:PDF

O.J.E.U. L 183, 11th July 2008 – Commission Regulation (EC) n° 656/2008 of 10 July 2008 registering certain names in the Register of protected designations of origin and protected geographical indications [Chamomilla Bohemica (PDO), Vlaams-Brabantse tafeldruif (PDO), Slovenska parenica (PGI), Cipolloto Nocerino (PDO)]
http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2008:183:0015:0016:EN:PDF

O.J.E.U. L 189, 17th July 2008 – Commission Regulation (EC) n° 676/2008 of 16 July 2008 registering certain names in the Register of protected designations of origin and protected geographical indications [Ail de la Drôme (PGI), Vsestarska cibule (PDO), Slovenska bryndza (PGI), Ajo Morado de Las Pedroneras (PGI), Gamoneu or Gamonedo (PDO), Alheira de Vinhais (PGI), Presunto de Vinhais or Presunto Bisaro de Vinhais (PGI)]
http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2008:189:0019:0020:EN:PDF

O.J.E.U. L 209, 6th August 2008 – Commission Regulation (EC) n° 782/2008 of 5 August 2008 approving non-minor amendments to the specification for a name entered in the register of protected designations of origin and protected geographical indications [Laguiole (PDO)]
http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2008:209:0003:0004:EN:PDF

O.J.E.U. C 202, 8th August 2008 – Publication of an application in accordance with Article 6 (2) of Council Regulation (EC) n° 510/2006 on the protection of geographical indications and designations of origin for agricultural products and foodstuffs
http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:C:2008:202:0023:0027:EN:PDF

IN THE PRESS – ON THE WEB

Classification in alphabetical order of keywords

NITROGEN / KJELDAHL

Alternative to Kjeldahl for nitrogen and N/protein

http://www.laboratorytalk.com/news/thh/thh193.html

► Thermo Fisher Scientific launches a new Flash 4000 nitrogen/protein apparatus. This analyser is an alternative to the Kjeldahl technology and applies to many food sectors (cereals, meat, milk, cheese, beer, fruit juice…).

LACTIC ACID

On-line lactic acid analysis of dairy products

http://www.laboratorytalk.com/news/mea/mea731.html

► The 'ADI 2016 Titro analyser from Applikon Analytical permits to analyse lactic acid on-line at approximatively 10 minute intervals and to report data in the required format for total automated control.

LACTIC ACID BACTERIA / *STAPHYLOCOCCUS AUREUS*

Easier enumeration of *Staphylococcus aureus*

http://www.laboratorytalk.com/news/byx/byx102.html

► Two new Tempo kits were commercialized by Biomerieux: Tempo STA, for the enumeration of coagulase-positive staphylococci (*Staphylococcus aureus*) and Tempo Lab, for the enumeration of lactic acid bacteria.

PATHOGENS

Innovative ways to detect food-borne pathogens

http://www. laboratorytalk.com/news/byx/byx101.html

► BioMerieux enlarges its proposal of chromogenic culture media with ChromID *Sakazakii* for the detection of *Enterobacter sakazakii* in powdered milk and ChromID *Vibrio* for the detection of *Vibrio* in water.

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