

Congress 2010 Food, Nutrient and Well-being Special issue

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FOOD: AN INTEGRAL COMPONENT OF WELL-BEING



In 2004, the regions of Burgundy and Franche-Comté took up the challenge of pooling their scientific and industrial resources to create a "Taste-Nutrition-Health" cluster. Full of promise, Vitagora® has now become France's leading food industry innovation network. Among the many R&D projects developed with Vitagora® since its creation, a number are now approaching market launch. As we gain in maturity, we redefine and perfect our strategy, but our objective remains to always better meet the needs of consumers seeking food products that present both great taste and nutritional qualities, so as to contribute on a daily basis to their health and well-being.

To carry out this strategy, Vitagora® has been able to catalyse all the scientific, technological, industrial and academic capabilities present in Burgundy and Franche-Comté, as well as gradually adding an ever-growing list of additional partners, from elsewhere in France and abroad. On the occasion of the 5th Taste-Nutrition-Health Congress, we are

delighted to be welcoming so many of you to Dijon, to discuss, debate and develop partnerships around the key concepts of Food, Nutrition and Well-being.

Tackling head-on the changing landscape of globalisation, our concept of cluster or innovation network appears today as an opportunity to extract the best of both quality localised production and international scientific excellence. In this context, Vitagora® is proud to contribute to the emergence of a new way of approaching the food industry – for a healthy diet, with innovation firmly anchored in the traditions of great taste.

Pierre Guez
President of Vitagora®

Christophe Breuillet
Managing Director of Vitagora®

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Building Vitagora®'s profile in Asia

From May 15th to 22nd, for the **IFIA trade show** (International Food Ingredients and additives) in Tokyo, Vitagora® is organising in collaboration with UbiFrance its third mission to Japan. Three other French clusters, Agrimip and Valorial (Vitagora®'s partners in F²C Innovation) and Aquimer, will be a part of the delegation which will be visiting the Hokkaido Bio Cluster and the Hokuriku Life Care Cluster in Kanazawa. These two clusters were both present in Dijon for the 2010 Taste-Nutrition-Health Congress. With the opening of a representative office in Singapore from April 2010, Vitagora® is following its strategy of building its profile on the international stage, in particular in Asia.



Geoffroy Trinh, Vitagora®'s new Asia bureau representative based in Singapore from April 2010

Last October, the French Secretary of State for External Trade, Anne-Marie Idrac, launched new measures for increasing state support for companies expanding into foreign markets by encouraging the use of International Company Volunteers (*Volontariat International en Entreprise* – VIE). This unusual formula, which Anne-Marie Idrac describes as “a fantastic catalyst for youth employment” and a “boost for the globalisation of French companies”, was a perfect opportunity for Vitagora® to reinforce its international development. Geoffroy Trinh was then recruited to man the Vitagora® representative bureau within the French Chamber of Commerce in Singapore, which is already the home of a bureau for the region of Burgundy.

This promises to be a great challenge for Geoffroy Trinh, who already has considerable experience of Asia, in particular Japan where he carried out a four month work placement within the French trade commission, for the sector of aeronautics. For the moment, he is getting to know the food industry, “an evocative sector, in large part thanks to the enduring image of Burgundy and Franche-Comté and their products, which is a great help in establishing initial contacts,” he insists. Although based in Singapore, he will also be covering five other countries: China, Japan, South Korea, Thailand and Vietnam.

NEW COUNTRIES, NEW CAPABILITIES, NEW NEEDS

His responsibilities will obviously be to promote Vitagora® and its members during trade events, a task which Geoffroy Trinh has already experienced through the preparation for the 2010 Taste-Nutrition-Health Congress with the organisation of both a delegation of Japanese cluster representatives coming to Dijon and a mission of Vitagora® members due to visit Japan next May. In parallel, he will be circulating Vitagora®'s communication materials throughout the geographic zone that he is covering and carrying out fact-finding and promotional missions with key players of food industry R&D in Asia. “My role will be to promote Vitagora®, raise its profile and, beyond that, find out more about these countries, their capabilities and their food industry needs,” he concludes.

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Congress 2010

Food, Nutrient and Well-being

THE VITAGORA® CONGRESS!



On the 23rd and 24th of March in Dijon the fifth **Taste-Nutrition-Health International Congress** will take place, “a genuine showcase for the Vitagora® cluster and its key assets” according to **Christophe de la Fouchardière**, President of Merck Médication Familiale and of this event. After the success of the 2009 edition on the topic of “From birth to old age”, characterised notably by a significant number of international participants, the “2010 vintage” already promises to be fascinating. Falling fully within the themes in which Vitagora® players are interested, this new edition on the subject of “**Food, Nutrient, and Well-being**” is in line with a few of the current questions that researchers, manufacturers, health professionals and, more generally, each citizen are asking.

“This congress has now found its public,” says Christophe de la Fouchardière, the President of the Congress. The 2009 event was indeed a success with over 400 congress participants attending, 90% of which said they were satisfied and wished to return for the next event. Another reason for satisfaction was a higher participation by foreign visitors, representing 13% of congress participants. While the scientific conferences have proven to be the Congress’ most prized events, the “speaker corner”, which represents one of the unique points of this congress, also has a full house. “They are privileged moments that

*Christophe de la Fouchardière,
President of the
Taste-Nutrition-
Health International
Congress*



allow Congress participants to share specialists’ points of view, particularly on all aspects regarding regulatory affairs, a field that moves enormously both in France and Europe,” he points out. Finally, there has been an increase in the one-on-one business meetings that this Congress also offers with more than 300 appointments.

ROUND TABLES ON “CONTROVERSIAL” SUBJECTS

Armed with this success, the Congress organisers have therefore decided to base the new edition on the same scenario but have entrusted its realisation to a new team familiar with organising this kind of event. “The Congress has reached maturity. Now it has its niche in the yearly calendar of major national and international events based on its themes. We need to develop our public’s loyalty and expand it. Hence the importance of a greater synergy between the different players involved in organising this event,” explains Christophe de la Fouchardière. Also the “2010 vintage” is already promising to be a good one that will notably be structured around two mornings that alternate between scientific conferences (1) and oral communications. “There will be even more of the latter for this new aspect that we introduced last year,” points out Michel Narce, President of the Taste-Nutrition-Health Congress’ scientific committee.

Round tables and practical nutrition workshops will also run in parallel in the afternoons. “We wanted each of these round tables to deal with a more or less controversial subject to create a real exchange between participants,” points out the President of the Scientific Committee. One of these round tables

will focus on the bioavailability of antioxidants, a subject that is being debated among specialists today, the absorption of too great a quantity of these substances carrying with it a risk of unwanted effects. "It will therefore involve reviewing each of these subjects, presenting the results of the latest studies and thus encouraging debate". As for the other three round tables, they will focus on "Quality of life scales", "Ready-made food: between consumer convenience and health", and finally "Development of a functional food: formulating and marketing". Open to doctors more than previous years, the Taste-Nutrition-Health Congress 2010 workshops in which reputed specialists will take part will be intended both for the medical profession and the food-processing sector. "In fact manufacturers from this sector have shown a certain interest in practical workshops during the previous congress," recalls Michel Narce.

OPEN EVEN MORE TO THE ACADEMIC WORLD

While the organisers' aim for the 2010 Congress is to develop public loyalty, notably by continuing to increase international participation, they also wish to open it up even more to the academic world and in particular to the young representatives of this community that includes doctoral and post-doctoral students and young researchers. "We want to give them the chance to participate in the context of oral communications or posters," says the president of the Scientific Committee. Hence the principle of free registration for the Congress if the first author of an abstract is a student or a young researcher. During the last edition, these posters were a huge success,

*Michel Narce,
President of the
Congress'
scientific committee*



THE SUBJECTS OF ROUND TABLES AND CONFERENCES

TUESDAY MARCH 23RD

Conference 1 - A scientific approach to well-being

Conference 2 - Regulation of inflammation

Round table 1 - Quality of life scales

Roundtable 2 - Ready to eat food: between convenience and health

WEDNESDAY MARCH 24TH

Conference 3 - Nutrition, brain and colon

Conference 4 - Texture, mastication, bioavailability

Round table 3 - Antioxidants without effect in intervention studies: is bioavailability in question?

Round table 4 - Developing functional food products: formulation and marketing

with doctoral students taking part from the four corners of France. Organisers have received more than sixty posters this year. "It's the chance for these students to get themselves known, to attend a congress and by doing so develop their network. Furthermore they can also take part in business meetings and meet manufacturers, some of which are looking to recruit them," points out Christophe de la Fouchardière. All the ingredients therefore seem to be reunited to make this 5th Taste Nutrition Health Congress a great vintage that like its predecessors will satisfy researchers, academics and manufacturers alike.

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Congress 2010

THE ROUND TABLE DEBATES

Food Industry questions to the forefront



Composed of the leading scientific personalities of Vitagora®'s network, the Scientific Committee of the **Taste-Nutrition-Health Congress** plays the role of investigator into the leading questions being asked by both research and industry. Consequently, in addition to the conferences with leading scientific experts, the Scientific Committee has identified four highly debate-worthy topics for the round tables, guaranteed to interest food industry professionals. The coordinators of the debates, **Dr. Francois-André Allaert**, **Dr. Stéphanie Courau**, **Dr. Jean-Claude Guillard** and **Pr. Patrick Etiévant**, responsible for defining the themes and orienting the choice of panel members, give their vision of these topics.

Round table 1 - March 23rd, 2pm-3:30pm

THE INTEREST OF QUALITY OF LIFE SCALES IN THE EVALUATION OF NUTRITIONAL INGREDIENTS

EFFSA, the European food safety authority that regulates foods and nutritional ingredients, has since 2009 put into place a new directive. From now on, manufacturers from the food and pharmaceutical sectors are required to submit an application for approval of health claims, which was not the case before now. This application must show the results of clinical studies of a much higher level. The new directive also specifies that foods or nutritional ingredients are products that must not be used to treat pathologies but can have a physiological effect on the consumer as regards quality of life. Consequently manufacturers need to avoid choosing the alleviation of symptoms of a specific pathology as the primary parameter of their clinical studies. In this context, quality of life scales, which are already greatly used by pharmaceutical companies for studies carried out for the development of a new medication, should play a more and more important role in the evaluation of nutritional ingredients.

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Round table 2 - - March 23rd, 4:30pm-6pm

READY TO EAT FOODS: BETWEEN CONVENIENCE AND HEALTH

The explosion of obesity that we have observed during the 1980s corresponds more or less to the dietary transition that has taken place among consumers and has led them to be oriented little by little towards the consumption of foods that are more and more formulated. At the same time other, mainly societal, parameters have evolved that have lead in particular to an ever increasing demand for foods that are convenient to use. However, if we observe this correlation, no data to date allows us to state that formulated foods have negative effects on health. That said, lots of foods that are considered "palatable", that is to say containing more fat and sugar, have been commercialised. Studies have proved that these foods activate to a greater level the "reward" circuits of the brain. On the other hand, these foods do not fully activate the circuits of energy regulation, hence the unbalance that can lead to weight gain. Today, there seems to be a level of consciousness among food manufacturers regarding this problem and, consequently, they are working to develop solutions that allow food to retain the "palatability" while reducing its levels of fat and sugar.

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Round table 3 - March 24th, 2pm-3:30pm

ANTIOXIDANTS WITHOUT EFFECTS IN INTERVENTION STUDIES: IS BIOAVAILABILITY IN QUESTION?

Many epidemiological studies have shown a positive association between the consumption of antioxidant micro-nutrients (vitamins C and E, carotenoids, poly-phenols) and the risk of developing degenerative pathologies (cancer, occlusive pathologies, eye diseases etc.). These observations have lead many teams to carry out randomised studies in order to confirm the protective role of these micronutrients. With few exceptions, these intervention studies have not observed the expected effects. Among the many hypotheses advanced to explain this failure, several scientists have supposed that the notion of bioavailability has been insufficiently taken into account. This question is clearly of interest to manufacturers of the food, nutrition supplements or indeed pharmaceutical marketing vitamin treatments.



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Round table 4 - March 24th, 4:30pm-6pm

THE DEVELOPMENT OF A FUNCTIONAL FOOD: FORMULATION AND MARKETING

In the same way as nutritional supplements are seen as "light" medications, functional foods, that have grown considerably over the last few years, are also positioned as products for daily consumption with the aim of improving wellness. But, however effective the food as regards its health claim, a functional food requires considerable work in the area of marketing so that it is correctly perceived by the consumer. I am obviously speaking of a specific branch of evidence-based marketing, in the image of Evidence-based Medicine, invented during the 1980s. It is therefore necessary today to anticipate the evolutions of functional foods

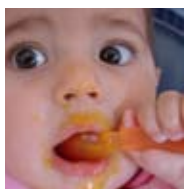
that could grow considerably over the next few years, even more so if research allows these food products to reach out beyond the dairy sector, to which they have been limited up till now, and to appear in other families of products.

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HABEAT

First European program accredited by Vitagora®



The 9th and 10th of March in Dijon, **HABEAT's** kick-off meeting took place. Financed in the context of the 7th PCRDT (2007-2013), this project is the first of its kind to be accredited by Vitagora®. 11 partners are taking part including three French research units, among them the team led by **Sylvie Issanchou** within the Centre of Sciences of Food and Taste (*Centre des Sciences du Goût et de l'Alimentation* - CSGA) of Dijon. An INRA Research Director, she is the coordinator of this project whose aim is to have a better understanding of the key periods and mechanisms in the formation of a child's food preferences from birth up until the age of five.

As far as food behaviour and preferences are concerned, although there's much to be determined at the end of early childhood, the first two years take on considerable importance in the development of food behaviour in a child. "During this period, the child has his first sensory experiences and discovers the tastes and textures of the food of his culture. It seems important that the child has tasted a wide range of food before the age of 2-3, an age at which he suddenly becomes difficult concerning meals and he can refuse to eat new food," sums up Sylvie

Issanchou. Programmes like OPALINE (Observatory of Infant and Child Food Preferences - *Observatoire des Préférences Alimentaires du Nourrisson et de l'Enfant*), developed again by CSGA researchers from Dijon, for which all the results will be available during 2011, have already provided a better explanation of how gustatory preferences are put in place, and identified factors influencing the acceptance of vegetables from the beginning of diversification at the age of 1. That said, there still remains a lot to learn about the key periods and the mechanisms in play. Hence the launch of HabEat.

TWO DIFFERENT ANGLES: EPIDEMIOLOGICAL AND EXPERIMENTAL

This collaborative project was presented in the context of the 7th European PCRDTcomm for proposals. "It involved making a proposal regarding the determining factors of the formation of dietary habits, but also breakdowns," recalls its coordinator who adds, "To answer such a question, it was of course necessary to tackle it from two different angles, epidemiological on the one hand and experimental on the other." Hence an ambitious project centred on 10 complementary European scientific teams, of which nearly a third are focused on epidemiology, the other two thirds doing more experimentation, with the addition of INRA Transfer centre that aided the coordinator in putting the project together and is now in charge of its administrative, logistic and financial management. The panel of research



Image: Michelle Meiklejohn / FreeDigitalPhotos.net



teams is all the more interesting for the fact that it combines countries from the north and south of Europe that, besides having considerable cohorts that can include up to 14,000 individuals if not more, have widely varying food habits.

With regards to epidemiological work, the teams involved in HABEAT will exploit existing data from several cohorts from 4 European countries. For although the 4 years that the programme lasts may seem a long time, they won't be enough to set up the necessary cohorts and follow them over several years. "We are going to exploit this data, already used in the context of other research programmes, from another angle, even more in terms of food varieties. Our research should lead us at the same time to developing new measuring tools," points out the researcher from Dijon.

For its part, the experimentation will come in two sections. The first, focused mainly on the key mechanisms of learning, will essentially concern children from the age of six months and up to two or

three years. For example, it will involve testing learning mechanisms, already well described in scientific literature, but that have not been systematically explored, to compare them to different ages. The second will aim at studying new strategies to observe if it's possible, beyond three years and up to five years, to get rid of bad food habits previously in place.

RECOMMENDATIONS FOR EARLY CHILDHOOD PROFESSIONALS

By 2013-2014 the results from the HabEat project should therefore lead to a certain number of recommendations being given out concerning food behaviour in the young child. "As a translation of the scientific data obtained during these four years, these recommendations will be addressed notably to early childhood professionals, paediatricians, political decision-makers in charge of defining nutritional policies but also manufacturers from the food-processing sector who, it must be highlighted, are more and more attentive to the recommendations we give them," explains Sylvie Issanchou.

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THE PARTNERS OF HABEAT

- INRA, INSERM, INRA Transfert SA (France)
- WUR with the Centre of Innovative Consumer Studies of Food & Biobased Research and Wageningen Universitet (the Netherlands)
- University of Leeds, University College London, University of Bristol (Great Britain)
- Kobenhavns Universitet (Denmark)
- Faculdade de Medicina da Universidade do Porto (Portugal)
- Harokopio University (Greece)

FIJUS-R@ISOL PROJECT

Overall a positive first year



Little less than a year ago Fijus-R@isol officially started, a project lead by Foulon-Sopagly, a small company with fifty or so employees and the European leader of the pure grape juice market. Accredited by two French clusters, Vitagora® and Q@lmed, with French national and regional funding (Burgundy and Languedoc-Roussillon and several of their departments), this 2.2 million Euro project aims not only to create a grape juice range with a greater nutritional value, but also to set up a “grape juice” industry sector. After twelve months devoted to plant selection, agricultural practices, technological developments and training, it’s time to do an initial review of the situation, and overall it’s positive and the project is “on track”.

From last autumn, an initial analytical and sensory pre-selection carried out by the teams from INRA from among a hundred or so grape varieties led to the cultivation of 16 genotypes, 11 red and 5 white, divided up into three families presenting tolerance and resistance to cryptogamic illnesses, but also moderate sugar content and high protein content. “In the next few weeks, following the grape harvest, we are going to start a new pre-selection of 200 grape varieties, looking for more aromatic grape varieties since these are what’s missing in the fourth family,” explains Pierre Guyot, industrial director and purchasing director at Foulon-Sopagly. Eventually, after three years, the aim is to have approximately eight to ten varieties selected.

DIFFERENT LAND AND LABORATORY TRIALS

At the same time, the Wine Cooperative Institute (*Institut Coopératif du Vin* - ICV) has been working on agricultural practices. The grape juice production economic model has thus been determined and practically finalised.



Two plots to experiment with vineyard management have been set up in pilot vineyards. “In each of these plots we are experimenting with different pruning, trellising and irrigation methods,” recalls Pierre Guyot. Furthermore, another demonstration plot of ten or so hectares, situated in the Mâcon region, is being finalised. “We hope to be able to plant there a fifth family of high yield grape varieties from next spring or at the latest spring 2011,” he states.

The project has also advanced with regards technological developments. Polyphenol extraction trials, carried out in the laboratory by INRA teams from 2008, have moved on to the semi-industrial stage during the 2009 wine harvests. Other trials, this time controlling the pH by membranous procedures, have been carried out jointly in the laboratory by INRA teams and within Foulon-Sopagly



by its R&D team during 2009. "The results obtained up until now have been satisfactory," points out Aurélie Sivry, the company's R&D manager. Finally, with regards training aspects and distributing information planned in the context of the Fijus-R@isol project, a five-day training module has already started. Ten or so people are registered. "At the request of several large cooperatives from the South of France, we were lead to present the project to them so they can integrate it into their five year plan," explains Pierre Guyot.

A PROJECT THAT IS STARTING TO GET APPROVAL

Overall, the upshot of this first year is therefore positive, even more so as the Ministry of Agriculture has invited Fijus-R@isol project managers to think about the major trends for the next ten years, the project even being chosen among the ten main priorities retained by this ministry. Moreover, several companies renowned on their market are looking to get involved with the project, notably a major plant nursery and an irrigation leader, who wish to be able to use it as a showcase. "It's proof that this project, the aim of which is to reposition a French industry on what is today a very European sector is starting to get approval and attracting skills from different sectors," enthuses Pierre Guyot.

To find out more:

- Fijus-R@isol, a "first" to restore grape juice's nobility – VitagoraNews N° 11, page 4, September 2008

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SWEETPROT

Having a better understanding of the perception of sweet molecules



A Franco-German project financed mainly by the National Research Agency (Agence Nationale de la Recherche - ANR), **SWEETPROT** will officially start next January. Accredited by Vitagora®, the objective of SWEETPROT is to have a better understanding of the role of T1R2 and T1R3, two sub-units that form the gustatory receptor, in the perception of sweet molecules, and more particularly saccharine, a sugar substitute, and brazzein, a natural molecule with sweetener properties.

It is the oldest of sugar substitutes. Discovered in 1879, saccharine has a sweetening power 300 to 400 greater than that of sugar. While it provides no calories, it has on the other hand an unpleasant aftertaste, like a lot of sugar substitutes. Saccharine is therefore often used in the form of mixes with other sweeteners to mask this unpleasant taste. In addition to saccharine and other artificial sweeteners, there are certain proteins of vegetable origin extracted from plants in tropical forests, which also have sweetener properties. Thus thaumatin, monellin, curculin, mabinlin, miraculin, pentadin and brazzein, among others, can be found.

Discovered in 1994 by American researchers, brazzein comes from the fruit of a climbing plant from West Africa, *Pentadiplandra brazzeana*. "With 54 amino acids, which makes it a bigger molecule than saccharine, brazzein has a taste very similar to that of sugar, and has been used for a long time, in particular by populations from Gabon," explains Loïc Briand. A researcher in the team "Perception of flavour: peri-receptor events and perceptive interactions" that he runs jointly within the UMR FLAVIC of INRA, he is joint manager of the SWEETPROT project with Professor Wolfgang Meyerhof of the Deutsches Institut für Ernährungsforschung.

APPROACHES THAT ARE BOTH BIOCHEMICAL

AND CELLULAR

Due to its pH, its thermo-stability and its taste similar to sucrose, brazzein is the most interesting of the sweet proteins. Hence research around it today. "Site specific mutagenesis techniques have allowed progress to be made in what we know about the relationships between this protein's structure-function. However, interaction mechanisms with the human gustatory receptors remain little studied in the world," sums up the Dijon-based researcher who is interested in the perception of gustatory molecules and more particularly umami and sweet molecules. In the context of SWEETPROT, French and German researchers therefore wish to shed light on the role of the two sub-units, T1R2 and T1R3, which form the gustatory receptor, in the perception of these sweet molecules, saccharine and brazzein, that are very different on a physical-chemical level. "The originality of this work is to study interactions between sweet proteins and gustatory receptors through both biochemical and cellular approaches," explains Loïc Briand.

To achieve this, French and German researchers will share the work. On the one hand, researchers from Dijon will produce brazzein. This involves expressing in bacteria the genes of the two sub-units, T1R2 and T1R3, and observing the response of the gustatory receptor. "We are producing brazzein by using the yeast *Pichia pastoris*, which allows us to change certain amino acids from the sequence, in other words to produce mutants, and to observe the impact on taste," he resumes. On

the other hand, the main assignment for German researchers is to develop cellular tests. "Professor Meyerhof's team has very sophisticated technology relying on the use of robots, which allows them to obtain response doses on brazzein and saccharine," he specifies.

VERY PROMISING BASIC RESEARCH

Over a three-year period, the aim of SWEETPROT will therefore be to have a better understanding of the molecular phenomena that underlie the perception of a sugar substitute like saccharine on the one hand, and a natural proteinic sweetener like brazzein on the other, from the first stage of detection. "We hope to succeed in identifying the different binding sites of sweet molecules on N-terminal sites of receptors, that we know contain the main sites," explains the researcher from Dijon. This work could also allow brazzein mutants equipped with a higher sweetener power to be discovered. Loïc Briand's wish would be to be able to puzzle out the crystallographic, three-dimensional structure thanks to which researchers would have extremely accurate information.

Of course this remains today to be very much basic research. That said, the demand for natural sweeteners

having a taste similar to that of saccharose continues to grow within a sweetener market that represents 1.72 million tonnes. In this context, sweet proteins like brazzein promise in the more or less long term to have a promising future as natural sweeteners. The latter could in fact fight against the problems of obesity and compensate the use of sugar for diabetics.

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Focus

A TASTE-NUTRITION-HEALTH STRATEGY IN 4 MAIN LINES



Recent studies show consumers want food products that have great taste as well as protecting their health and the environment. To meet this request, VITAGORA® is developing R&D projects that give pride of place to **TASTE**, **ENJOYMENT** and **WELL-BEING** within a nutritionally balanced diet. To allow companies and research laboratories perfect visibility of its strengths, Vitagora® has applied this strategy to four major lines, characterising the world class capabilities within the cluster and at the service of innovation project leaders.

TASTE THROUGHOUT LIFE PERCEPTIONS, BEHAVIOURS, LEARNING

Key capability: The Centre for Sciences of Taste and Food (*Centre des Sciences du Goût et de l'Alimentation* - CSGA) is one of the world leaders in the field of olfaction, taste and food. Three keywords sum up these research themes: "Food", "Sensoriality", "Dietary behaviour".

Flagship project: The OPALINE project, (Observatory of food preferences of babies and children), the only one in the world to date, is one of the many projects accredited by Vitagora® and led by CSGA teams.

HEALTH AND WELL-BEING MAINTAINING AND OPTIMISING

Key capability: There is a direct, strong link between lipid metabolism and obesity, diabetes or even cancer. Research undertaken by teams from the Joint Research Unit (Unité Mixte de Recherche - UMR) "Lipids Nutrition Cancer" (UMR 866) of INSERM and the University of Burgundy aim to better explain this.

Flagship project: The objective of Vitagora®'s industrial project, Vitalim'Senior, led by Senoble and in which UMR 866 takes part, is to develop functional food with a health claim regarding the prevention of weight gain among senior citizens.

TECHNOLOGY AT THE SERVICE OF FOOD AND NUTRITION

Key capability: The various research themes of the EMMA laboratory (Water, active molecules, Macromolecules, Activity) of the University of Burgundy have the same problem in common: controlling transfers in matrices whose particularity is being rich in water.

Flagship project: Involved in several projects accredited by Vitagora®, the teams from this laboratory are notably taking part in Saveurs Vapeurs a project with which SEB

wishes to optimise the taste of steam cooking.

THE FOOTPRINT OF AGRICULTURAL PRACTICES

Key capability: The state of natural environments, at the basis of all agricultural and food production, inevitably has an effect on the quality of commercial food products. Hence the importance of work carried out by teams from the Chrono-Environment Laboratory (CNRS/University of Franche-Comté/INRA).

Flagship project: This concern with the impact of agricultural practices on the taste of food products, on consumer health and on the environment is found in the project Qualivivant, which focuses on the development of a new generation of natural phyto-biotic agents.



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Focus

RESEARCH, INDUSTRY, EDUCATION

The Strengths of Vitagora®'s home regions

Thanks to its “cluster” effect, Vitagora® has encouraged a number of companies to set up in Burgundy and Franche-Comté, which has further strengthened the fabric of these regions in terms of industry, training and world-class research.

RESEARCH: WORLD CLASS CAPABILITIES

The triptych “Taste-Nutrition-Health” is historically one of the strategic trump cards for research and development in Burgundy and Franche-Comté. In this area, activities revolve around a number of scientific heavyweights such as the Centre for Sciences of Taste and Food (*Centre des Sciences du Goût et de l'Alimentation* – CSGA) and the INSERM “Lipids, Nutrition, Cancer” research unit that represent together around 400 researchers. Vitagora® also works in collaboration with laboratories of various sizes, including the Chrono-Environment Laboratory, the ENIL dairy industry research centres and FEMTO-ST, whose specific capabilities are of great interest for the food industry.

INDUSTRY: A SOLID AND DIVERSIFIED FABRIC

The territory covered by Vitagora® is home to a number of multinational manufacturing groups in nutritional supplements (Merck Médication Familiale), food processing (including Dijon Céréales and Senoble) and electrical appliances (SEB). It is also made up of a fabric of innovative SMEs, including a number that have recently been set up in the regions including CENNutriment, Nexidia, Gustalis, LCN Bourgogne or Sensina. The momentum created by Vitagora® in research and innovation has encouraged the emergence of a genuine “cluster effect”. Hence the interest by certain large companies (in particular SEB, Merck Médication Familiale and Senoble), involved in Vitagora® accredited R&D projects, in optimising their innovation



capabilities by regrouping and reinforcing their R&D teams in the region.

TRAINING/EDUCATION: WORLDWIDE REPUTATIONS

The regions of Burgundy and Franche-Comté have several higher education establishments known throughout the world such as AgroSup Dijon, the Jules Guyot Institute of Wine and Vine, not to mention the Universities of Burgundy and Franche-Comté, which train tomorrow's researchers and engineers in the themes of interest to Vitagora®.

These establishments are home to a large number of research teams involved in R&D projects developed with Vitagora®. Another establishment with a large reputation is the Institute of Sciences, Biotechnologies and Food Science (l'Institut des Sciences, des Biotechnologies et de l'Agroalimentaire - ISBA) who also leads a number of accredited R&D projects.



Photo by Jean Chevaldonné (ENESAD-EDUTER). Airplane piloted by François Joliot

campus, a small area with a large
public and private R&D units



NEW MEMBERS OF THE VITAGORA® TEAM

We are pleased to announce the arrival of two new members of the Vitagora® team:

- Elisabeth Lustrat - Innovation and Scientific Network Manager. Formerly R&D team leader within Unilever, Elisabeth Lustrat joins Vitagora® to take charge of the cluster's development within European and international networks. She will also be providing the benefit of her experience for Vitagora® members in terms of innovation management methodologies.
- Geoffroy Trinh - International Development Coordinator. To be based in Singapore from the beginning of April 2010, Geoffroy Trinh will be manning the Asia branch of Vitagora® in the interest of providing cluster members with assistance for identifying potential partners (industrial, technological or scientific) for their development in the regions of Asia and North America.

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NEW MEMBERS OCTOBER 2009-MARCH 2010

The following companies have become members of Vitagora® Taste-Nutrition-Health :

Absciss, Nectars de Bourgogne, Schiever, Sobemab, Ingredia, Danone, Graine'up, Oxyane (Decathlon), Biovitis, Elcimaï, IDS Condipoudre, Hexaliance, Urgo, SIIN, RP Lab...

YOU ARE INTERESTED IN VITAGORA®? JOIN THE CLUB!

Find out more about the member services

www.vitagora.com

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