Probiotics Reference

YOGHURTS & FERMENTED MILKS

Newsletter
of SYNDIFRAIS
science committee

SPECIAL ISSUE

SUMMARY

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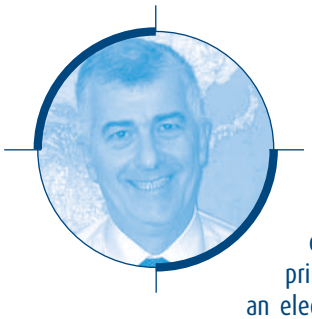
A new year — and a new reference for probiotics



After six years of publication the scientific newsletter *Yoghurts and Fermented Milks* has had a face-lift under the new title of **Probiotics Reference.** This is also an opportunity to remind readers of the newsletter's purpose, editorial policy and goals.

Probiotics Reference is a science survey newsletter on the health benefits of fresh milk products. It is published quarterly, in French and English, with a print run of nearly a thousand distributed in 70 countries on five continents, plus an electronic version distributed by e-mail and the Internet. It is intended for all scientists working in the probiotics field and is a bibliographical resource used by academic and industrial researchers as well as specialist health professionals and scientists working in institutions and international organisations.

This newsletter is the fruit of collective work by the members of the Syndifrais science committee (see new column ***Spotlight on***..., p.8) and some partners in the French dairy board. Every quarter, the most recent scientific articles in the field of probiotic bacteria are taken from the international databases. The science committee makes a selection from abstracts and the newsletter comments on about fifteen of them. Making an objective selection of the most pertinent, informative and reliable studies from an average of some hundred publications collected for each issue of the newsletter is a delicate exercise. The volume of the scientific output in this field is increasing at an impressive pace – a clear reflection of the scientific community's growing interest in the subject.

Through **Probiotics Reference**, the Syndifrais science committee will pursue its goal of providing a range of scientific, clinical and regulatory information useful to fresh milk products manufacturers and to anyone who wishes to understand trends in the rapidly evolving world of probiotics.

For this 31st issue, the Syndifrais science committee invited YFLA-International to contribute. This industrial association created by Syndifrais in 2005 and independent since January 2007 is concerned solely with yoghurts and live fermented milk products. This special issue reports the highlights of the 2nd international workshop organised by YLFA-International on 1 June 2006 in Vilnius, Lithuania – a dialogue among scientists, regulators, manufacturers and consumers about the health effects of probiotic fermented milks.

Bernard Cochin,
Editor in chief, Syndifrais

SYNDIFRAIS

Isabelle Gilles,
Coordinator, YLFA International

"Probiotic fermented milks and health: from science to consumer": such was the theme of the second workshop organised by YLFA-International on 1 June 2006 in Vilnius, Lithuania, following on from an IDF/ISO[2] symposium on analysis methods for probiotics.

The workshop was chaired by Professor Andrzej Babuchowski, Secretary of State at the Ministry for Agriculture, Poland; there were nearly 80 participants from 18 countries. The aim was to bring together disciplines that are often far removed from each other and, through discussion of different aspects of probiotics, forge links between science, regulation and consumers. Subjects addressed were the technology of fermented milks; quality assurance, regulatory frameworks and definition of probiotics; health benefits and scientific proofs; and consumer perceptions and expectations.

With the extraordinarily rapid growth of the sector in recent years, numerous scientific studies have been conducted on probiotic fermented milks, describing their effects on health and clarifying the biological mechanisms involved. However, communicating clearly the nature of these benefits to consumers is still a difficult task.

Ten talks were given, by international level speakers from very different backgrounds. After the talks, a round table highlighted some avenues to work on. One issue that emerged clearly was the importance of improving recognition of the probiotic characteristics of fermented milks, defining their health benefits more precisely and providing consumers with high quality information. Let us hope that future health claims regulations such as are now in the European Union pipeline will provide the clarification consumers want and expect.

• Isabelle GILLES
Coordinator, YLFA International

(1) YLFA-International: International Yoghurt and Live Fermented Milks Association (see box)
(2) IDF/ISO: International Dairy Federation / International Standards Organisation

Probiotics – Guidelines, Science and human studies catch up with folklore

Gregor Reid (PhD),
Canadian R&D Centre for Probiotics

The FAO/WHO definition of probiotics[1] is clearly the most appropriate for this increasingly expanding field of study: "Live microorganisms which when administered in adequate amounts confer a health benefit on the host'. Encompassing the ancient Balyonian use of fermentation along with Metchnikoff's'long life' observations and Newman's 1999 application to the treatment of bladder infections, this definition provides the basis for testing all living organisms to establish whether they confer measurable physiological effects. The need to apply the FAO/WHO guidelines[2] for what constitutes a probiotic has never been more important, since new products are being introduced almost on a monthly basis. Regulatory authorities sadly have not employed these guidelines universally yet, with the result that too many products named probiotic have no strain designation or human studies verifying their claims.

Numerous reviews have been published documenting the wide range of efficacy studies that show the effects of probiotics. These include treating and preventing diarrhoea and bacterial vaginosis, reducing the duration of respiratory infections, and adjunctive therapy in hospital and institutional settings. Mechanistic studies are beginning to uncover anti-inflammatory and novel anti-infective properties of strains, albeit proving their expression in humans remains a bit of an obstacle. For infectious diseases at least, many potential avenues exist for probiotics to play a role in health maintenance and restoration (Fig. 1). These include probiotic yoghurt for treatment of diarrhoea in HIV patients[3] and recombinant *Lactobacillus* strains for prevention of HIV infection[4].

• Gregor REID (PhD)
Canadian R&D Centre for Probiotics

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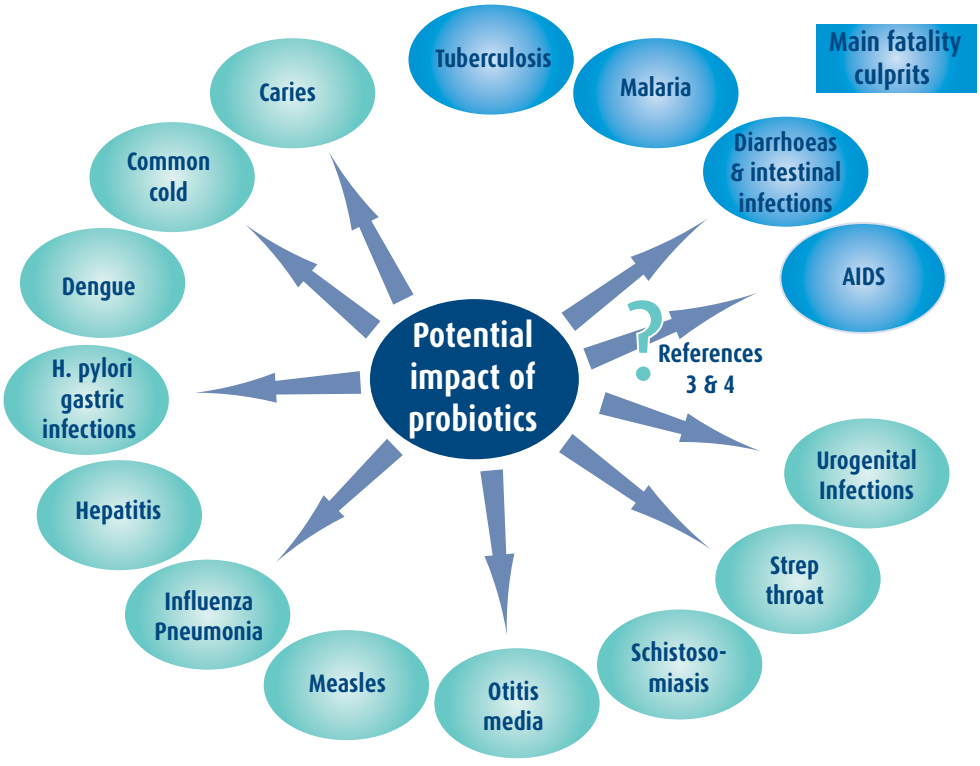


Conditions afflicting the most people worldwide

Figure 1: Infectious diseases: where might probiotics be helpful?

Infectious diseases represent 300 million cases per year worldwide and cause more than 5 million deaths. For some of them, growing probiotic research might provide interesting perspectives.

Figure 1 expresses the views of the author and does not necessarily reflect the views of the Syndifrais science committee.

••• Awareness and image of probiotic products among the general public in ...

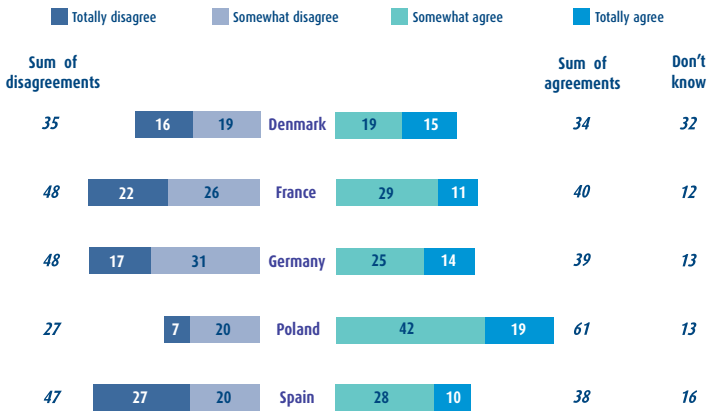
...five European countries

A survey[1] was carried out among representative samples of the general population in Denmark, France, Germany, Poland and Spain. Sample size was 1000 people in Poland and 500 in each of the other countries. The fieldwork was carried out between April 20 and May 12, 2006. Respondents were interviewed face to face in their homes in Poland, and by telephone in Denmark, France, Germany and Spain.
The survey focused on three aspects of the image and perception of probiotic products by consumers of such products: identification of probiotics, understanding of their health benefits and the conviction that their consumption is beneficial.

Identification of probiotics

Although it is a new word for the general public, the term "probiotic" is already familiar to more than three quarters of German respondents (78%) and approximately one half of the Spanish (51%) and French (46%). The word is less well known in Poland and Denmark: only 35% of Polish and 28% of Danish respondents claimed to have heard of probiotic products. In these two countries - and probably also in France and Spain - probiotic products seem to be easier to identify as a set of brands. The names of the leading brands appear to be far better known than the word "probiotic".
In every country, precise knowledge of the range of products that can be called "probiotic" was found to be notably lacking. Can classic yoghurt be considered a probiotic product? In each country the respondents were divided on this issue (Fig. 1). In fact the difficulty of clearly defining and delimiting the universe of "probiotics" can damage perceptions of their health benefits.

Figure 1: Is classic yoghurt a probiotic product?

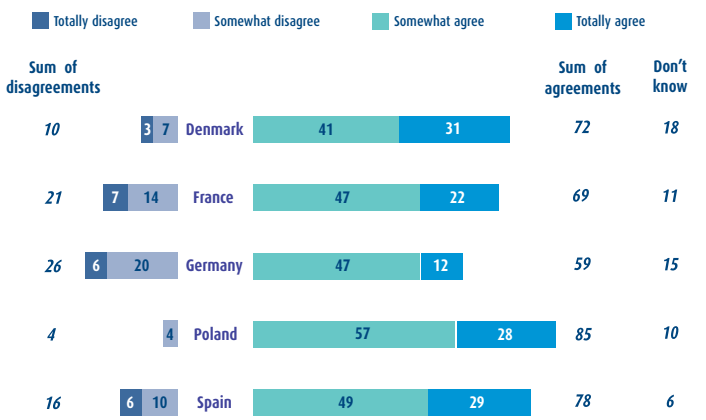


Respondents who had heard of probiotics or who knew at least one probiotic product were invited to state whether they totally agreed, somewhat agreed, somewhat disagreed or totally disagreed with the statement: "Classic yoghurt is a probiotic product". The results are presented as percentages of the numbers of respondents. Note the high level of agreement in Poland compared to other countries

Understanding of the health benefits of probiotic products

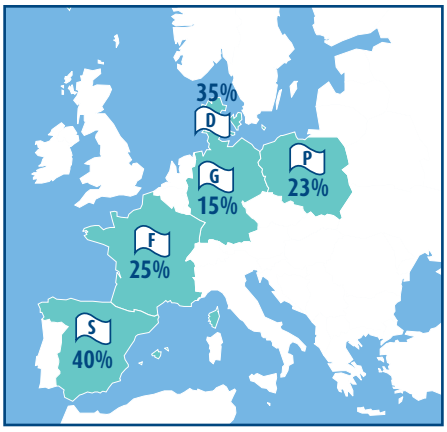
Where the respondent identified them either as a category or as a set of brands, probiotics were usually recognised as products containing beneficial active cultures (Fig. 2). They were also mainly considered "good for health": 82% of Polish, 75% of Spanish, 64% of French and 59% of Danish respondents agreed with the proposition *"Probiotic products are particularly good to stay healthy"*. The percentage was lower in Germany, where 50% of the respondents agreed with the statement but 40% disagreed (10% did not know).

Figure 2: Do probiotic products contain beneficial and active cultures?



Respondents who had heard of probiotics or who knew at least one probiotic product were invited to say whether they totally agreed, somewhat agreed, somewhat disagreed or totally disagreed with the statement: "Probiotic products contain beneficial and active cultures". Results are presented as percentages of the number of respondents. Note the significant differences between countries and the relatively low percentage of people who did not know.

The perception of the health benefits of probiotics was not necessarily correlated to the number of respondents stating that they consumed such products regularly (Fig. 3). Further, the perception of the precise health benefits remains sometimes vague for quite a high proportion of the population in all the survey countries. For example, the ability of probiotic products to reinforce the body's natural resistance was recognised by only 53% of German, 55% of French and 51% of Danish respondents (the Polish and Spanish were more confident, with 74% and 65% respectively). Likewise, more than one quarter of French and German respondents doubted the ability of probiotics to help digestion or to maintain good intestinal health.



For each country, the percentage indicates the proportion of respondents who stated that they consumed probiotics at least once a week. The best consumers were either men or women, and were found especially among executives and in households of 3 people or more. The lowest consumption levels were observed for single persons.

D: Denmark; F: France;
G: Germany; P: Poland; S: Spain.

Figure 3:
Regular consumers of probiotic products in Europe

Conviction that consumption of probiotics is beneficial

The level of conviction of the usefulness of consuming probiotics is the result of a positive but sometimes vague image of their health benefits. In each country a large majority of the respondents stated that probiotic products are good for everybody's health: children, adults and older people. But there were also some doubts: 35% of the Germans disagreed with this proposition. This lack of conviction seems to be linked to some mistrust of manufacturers in the sector. In each country covered by the survey a large majority of respondents agreed with the sentence that "Producers exaggerate the health benefits of probiotic products".

The press and audiovisual programs appear to be the main vehicle for information on probiotics (Fig. 4). But these media and, to a lesser extent, word of mouth might play an ambivalent part in the promotion of probiotic products: one half of the respondents in Germany, Spain and Poland stated that the information they received was either ambivalent or dissuaded them from consuming probiotic products.

Respondents who had heard of probiotics or who knew at least one probiotic product were invited to indicate the sources from which they obtained information about the value of yoghurts or fermented milks called "probiotic". Note the high prevalence of the general media.

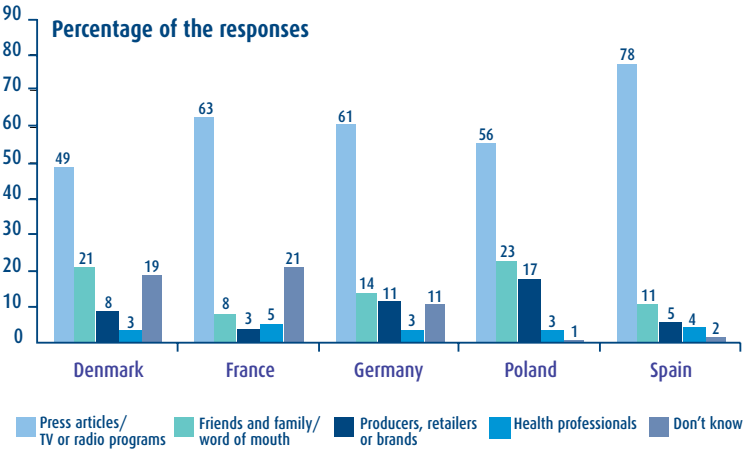


Figure 4:
Sources of information on probiotic products

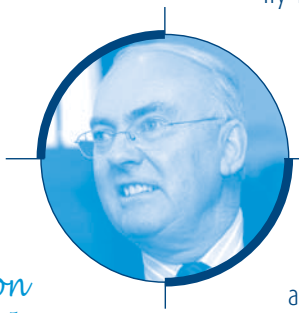
Conclusions

Probiotic products enjoy a positive image overall, but their attractiveness could certainly still be enhanced by wider promotion of the term "probiotic" and of their precise health benefits.

(1) This survey was performed by TNS Sofres (France) at the initiative of YLFA-International.

...particular reference to PASSCLAIM[1] and scientific substantiation of probiotic claims under the new EU regulations[2] on nutrition and health claims made on foods

David Richardson (PhD),
DPR Nutrition Ltd, UK



Health and functional claims for probiotics are based on a wide variety of studies, including *in vitro* experiments, animal models and human epidemiological studies as well as human intervention studies. The design and conduct of such trials in healthy adults for specific groups of the population and for therapeutic interventions are usually well described. However, there will be an increasing need to define the limits of normal digestive and immune functions and to measure the different elements of intestinal health and well-being.

Gut health and immune system claims on foods such as fermented milks or yogurts have increased substantially in the European Union (EU). The newly adopted EU legislation on nutrition and health claims made on foods will specify in detail the conditions for their use and establish a system for scientific evaluation of claims. The claims on foods will be broadly categorised into four groups: *(I)* 'content' claims listed in the Annex including nutrient content claims, comparative claims and claims for 'other substances' with a nutritional or physiological effect; *(II)* health claims based on generally accepted scientific evidence under Article 13.1; *(III)* health claims based on newly developed scientific data and for those requiring IPR protection under Article 13.5; *(IV)* and reduction of disease risk claims and claims referring to children's development and health under Article 14. Each group has an authorisation procedure to get on the appropriate European permitted list. Some benefits of probiotics relate to the prevention, treatment or alleviation of a disease, but these 'medicinal claims' are outside the scope of food law, *e.g.* infections and inflammatory disorders.

The substantiation of health claims will be accomplished by considering the totality of the available data and by weighing of the evidence. The benefits of ingestion of probiotics are strain dependent, and it will be necessary to define and measure the health benefits based on scientific evidence, and to provide evidence of consumer understanding of the claim. The emphasis will be on the benefit conferred, and the methods used to obtain and measure the claimed benefits will need to be consistent with the FAO/WHO Guidelines 2002 and with the PASSCLAIM criteria for the scientific substantiation of claims.

Strain-specific probiotics have specific properties. However, there are several basic or generic properties of probiotics that may be independent of the strain used. For example, the viability and appropriate enumeration of probiotic bacteria in a product as basic compositional requirements; the retention of viability during transit to the target area of the human intestinal tract, and the increase and decrease in indigenous beneficial and harmful bacteria, respectively, which are consistent with the concept of contributing to the normal functioning and healthy microbial balance of the digestive tract.

The new European legislation on nutrition and health claims will impact significantly on probiotic products with claims, particularly in relation to scientific substantiation, consumer understanding and the development of nutrient profiles of a food or food category that may allow claims for products with desirable nutritional characteristics.

• **David P. RICHARDSON (PhD)**
DPR Nutrition Ltd, UK

(1) PASSCLAIM: Process for the assessment of scientific support for claims on foods.
(2) Cf. frame p.7: *"In connection with EU claims regulations".*

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In connection with *EU claims regulations*

Claims regarding the health benefits of food probiotics are subject to the same regulations as for other food products. *In order to ensure a high level of protection for consumers and to facilitate their choice, products put on the market must be safe and adequately labelled.* In view of this, the European parliament and the Council on nutrition and health claims made on foods adopted a new regulation in December 2006[1]. Its purpose is to harmonise a field in which existing national legislations differ widely from one member state to another (and in some cases are lacking).

In its present form, the text consists of 28 articles; in its final version it will include two annexes. A first annex has already been published with the text and defines 24 nutrition claims and the conditions applying to them *(e.g. "energy-reduced", "low saturated fat", "with no added sugar")*. The second annex, to be added by January 2010, will give a list of permitted health claims, on the basis of proposals to be collected from member States by January 2008. Ultimately, all claims made on the food market will be authorised either because they are listed in one of the two annexes (Article 13), or because they have been authorised following a full procedure based on submission of a specific dossier (Articles 14 to 17).

During the YLFA Workshop, Mrs. Sabine Nafziger (Confederation of the Food and Drink Industries of the EU - CIAA) stressed the importance of the guidelines that should be followed when drawing up the health claims list. The list should gather claims that are *"based on generally accepted scientific evidence" and "well understood by the average consumer"*. The drafting of the second annex of the regulation is a very important step for probiotic fermented milks since final claims should promote consumers' recognition of their health benefits.

(1) Corrigendum to Regulation (EC) No 1924/2006 of the European Parliament and of the Council of 20 December 2006 on nutrition and health claims made on foods. Official Journal of the European Union L 404 of 30 December 2006. **Download at: http://eur-lex.europa.eu/LexUriServ/site/en/oj/2007/l_012/l_01220070118en00030018.pdf**

Prospects for probiotic fermented milks: *viewpoints of experts and opinion leaders*

To close the 2nd YLFA-International symposium, a round table brought together acknowledged experts[1] in several disciplinary fields concerned by probiotics. Professor David Richardson acted as moderator.

Several key ideas emerged from the discussions, constituting particularly promising avenues for promoting the development of the probiotic fermented milks sector.

In the first place a consensus that there is well-founded scientific proof of the benefits of probiotics, and the potential for considerable growth in these products. This potential is due to the wide range of health applications that could be found for probiotics in future, mainly owing to the diversity of the bacterial strains present in the intestinal flora or in traditional fermented milks as yet unknown in the industrialised countries.

In this context, participants stressed the importance of "educating" consumers, children first and foremost. Children could be initiated at school into the benefits of "good bacteria".

There was a clear demand for rigour on the part of the manufacturers with regard to health claims. The message put out should be clearly comprehensible to consumers. The health effect should be stated precisely and the benefits of each probiotic strain used should be proven by clinical trials. The credibility of the products depends on that. Manufacturers should pay special attention to consumer expectations and adapt to them. The symposium was a rare opportunity for consumers' associations to spell out their wishes, especially as regards labelling: indication of the recommended daily intake, storage conditions, amount of culture contained in the product, dosage required to achieve a health impact, etc.

The EU regulation on claims should be a valuable tool for ensuring that consumers are better informed. It should also help to protect the fast-growing functional foods sector. Participants also wanted European regulators to consider the systems already established in other parts of the world, with a view to a possible future world framework.

But as the chairman concluded, "these indispensable regulatory frameworks should not make us forget the importance of innovation and flavour; probiotic fermented milks are above all products that combine health and pleasure!"

• Isabelle GILLES
Coordinator, YLFA International

(1) Participants in the round table: Pr David Richardson, UK; Minister Andrzej Babuchowski, Poland; Pr. Jean-Louis Bresson, Hôpital Necker Paris, France; Mr Didier Carcano, Danisco Culture Division, France; Dr. Satoshi Kudo, Yakult Europe, The Netherlands; Pr. Gregor Reid, Canadian R&D Centre for Probiotics, Canada; Ms. Dulce Ricardo, "Deco Proteste" consumer group, Portugal.

Probiotics Reference

YOGHURTS & FERMENTED MILKS

THE SCIENCE COMMITTEE

Its mission

• The Syndifrais science committee brings together scientists and researchers from universities and from the fresh milk products industry.

• It is an independent body which seeks out and publicises scientific evidence of the health benefits and harmlessness of the live lactic acid bacteria in yoghurt and fermented milks.

• One of its tasks is to make a critical scan of the literature on the physiological action of probiotics and the mechanisms of such action. The results of this science survey are published in the newsletter Probiotics Reference.

The members

- **Pr. Jean-Louis Bresson, Chairman -** Hôpital Necker, Paris
- **Dr. Denis Mater, Coordinator -** Syndifrais
- **Dr. Nadine Cerf-Bensoussan -** Hôpital Necker, Paris
- **Dr. Jean Fioramonti** – French National Institute of Agronomy Research (INRA)
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- **Dr. Purification Relano** – Danone Research
- **Mrs. Brigitte Rousseau** – Yoplait

Spotlight on

The Syndifrais science committee

By Denis Mater (PhD), Coordinator

Scientific research on probiotic bacteria is a fast-growing field. The purpose of the Syndifrais science committee is to monitor and support this growth.

A major output from the committee's work is the science survey newsletter Probiotics Reference – Yoghurts and Fermented Milks, presented in the editorial of this issue.

The science committee also issues an annual call for proposals, designed to promote research into the health benefits of the lactic acid bacteria of yoghurt and fermented milks. The following two research fields have been selected for the 2007 call for proposals:

• the physiological state of lactic acid bacteria in the gut (transcriptome, proteome and functions – survival and role of the flora during transit ? bacteria/host dialogue);

• the role of lactic acid bacteria in immuno-allergy (general immunity of the gut – allergy), digestive physiology or nutrition (bioactive peptides – colonic metabolites [e.g. short-chain fatty acids] – nutrient absorption [e.g. calcium absorption] – body weight management).

The science committee also organises thematic meetings where it invites prominent scientists to present the state of the art in their field of expertise.

Newsletter of the Syndifrais science committee

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