



Habeat : une jolie moisson de résultats

Sylvie Issanchou

► To cite this version:

Sylvie Issanchou. Habeat : une jolie moisson de résultats : Article sur le projet "HabEat" dans la newsletter Vitaneews international n° 14 de avril 2014. 2014, 1 p. hal-02796382

HAL Id: hal-02796382

<https://hal.inrae.fr/hal-02796382>

Submitted on 5 Jun 2020

HAL is a multi-disciplinary open access archive for the deposit and dissemination of scientific research documents, whether they are published or not. The documents may come from teaching and research institutions in France or abroad, or from public or private research centers.

L'archive ouverte pluridisciplinaire **HAL**, est destinée au dépôt et à la diffusion de documents scientifiques de niveau recherche, publiés ou non, émanant des établissements d'enseignement et de recherche français ou étrangers, des laboratoires publics ou privés.

VITANEWS

NEWSLETTER
NUMBER 14
APRIL 2014

INTERNATIONAL



HabEat



Project

HabEat:
Industry leads
for fruit and
vegetables for
children

Pages 4-7

IN THIS ISSUE

Editorial

- Consumer pleasure and health: join the discussion!

Projects

- HabEat: Industry leads for children's fruit and veges
- BALI: a questionnaire to evaluate wellness

Portraits of SMEs

- Novolyze: microbial decontamination
- Wellness at the heart of the CEN group activity
- Solactis: ambitions around nutritional ingredients

Portraits of scientist

- Psychology in wine tasting
- Is there a taste of fat?

Network

- Vitagora's partners at the 9th Taste-Nutrition-Health Congress

CONSUMER PLEASURE AND HEALTH Join in the discussion!

This spring is the occasion for us to once again find ourselves at Vitagora®'s Taste-Nutrition-Health Congress, as has become our habit for the last 9 years. The 9th edition of this congress has been somewhat reorganized in order to enhance its impact, but is more than ever following in the path blazed by the preceding editions of this event.

The theme of "Consumer Pleasure and Health" provides the structure for the program of the 2014 edition while also being an echo of the Taste-Nutrition-Health triptych that Vitagora® has developed. When looking back over the themes of the previous years, we find evidence of a great coherence, the fruit of a strategy developed by Vitagora over the years, putting the consumer at the heart of food development. A food that is of course healthy and balanced, but also meeting the taste expectations of consumers as well as preserving the environment.

The 9th edition of the Congress, through its various scientific communications, two round table debates, not to mention posters, will allow Vitagora® and its partners to focus on

producing tomorrows innovations, just as previous editions of the congress have done. The BALI project presented in this newsletter, was indeed born of a discussion during the "Food, nutrient and wellness" edition of the Congress in 2010. In addition, in keeping with our clusters commitment to assisting businesses with their task at hand of understanding and anticipating the changes taking place in consumer-driven food markets, this Congress will present the results of an inaugural trend study carried out by Ipsos, promising an invaluable insight into consumers from now to 2020.

So, we are delighted to be finding you once again in Dijon for the 2014 edition of our Congress and we look forward to the fruitful and insightful discussions on consumer pleasure and health that are sure to await us.

Pierre Guez
President of Vitagora®



WITH THE SUPPORT OF:



IN PARTNERSHIP WITH:



Microbial decontamination of food: Novolyze targets a growing market

All natural ingredients used in food manufacturing, such as spices, aromatic herbs and dried fruit, but also medicinal plants used by pharmaceutical laboratories, or indeed other ingredients of the cosmetics sector, all have to go through processes of decontamination before entering industrial processing. By creating Novolyze, Karim-Franck Khinouche wishes to provide ingredient manufacturers with the expertise and validation of decontamination processes for dry ingredients. In partnership with the Brazilian Fusion Ingredients, Novolyze is also behind a new venture using an innovative processing technique promising better quality and yields.



Karim-Franck Khinouche,
founder of Novolyze

... "Our technology will increase productivity by up to 30%, increase energy efficiency, ensure safety and even extend use by dates"...

In response to consumer nervousness regarding the unrelenting complexity of the supply chain, in particular imported foods, the American Food and Drug Administration (FDA) has imposed ever more strict regulations, especially for ingredient manufacturers. "Overall, 95% of market players are having to get approval for the debacterialisaton processes that they use for each of their ingredients," explains Karim-Franck Khinouche, who knows this sector well.

After finishing his studies at AgroSup Dijon, Karim-Franck Khinouche joined the company ETIA that was at the time seeking to optimise its sterilisation processes for dry products. Returning to France, he continued to work for ETIA until July 2012 when he created his own company. The goal of his young company is to supply assistance for manufacturers that need to validate decontamination processes for dry ingredients. This sector is relatively new and requires innovative thinking as, if validation methods are well known for liquids, this is not the case for dry materials. "This is a difficult medium to work with, and is often complicated by being very varied in nature," he indicates. In this market, Novolyze has been breaking new ground as offers of validation of dry decontamination processes are few and far between, both in Europe and the USA. However, demand for this type of service is exploding, in particular regarding the American food market.

Now employing five people, Novolyze also provides assistance for emerging economies, with the idea of accompanying their industrialization. "The spices and aromatic herbs

market are growing by 20% each year. Many companies are building factories in developing countries and need guidance in their choice of technologies and installations," explains Karim-Franck Khinouche. His company currently boasts around 10 clients, most of whom are international.

Open to building new partnerships, Novolyze has recently joined forces with the Brazilian company Fusion Ingredients, providing an innovative process that will be used by Fusion Ingredients to manufacture ingredients from aromatic herbs and, in time, vegetables such as carrots and beetroot. "Novolyze developed this technology that will increase productivity by decreasing by up to 30% losses of agricultural raw materials, will increase energy efficiency, ensure safety and even extend use by dates," continues Karim-Franck Khinouche. Beyond the manufacturing taking place within the subsidiary of Fusion Ingredients that is to be set up in Dijon, Novolyze will be licensing its technology to other manufacturers.

Beyond this venture, Novolyze is keen to join in other collaborative projects. "As a member of Vitagora, it is important to build our networks on both a national and an international scope. Belonging to a cluster such as Vitagora is essential for this goal," concludes Karim-Franck Khinouche.

Karim-Franck Khinouche
Email : kf@novolyze.com
www.novolyze.com



HABEAT: EMERGING LEADS FOR THE FOOD INDUSTRY



To better understand the periods and the key mechanisms in the formation of food preferences in children, from birth to the age of 5 years. This is the goal of the **HabEat** program, a European research project accredited by Vltagora® and funded by the FP7. The four years of research that have gone into this ambitious project are coming to an end with a conference organised in Dijon on March 31st and April 1st where the considerable results of the project will be presented. These results have been used to put together a series of recommendations for childcare professionals, pediatricians, policy makers and even food manufacturers. And the chance for us to rediscover some of the most remarkable discoveries of this project, coordinated by **Sylvie Issanchou**, INRA research director and scientist at Dijon's Centre for the Sciences of Taste and Food.

"I am very satisfied with now the program has been carried out and the involvement of all the partners, with whom we did not all have the experience of working together, and we were bringing together many disciplines," begins Sylvie Issanchou. Covering four years and involving 11 multidisciplinary teams from six European countries, the four work packages of HabEat covered epidemiological and interventions studies, as well as a communications component.

A number of scientific publications and no less than three theses were produced as part of the project. "In terms of results, some were unexpected, others confirmed our hypotheses," resumes Sylvie Issanchou. Among the expected results, the fact that repeated exposure to a food functions as well as the fact of associating it with an agreeable flavour. This observation serves as the first of a number of recommendations in a booklet produced for parents and childcare professionals by the projects stakeholders. A second piece of advice: "don't put too much stock on a child's reaction to a newly introduced food," observes the HabEat coordinator.

Concerning children's ability to regulate their food intake, the researchers were able to observe that the children consumed the most in the absence of hunger when offered tasty food immediately after a meal, are not always the same children who do not compensate for pre-meal food intake. "Initially, we thought they would be the same children," Sylvie Issanchou indicates.

Confirming the interest of these results for food professionals to allow them to adapt products to the



Sylvie Issanchou, Inra research director and HabEat coordinator

problems faced by parents seeking to increase fruit and vegetable intake in their children, Sylvie Issanchou observes that the general themes of HabEat are set to gain in importance in the years to come. "New research positions in this field are even being created," she announces.

Contact
Sylvie Issanchou
Email: sylvie.issanchou@dijon.inra.fr

WORK PACKAGE 1

Fruit and vegetable intake: the importance of breastfeeding

The epidemiological work package of the HabEat project coordinated by Blandine de Lauzon-Guillain and Marie Aline Charles, director of the "Epidemiology of diabetes, obesity and renal disease" unit of CESP/Inserm, was based on the parallel observation of four European cohorts (the UK, France, Portugal and Greece). "Our goal was to study the periods and critical factors in the development of food habits," begins Blandine de Lauzon-Guillain. She explains that the research carried out focused primarily on early exposure, that is to say the length of breast-feeding and weaning age. "We wanted to find out if we would obtain the same results despite different socio-cultural contexts, in particular in relation to diet, in the various countries that we studied," she explains.

The first result that stands out from the epidemiological study: the length of breastfeeding, in each of the four cohorts is associated with the consumption of fruit and vegetables in young children and the quality of their diet. "The shorter the period for which the child breastfed, the less the child ate fruit and vegetables aged 2 to 5 years. This observation is independent of the fruit and vegetable intake of the mother," she underlines. A result that could be explained by the exposure to a higher variety of flavours allowed by breastmilk in contrast to infant milks. Hence the ability of children breastfed for longer to later accept a larger variety of flavours.

... Children perceived early in life as "fussy eaters" by their parents were often those whose fruit and vegetable intake was lower and whose overall diet was of lower quality ...




"We supposed that the fact of introducing foods during a critical period from 4 to 6 months would be associated with a higher acceptance of foods later," explains Blandine de Lauzon-Guillain. However, the analyses carried out did not establish a corroborating link between the cohorts. Based on this second result, or "non-result", researchers have inferred that some country-specific links between the food-exposure period and the following consumption trends are probably better explained by some other characteristics unique to each country, rather than by a direct cause-and-effect link between food-exposure age and resulting feeding habits. Finally, a third significant result from this research, the fact that the children perceived early in life as "fussy eaters" by their parents were often those whose fruit and vegetable intake was lower and whose overall diet was of lower quality. "This was not a complete surprise, but we were not expecting the result to be so clear. We were surprised to find within all four cohorts a significant proportion of children considered fussy eaters by their parents," she concludes. Understanding the characteristics of these children and their parents, as well as developing specific strategies, promises to the the subject of further research.

Contact
Blandine de Lauzon-Guillain
Email: blandise.lauzon@inserm.fr

¹ Centre of research into epidemiology and public health (Centre de recherche en Épidémiologie et Santé Publique)

WORK PACKAGE 2



Early, often and varied – the key strategies to increase acceptance of vegetables

"The second arm of HabEat was designed as a means to test experimentally some of the observations from the epidemiological studies within WP1 regarding the acceptance of novel vegetables by small children," begins Marion Hetherington, professor of Biopsychology at Institute of Psychological Sciences within the University of Leeds, and coordinator of this part of the HabEat project.

Covering ages from weaning (from 6 months old) to pre-schoolers (3-5 years), the studies in this arm of HabEat have been groundbreaking in their systematic investigation of different forms of learning across the various countries. For example, to ensure no variations in the product, a single batch of artichoke was sourced for purees offered weanlings in France, and to infants and preschoolers in Denmark and England.

As a result, a number of strong conclusions have emerged. Firstly, despite having tested other techniques such as adding sweetness, energy or modifying flavor elements (adding seasoning or sauces), repeated exposure remains the key to increasing liking and intake of a novel vegetable. Secondly, age is a crucial factor. *"There is a perfect opportunity at around 6 months of age where exposing children to a variety of vegetables will have a really good impact on their ability to accept lots of different vegetables early on in life. From the age of 3 to 4 years, children are more likely display neophobia and to reject novel foods, or only increase their intake by small increments,"* explains Pr Hetherington.



... "There is a perfect opportunity at around 6 months of age where exposing children to a variety of vegetables will have a really good impact on their ability to accept lots of different vegetables early on in life"...

However, even fussy eaters show an improvement, albeit small, in intake in the face of repeated exposure. *"Basically, don't stop offering just because your infant expresses distaste, it may be surprise not dislike!"*, she continues.

The data and analysis from this project have offered a number of leads for both parents and industry players. Starting early is clearly an important strategy, and accompanying baby food with guidance for parents on how to increase variety is another area to explore. Also, *"food for weaning babies should allow them to discover the distinct flavor of a single vegetable,"* suggests pr Hetherington, *"It is not necessary to mask the flavor of a vegetable with familiar tastes or added energy in order to increase acceptance."*

Contact
Marion Hetherington
Email: m.hetherington@leeds.ac.uk

WORK PACKAGE 3



New eating moments and a variety of serving styles

"Work package 3 focused on an older group of children, aged 2-6 years, in order to explore new strategies for increasing vegetable intake," begins Gertrude Zeinstra, a consumer science specialist at Wageningen UR Food & Biobased Research, and coordinator of this section of HabEat's program. Ten experiments were executed with the aim of increasing children's vegetable intake and one study evaluated children's ability to self-regulate their caloric intake. *"The results of this study showed that children tend to overeat. When offered a snack before the meal, children compensated only half of the energy brought by the pre-meal snack. When children were offered snacks after the meal (eating in the absence of hunger), they ate a quarter of the energy brought by the previous meal,"* explains Dr Zeinstra. The results also indicate that eating in the absence of hunger and caloric compensation are different mechanisms of energy intake regulation. *"The first one is probably mostly influenced by conscious responses driven by external factors, whereas caloric compensation is driven by physiological responses and homeostatic regulation of food intake."*

In line with the results of work package 2, the research showed that among 3-5-year-old children repeated exposure is an effective strategy to increase intake of an unfamiliar vegetable. *"In work package 3, we mainly used familiar vegetables and overall, our results indicate that it may be more challenging to increase intake of these familiar vegetables".* Promising strategies identified were varying the serving style (shape or form) or offering children

a choice of vegetables. Imitation of a role model or involving children in the preparation of vegetables did not affect vegetable intake in this age group. *"There were indications that these strategies could be effective, but the complex, real-life settings of these experiments may have contributed to unforeseen factors that influenced the outcomes,"* explains Dr Zeinstra. *"Further research is needed to evaluate these factors."*

Finally, Dr Zeinstra suggests introducing new vegetable eating moments during the day to increase intake, although it may vary from one country to another whether this is a promising strategy. *"In The Netherlands, for example, children tend to eat a sandwich for lunch, so the main vegetable intake is during the evening meal. A vegetable snack could be a low energy-dense option for adding a new vegetable eating moment."*

Contact :
Dr Gertrude Zeinstra
Email : gertrude.zeinstra@wur.nl



HABEAT: what leads for the food industry?

- ▶ To help parents to begin the introduction of vegetables and to vary what they offer, food manufacturers could provide small-serve multipacks adapted to the small intake of weaning-age babies.
- ▶ Accompany vegetable-based baby foods with guides for parents on how to optimise exposure to vegetables.
- ▶ Vary the appearance of familiar vegetables in either shape or culinary form.
- ▶ Develop new eating moments during the day to introduce vegetables, according to the consumption habits of the country in question.
- ▶ Develop products and strategies specifically for those children most at risk of sub-optimal fruit and vegetable intake.

Wellness: A new questionnaire under development thanks to BALI



For several years, wellness and its optimisation through diet seem to be one of the major concerns of a growing number of consumers. Hence the increasing interest of food and dietary supplement manufacturers for this concept. It was in this context that idea was sparked to develop a project around this theme. 14 partners¹ are involved in BALI, a project accredited by Vitagora® and whose first phase involved the creation and validation of a 178 item questionnaire. The next steps will touch on the search for bio-markers linked to certain characteristics of wellness, and the launch of clinical trials.

At the beginning of the current decade, the idea emerged to build an R&D project around wellness and diet. "At Danone, we were convinced that wellness was important," remembers Michel Rogeaux who has worked for 25 years as a sensory and consumer science specialist for the food industry giant. "It is a fascinating field," he says, that has lead him to help the emergence of new ideas and methodologies in order to initiate new projects. For BALI, the idea was suggested during a conversation with the Vitagora® team, "who amazed me with their ability to put together a discussion on wellness with a wide-ranging vision of food," he explains. For if Danone fully believes in the importance of the notion of wellness, partners were needed for a solid project. By building a consortium of 14 structures, including companies and researchers, the project got off to a solid start.

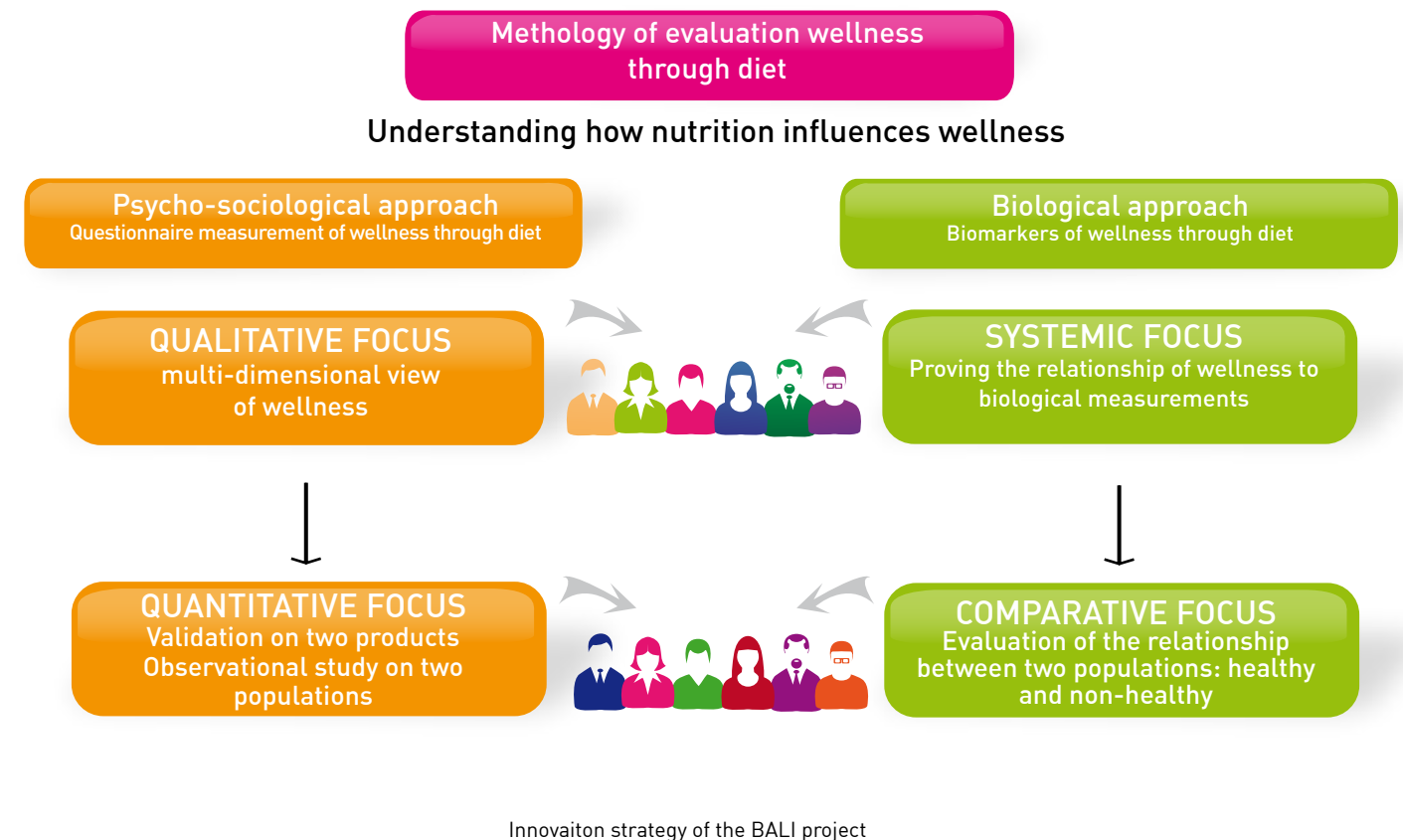
Since then, the first phase of BALI, involving the writing of a questionnaire around wellness and diet, has been launched with the support of the company MAPI, a specialist in the area of questionnaires of the PRO(Patient Reported Outcomes) type. A first step that consisted in

... "We were able to put together a questionnaire of 178 items that corresponded to all the interesting dimensions of the theme of wellness and food"...



Michel Rogeaux, Consumer Science expert with Danone

particular of using consumer focus groups in order to quantify and verbalise the notion of wellness through diet. "We were able to put together a questionnaire of 178 items that corresponded to all the interesting dimensions of the theme of wellness and food," he explains. Today, a second phase is underway, consisting of observing how the questionnaire works from a mathematical point of view. A population of 500 people has thus been divided into three groups, the first with 100 people with a completely healthy diet, another 300 with an average diet, and a final group of 100 whose diet is fairly unbalanced. "The aim is to test the sensitivity of the questionnaire to observe differences



between the groups of consumers and to see the usefulness of all the items." Usable in its full version, the questionnaire will also be available in a simplified form, by module, in order to focus on a specific dimension off wellness.

The third phase of the project will soon begin, seeking to identify the biomarkers linked to certain characteristics of consumer wellness. "This is one of the ways in which this project is unique. We are going to try and measure physiologically any change in terms of wellness verbalized by the consumer," indicates Michel Rogeaux. This study will be lead jointly by the Dijon-based company Lara Spiral and a research unit in Bordeaux. In parallel, two pre-clinical trials will be carried out by CEN Nutriment, also based in Dijon, in partnership with Merck Médication Familiale and Senoble. "We will be observing people with a certain lifestyle associated with a mode of dietary behavior in order to see if a particular product leads to a modification of their perception of quality of life." Within the Laboratory of Social Sciences and Behaviour Analysis of the Dijon Business School, another branch of the

project will look into a so-called "experimental economy" approach. All experiments should be finished for the beginning of 2015 with the publication of this unique questionnaire, although it will remain confidential for an initial period.

Contact
Michel Rogeaux
Email: michel.rogeaux@danone.com

¹ CEN Nutriment, CEN Biotech, Danone, ESC-Lessac, Lara Spiral, Lu-Mondelez, Mapi, Merck Médication Familiale, Lesieur, Roquette, Senoble, Seb, Sodexo, UMR NutriNeuro

Wellness, at the heart of the CEN group's activities

CEN Biotech, CEN Nutriment, CEN Expérimental and, as of next April, CEN Nutrition Animale. Professor François André Allaert needs no more proof of his passion for entrepreneurship, with four companies whose common goal is to provide a Dijon-based service platform for the development of dietary supplements and medical devices, from pre-clinal steps to distribution, for both human and animal. Wellness is clearly a notion that "speaks" to this doctor and academic, judging by his involvement in the BALI project developed with Vitagora®.

With the famous questionnaire, under development by the BALI project and aiming to evaluate wellness in humans, the subject of discussion for the partner companies was health claims that now interest a large number of agri-food businesses wishing to promote their products' health benefits. This evolution was anticipated by Pr Allaert more than 10 years ago when he created his second company, CEN Nutriment, in the footsteps of his first, CEN Biotech. If CEN Biotech is a specialist in the evaluation of pharmaceutical drugs, CEN Nutriment offered a solution to the growing number of food companies confronted with the new European regulations on nutritional and health claims, and is now established in the sector of the evaluation of functional ingredients and food products.

"Putting together this questionnaire - a entirely new exercise in our area - lead to some tough discussions about how to approach food products, functional food or even food services," he observes. Indeed, there are very strict methodologies for writing this type of questionnaire and validating so-called psychometric properties. Hence the need to test the ability of patients to understand the questionnaire, but also to ensure that it is reliable, coherent and able to detect changes in a person's wellness.

The BALI project will be entering the questionnaire in its validation phase with the launch of two clinical trials, during which the questionnaire will be used for several protocols. The studies will be carried out by teams of the CEN group in collaboration with two companies from the BALI project, and will also contribute to establishing health claims for the two products in

question. "We will be observing if the questionnaire is able to detect changes attributable to the effect of the products," explains Pr Allaert. This phase is taking place at a particularly busy time for the CEN group due to the launch of the group's fourth member, CEN Nutrition Animale, will be taking place next April, barely two years after the creation of number three, CEN Expérimental.

"With CEN Nutrition Animale, we will be inverting the process. We are testing on rodents, then human cohorts, then once again on animals. Our originality is not to repeat studies on animals but to transpose data acquired on humans directly onto domestic pets when the internal organ systems are comparable," he concludes.

Contact

François André Allaert

Email : francois.allaert@cenbiotech.com



Group Solactis: ambitions around nutritional ingredients

A recent member of Vitagora®, Group Solactis signed in July 2013 a Management Buy Out agreement (MBO) regarding the "Solactis/Vitaloa" research program that had previously been developed by Solvay. Since then, Pascal Ronfard, the founder of this young company specialised in nutritional ingredients for humans and animals, has put all his energy into the development of its first products, prebiotic ingredients that help regulate digestion, and that have already obtained health claim approval for European and South Korean markets.

"I have 18 years behind me within the Solvay group, including 10 years spent overseeing the nutrition research program," explains Pascal Ronfard. In 2010, his team was one of the rare candidates to receive a positive response from the European Food Safety Authority (EFSA) for galactofructose, the molecule developed by the team. This health claim approval was for the ability of galactofructose, within a food application, to regulate of digestion in humans and animals.

Thanks to this health claim approval for European markets, the first sales of this product were carried out for Solvay. However, nutrition was no longer considered a strategic



priority for the company an Pascal Ronfard made the decision to launch his own start-up and to negotiate an MBO with the multinational in order to buy the rights to the knowledge developed by his team. Group Solactis is today holder to two patents concerning the prebiotic effect and regulation of digestion, as well as two associated brand names, Solactis for human nutrition, and Vitaloa for animal nutrition. "These products have the effect of assisting digestion, either slowing it down when too fast, or accelerating it up when too slow," explains Pascal Ronfard. These two products are available in both powder and liquid forms, and are both simple sugars that are easy to integrate into food matrices.

... Groupe Solactis has recently obtained approval from the Korean Ministry of Food and Drug Safety for a prebiotic health claim for the product, in addition to its European approval ...

"Our ambition is to offer products that are adapted to the specific markets of human and animal nutrition," continues the Solactis' president, who has the goal of developing business in Asia, in particular South Korea. The company has indeed recently obtained approval from the Korean Ministry of Food and Drug Safety (MFDS) for a prebiotic health claim for the product, in addition to the European approval. Capitalising on its knowledge base, Group Solactis is today working on finding investors during the first half of this year. A necessary passage to allow the company to rapidly develop new products to increase its offer, with the goal of offering a wide range of products for the nutrition market. Pascal Ronfard is however aiming to maintain a flexible and reactive structure for his company. "We are going to be exploring external partnerships with European and French universities for our upcoming development programs," he concludes.

Contact

Pascal Ronfard

Email: pascal.ronfard@solactisgroup.com



The importance and role of psychology in tasting a wine

It was during his studies, particularly his Master completed in Dijon, that **Jordi Ballester**, a food science engineer, entered the world of wine and never left. Today, he is a teacher at the University of Burgundy and a research member of the "Culture, Expertise and Perception" team at the Centre for Taste and Food Sciences (CSGA) in Dijon. After having dedicated much of his time to wine chemistry, he now works mainly on **sensory perception related to the psychology of tasters**. His research is attracting more and more interest from wine producers.

"Once you have entered the world of wine, there is no turning back and you cannot but wish to work in this field," admits Jordi Ballester. So after completing his engineering degree in Food Science from the Polytechnic University of Valencia in Spain, an Erasmus stay led him to Dijon to conduct a DEA (Master) before starting a thesis. "Our goal was to dissect the flavors of Chardonnay, both chemically as well as from a sensory point of view," he says. In fact, it was at its essence a quest for the 'magic molecule', similar to what had been done in the Bordeaux wine region with Sauvignon Blanc and in Alsace with Gewurztraminer. Because if we know the Chardonnay grape, we still do not know what allows tasters to recognize it, chemically speaking. "It was a very scientific thesis, with a lot of chemistry, and a little sprinkle of cognitive psychology," he remembers. But if some potential molecules have been discovered, it turned out that in fact, instead of a «magic molecule», the flavors of Chardonnay actually depended on a balanced interplay of fifteen-odd compounds.

After a year of teaching in AgroSup Dijon, Jordi Ballester went to Canada, Ontario, for a post-graduate study to identify authentication markers of ice wines whose particularity is to be produced from grapes harvested in a frozen state. Back in France, he joined the University of Burgundy to teach tasting classes as well as a theoretical methodology and sensory analysis course. Meanwhile, he continued to work at the CSGA in the "Culture, Expertise and Perception" team, and focused his research on tasters' perception and psychology. "I am very interested in expertise," he says. He was able to show that, contrary to popular belief, novices and experts have the same assets in sensory terms. "The difference comes from learning a specific vocabulary and the organization of the knowledge you have stored in your mind. Furthermore, the expert tastes deliberately, while the novice pays more attention to the context of the tasting than to the wine itself," says the researcher.

Jordi Ballester also carries out research on representations. What is an expert's representation of a particular grape or region? And what is it for the novice? These are just some of the exciting questions he puts forward. "So the ideal vision of a quality wine for a novice is not at all the same as that of an expert, the elements that the former focuses on are not the same as for the latter," he explains. Such conclusions will

obviously be of interest to marketers and all those who develop business strategies. He replicated this research with people who only paid attention to labels, without tasting the wine. "This is the type of experiment whose results can be interesting in terms of communication strategy," he says. This goes to show that psychology plays a significant role, particularly in the choice of a wine and its appreciation by the consumer. "Fifteen years ago, hardly anyone would have dared speak about this. Today, we have more and more demands on that particular topic," he says. Sure, it somewhat demystifies the traditional wine 'decorum' but is it not ultimately to better understand and appreciate it?

Contact

Email: jordi.ballester@u-bourgogne.fr



Jordi Ballester

... "This is the type of experiment whose results can be interesting in terms of communication strategy," he says ...

Philippe Besnard Is fat the 6th taste?

Can one actually talk about the taste of fat? The findings of the most recent research by the team of **Professor Philippe Besnard**, who heads the NUTox (Physiology of Nutrition and Toxicology) team at the Lipids Nutrition Cancer [1] Joint Research Unit, suggest that while the texture and smell of lipids are responsible for oral detection, taste is also involved in human and rodents' spontaneous preference for fats.

Philippe Besnard has a long history with lipids. He crossed their path by chance, as his background was mainly in endocrinology and molecular biology. "I was recruited as associate teacher by an Ensaba (now AgroSup Dijon) laboratory that worked on the intestinal absorption of lipids," he recalled. That is how he began studying the gene coding for lipid transporters in the intestine. At the time only interesting a small handful of researchers worldwide, this topic led Besnard and his colleagues to the gradual discovery that some lipid-receptors can also be found in the taste buds of mice. "We had the luck of discovering the CD36 receptor in taste buds. This protein was an interesting target and became a springboard for our research that continues to this day," the Dijon based academic explains.

For the past ten years, the research of Philippe Besnard and his team have made other advances, during different projects accredited by the Vitagora® cluster, such as SENSOFAT whose purpose was to understand the workings of the Fatty Acid Transporter CD36 on the tongue and in the intestine. Research has shown that this protein plays an essential role in the taste perception of foods by the tongue. It also suggests that CD36 may play the role of fat sensor in the intestine. Furthermore, findings by other teams have shown that CD36 can also be found in the hypothalamus (in the brain) where there may also be a lipid sensor system, according to Philippe Besnard. Does this really mean that the taste of fat is now a reality and that we can safely talk about a sixth taste? "It exists as a kind of continuum along an oral-intestinal-hypothalamus axis where the same type of receptors can be found. However, while their operating mechanisms are similar, the physiological consequences they cause are different depending on their location," summed up the researcher.

Well then, can we finally talk about the taste of fat? "All the required theoretical conditions for designating the oral-sensory perception of lipids - I'm not saying taste - are virtually there," explained Philippe Besnard, with typical scientific reserve. He explained that unlike the primary five tastes - sweetness, saltiness, sourness, bitterness and umami - fat does not seem easily perceptible as a unique sensation in humans. Take saltiness, sweetness and umami, they bring pleasure to the people tasting them. On the other

hand, sourness and bitterness trigger wariness. So, what about fat? Philippe Besnard believes that, "the taste of fat could be an unconscious oral-detection system enabling a person to select foods, not based on a specific primary sensation, but on their energy density." He recalls that since humans evolved several million years ago, they have experienced a situation of food insecurity. However, the fact of having a system that would allow humans to orient their choices according to the energy density provided by the food could represent an evolutionary advantage that would be found in different animal species. In the current situation and at least in developed countries, the hypothesis may explain why obesity keeps growing. The "taste of fat" still has surprises in store for Philippe Besnard and will continue to pique his curiosity during new projects such as Sensofat 2, which has been accredited by the Vitagora®, and have recently got off the ground.

Contact

Philippe Besnard

Email: p.besnard@agrosupdijon.fr

... "All the required theoretical conditions for designating the oral-sensory perception of lipids - I'm not saying taste - are virtually there" ...



[1] UMR 866 (INSERM, Université de Bourgogne/AgroSup Dijon)

The Vitagora® Congress

A decidedly international flavour

Each year, more than 20% of its 500 participants come from outside of France – the international side to the Vitagora Taste-Nutrition-Health Congress is an evidence. In 2014, coming from Europe, Asia and North America, the various partners of the Vitagora cluster will be in Dijon at the beginning of April. Among these partners, **Quebec**, the Congress' guest of honour, arriving with a 15 strong delegation of companies, scientists and researchers. Also present, representatives of **FoodPolis**, the Korean national food industry cluster. Proof indeed that the interest in consumer pleasure and health does not stop at national boundaries.

QUEBEC DELEGATION, GUEST OF HONOUR OF THE 2014 TASTE-NUTRITION-HEALTH CONGRESS

VITANEWS: 15 people will be coming specially from Quebec to take part in the Vitagora® Congress: what brings them to Dijon for this event?

SANDRA HARDY, Director of business development rice Aliments santé et nutrition: Our delegation is coming to France from Marche 30th to April 6th within the framework of projet titled "Taste-Nutrition-Pleasure: how to reconcile taste quality and health objectives?". This project is coordinated by Quebec International (Health Food Consortium) and carried out in collaboration with the food sector's partners, including the Melior Programme, the INITIA Foundation, the Institute for Nutrition and Functional Foods (INAF) of the Université Laval and the Club PAI. The main goal is to combine technical, scientific and marketing capabilities of Quebec and France in order to provide concrete solutions for Quebecois food companies for their health food innovation projects. It is also thanks to the support of the Délégation générale de Quebec in Paris that Quebec is able to be visible at the Vitagora® Congress.

VITANEWS: How is the Congress' theme of "Consumer Pleasure and Health" strategic for Quebec?

SANDRA HARDY: Several studies have shown that taste is the primary consideration in the taste of the food product. The consumer wishes today to use products that are healthy if they also taste good – enjoying what you eat is also a way of achieving good health! We therefore need to support Quebec's food manufacturers in their projects for improving their food offer in order to maximise their chances of success. We strongly believe that the integration of good practices of sensory validation must be at the heart of all innovation processes, hence the idea for this mission.

VITANEWS: What sort of partnerships do you intend to put in place with Vitagora®?



Sandra Hardy, Director of business development rice Aliments santé et nutrition, et Directrice du réseau d'excellence ACCORD – Consortium Aliments santé.

SANDRA HARDY: The Quebec region is lucky to have had the Health Food Consortium since 2008, which has certain similarities with the Vitagora® cluster. We believe that our members and partners, many of whom have come to Dijon for the Taste-Nutrition-Health Congress, have everything to gain from sharing their expertise and evaluating the opportunities to launch joint initiatives. It would be an honour for us to welcome in turn a French delegation during the following edition of BENEFC, an international event on ingredients and health foods that will take place in Quebec on September 23-25, 2014.

VITANEWS: What are the particular scientific and industrial strengths of your delegation?

SANDRA HARDY: Our delegation groups together businesses and scientists of various spheres of the food industry, a great sampling of the Quebecois food processing sector.

From start-ups to established companies, including the sectors of dairy products, pastries, berry-based foods, oil and condiment

producers and greenhouse plant production.

We are also privileged to be accompanied by a Canadian retail market leader, Sobeys, who runs more than 1500 supermarkets in Canada and operates in particular under the banner of IGA in Quebec. bannière IGA au Québec.

Programs such as Melior and the Health Foods Consortium are investing in the support and promotion towards businesses in order to contribute to improving the health quality of the Quebecois food production. Scientific, technical

and financial partners are needed in order to reach this goal. Participants are able to make use of the capabilities and expertise of the INAF, the INITIA Foundation, Quebec International and local development centres, all of whom are pillars contributing to industry successes.

FOODPOLIS, KOREAN NATIONAL FOOD INDUSTRY CLUSTER AND PLATINUM SPONSOR OF THE 2014 TASTE-NUTRITION-HEALTH CONGRESS

VITANEWS: What is the interest of your organization for the theme of "Consumer Pleasure and Health"?

HOJOON CHA, Senior Consultant of Agency for Korea National Food Cluster: These two issues are considered as the most essential issue in Korea as well. Korean general consumers are very sensitive to healthy food since Korean traditional dishes are categorized as the slow food and healthy food based on vegetable fermentation such as Kimchi. It is also important that consumers shall have a pleasure when they have a healthy meal. Thus these two issues shall satisfy consumers at the same time.

VITANEWS: What are your reasons for taking part in the Taste-Nutrition-Health Congress in Dijon?

Hojoon CHA: After the Korea-EU Free Trade Agreement takes effect, the scope of business between two countries have widened and expanded. We would like to meet with European food related entities which have a willingness to enter into Korean food industry during the congress. In addition, it helps us understanding the current trend of European nutrition and health technologies.

VITANEWS: What interests you about the Vitagora® cluster?

Hojoon CHA: Vitagora® and FOODPOIS have enhanced mutual cooperation for food and health industries in both countries and created series of new businesses so far. We strongly believe that Vitagora® represents French food industry together with F2C Innovation and we expect to have a further collaboration on food and health industries in both countries.



Hojoon CHA, Senior Consultant of Agency for Korea National Food Cluster



9th international
TASTE
NUTRITION
HEALTH
congress
vitagora.com/congress



CONSUMER HEALTH
AND PLEASURE



april 3|4
2014
palais des congrès
| **Dijon**
FRANCE

Thank you for
helping make
our Congress a
success!

CONTACT

VITANEWS

INTERNATIONAL
Newsletter of
Vitagora® Taste-Nutrition-Health

Text and Images:
©Vitagora®, www.sxc.hu, IStockphoto,
Fotolia

Vitagora®

Taste-Nutrition-Health
Network Innovation

Address:

Maison des Industries Alimentaires
4 Bd Docteur Jean Veillet
BP 46524
21065 DIJON Cedex

Telephone: +33 (0)3 80 78 97 91

Fax: +33 (0)3 80 78 97 95

Email: vitagora@vitagora.com

Website:

www.vitagora.com