

Promoting Flavor Research amongst PhD Students in Europe Academic Year 2017/18

PROJECT ROAD MAP

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Project sponsored by

BIORIGIN

DSM FOOD SPECIALTIES

GIVAUDAN

INTERNATIONAL FLAVORS & FRAGRANCES

KERRY

LESAFFRE INTERNATIONAL

MCLS EUROPE

NESTLÉ

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1. BACKGROUND

This document provides the planned programme of the industry-sponsored project to promote flavor research amongst PhD students across European universities and institutes.

Many of the major, global players in flavor and flavor ingredient production are located in Europe where they make a significant contribution to national economies through their production and R&D activities. Flavor and flavor ingredient production, and flavor R&D, also involve many smaller companies which contribute specific expertise and products to the larger companies. There are also many large and small European companies that use flavor technology to develop their own unique food and beverage products. The economic value of these activities to Europe is difficult to estimate accurately but there is a very strong socio-economic case for retaining and supporting these activities within Europe.

Given the global nature of businesses, there is always pressure to consider relocating to alternative sites in the USA or the Far East for marketing or for financial advantage. In addition, fast-developing economies such as China and India are investing huge sums in basic R&D activities in order to gain economic advantage over the West. Given their low cost-base, these economies are currently trying to woo basic research away from the West. One factor keeping the companies in Europe is the availability of well-trained personnel and a wide variety of Universities and Research Institutes that can supply research facilities and specialist advice and consultancy to the flavor companies. These Universities and Institutes are already well-connected through various informal mechanisms (e.g. COST actions, triennial scientific meetings such as the Weurman and Wartburg). In order to compete effectively in flavor R&D against established countries such as the US and Japan, together with fast-rising giants such as China and India, it is felt that Europe should show a strong, unified and synergistic face in the future.

Following seven highly successful programmes, a unique and focused industry consortium of 8 companies is renewing support to encourage PhD students in order to help expand flavor research competence in Europe. The project is organized by Giract (www.giract.com) and is co-ordinated by Prof. Andy Taylor from the University of Nottingham.

2. PURPOSE AND SCOPE

To promote innovative flavor research amongst PhD candidates across European universities and research institutes. The project targets two different groups of PhD students:

- **Group 1:** those who are about to complete and hence will soon be examining opportunities for employment
- **Group 2:** those who are about to commence their PhD studies

This is translated into the following sub-objectives:

- **Publicise the attractions of flavor research** so as to pull high calibre students into appropriate PhD courses and then into industry
- For **Group 1:**
 - Solicit and evaluate innovative flavor research projects amongst these students
 - Provide the Annual Savory Flavor Conference, organised each spring in Geneva, as a platform for the winning student to present his/her work to 'potential employers'
- For **Group 2:**
 - Award bursaries to a selected number of students who are planning to commence their PhD studies in flavors
 - Provide the 6 winning 1st year PhD students with the opportunity of visiting the laboratory of selected sponsor companies, by using a part of their winning bursary amount for their travel and stay. This will enable them to obtain a first-hand view of an industry R&D centre

3. PROJECT DETAILS

Group 1: Publicising career opportunities in the flavor industry

The plan is to contact <200 European universities and institutes with strong flavor science faculties and encourage PhD students to participate in an annual competition for 'best thesis' in the flavor area. Innovation will be the key criterion in judging the theses submitted for evaluation. **An award of EUR 5000 will be presented to the author of the best thesis.**

Selection of best theses

The view from industry is that there is an ongoing need for well-trained people. One of the ways of attaining this objective is to encourage students to work towards high-quality and innovative theses.

A Steering Committee, led by Prof. Andy Taylor, will evaluate the theses received and select the most deserving. Giract will invite the winner to the Savory Flavor Conference of the following year where the student will present his/her work to representatives from the sponsoring companies and receive his/her award.

Group 2: Encouraging students to study flavor research

There is a wider need to attract chemists, biochemists and other scientists to undertake PhDs in flavor, not just those already studying for a food science/chemistry/ technology degree who know something about flavor through their BSc/Masters studies.

One way of carrying out the above is to give bursaries to students who are starting PhDs to encourage them into the flavor area and to show them there is an interest in them (as future employees) from the industry as shown by the composition of the sponsoring companies. **A bursary of EUR 3000 each will be awarded to 6 selected students.** PhD projects and students will be assessed to ensure both meet some basic criteria.

In addition, the 6 winning 1st year PhD students will be offered the opportunity of visiting the laboratory of selected sponsor companies during the second year of their PhD studies, by using a part of their winning bursary amount for their travel and stay. This will enable them to obtain a first-hand view of an industry R&D centre:

The rules and regulations are detailed on a special web page for this project (www.giract.com/flavor-research-programme.php).

Universities/institutes are being encouraged to announce the programme on their websites to attract students to flavor studies. Similarly, sponsoring companies are also requested to announce the programme on their respective websites. Selected trade press, including internet-based, is being approached for news coverage of this programme.

Administration

It has been decided that Giract, an organisation already involved in training and information for the flavor industry (see www.giract.com), will handle all the administrative aspects of this project. The aim is to make it easy for these activities to take place and provide a strong supporting administrative system. Specific duties of Giract would include handling the communication with the universities/institutes, contacting companies for financial contributions, liaising with the relevant EU instances, setting up and co-ordinating with Prof. Andy Taylor, posting regular programme updates in social media (LinkedIn, Twitter and Facebook), announcing results, reimbursing the bursary amounts to the 6 selected first year PhD students based on research-related invoices countersigned by the respective professors, inviting the best thesis winner to the following Savory Flavor Conference, informing sponsoring companies, holding an evaluation meeting for the sponsoring companies on the day of the Savory Flavor Conference, etc. Prof. Andy Taylor of the University of Nottingham will be responsible for the evaluation of the theses and will help to finalise contacts with the universities/institutes, while aspects such as copies of the presentations, agenda, etc. would be the responsibility of Giract. Any unspent bursary amount for selected Group 2 students within the project deadline will be handed over to the department of the respective university/institute.

Sponsor companies

The 8 sponsoring companies are:

- BIORIGIN
- DSM FOOD SPECIALTIES
- GIVAUDAN
- INTERNATIONAL FLAVORS & FRAGRANCES INC.
- KERRY
- LESAFFRE INTERNATIONAL
- MCLS EUROPE
- NESTLÉ

Research topics of current interest

Giract has asked the sponsor group to suggest current areas of interest which could be examined in the context of new PhD studies. These include:

- Consumer acceptance of and preference for savory products
- Evolution of taste receptors with age
- Kokumi
- Maillard reaction in food processing
- New techniques in sensory analysis

- Salt reduction and natural alternatives for sodium reduction
- Natural savory flavors for clean labelling
- Sensory science, consumer insights, market intelligence on labelling of savory products
- Shelf life of savory products
- New sources of protein from microbial fermentation

4. TIME-LINE

The deadlines for the various activities are listed below:

Group 1 (Best thesis award):

- October 31, 2017 – Application by candidates
- December 15, 2017 – Submission of relevant documents for evaluation
- End January 2018 – Winner to be announced by Steering Committee
- April 19/20, 2018 – Project evaluation meeting with representatives from sponsoring companies in Geneva, and presentation of best thesis by winning candidate

Group 2 (6 bursaries to first year PhD students):

- October 31, 2017 – Application and submission of relevant documents
- December 20, 2017 – Announcement of results
- January–December 2018: period during which the 6 successful first year PhD students will be reimbursed research-related expenses against countersigned invoices. Any unspent bursary amount within this deadline will be handed over to the department of the respective university/institute
- June 29, 2018 – Bursary winners submit a short summary of mid-year research progress
- December 31, 2018 – Bursary winners submit a short summary of the full year research progress
- Details of laboratory visits in certain sponsor companies will be communicated to the winning students who wish to take advantage of this opportunity
- End January–Mid February 2019 – Giract is exploring the possibility of organising a review meeting between bursary winners and their research guides/professors and the industrial sponsors. Further information will be communicated in due course should this event materialise

5. CRITERIA FOR SELECTION

5.1. GROUP 1: BEST THESIS

Criteria for Best Thesis

Criteria	Description
Eligibility	<p>The applicant must be enrolled in a relevant European university/ institute for his/her PhD study.</p> <p>Any flavor related project that has led to the submission of a PhD in 2017 can be considered</p> <p>The applicant should not be already sponsored by, and/or bound to, a commercial organization</p>
Thesis	<p>The thesis should clearly explain the starting hypotheses or the goals and aims of the work</p> <p>Clarity of expression and effective communication of results is a key aspect in assessing the thesis</p> <p>Appropriate data analysis should be evident</p> <p>Clear abstracts and summaries are expected</p> <p>Clear Figures and Tables are expected</p>
Novelty	<p>All PhD studies should contain a degree of novelty and this will be part of the judging criteria. Novelty may be a new method for studying flavor or new findings or some other aspect of the PhD study</p>
Results	<p>The results should show good experimental design and robust methodology e.g. adequate replication and sampling to support the conclusions</p>
Publications	<p>Some theses are composed of published papers, others are more narrative in style. Thus, the judging criteria will take these different styles into consideration and publication of the thesis results will <u>not</u> be an essential criterion for judging</p>
Language	<p>English. If the thesis is not in English, the 10 page summary must be in English</p>
Application and Submission	<p>Evidence of enrolment and thesis submission in 2017 at the university/ institute should be provided by the student. The electronic copy of the thesis must be countersigned by the Professor.</p>

5.2. GROUP 2: FIRST YEAR STUDENTS

Criteria for First Year PhD Applicants

Criteria	Description
Eligibility	<p>Projects must be designed for the award of PhD or equivalent</p> <p>Projects must have started or will start in academic year 2017/2018. The student must be formally enrolled in 2017 and the project must have started in 2017 or in the academic year 2017/18</p> <p>The applicant should not be already sponsored by, and/or bound to, a commercial organization</p>
Student	Can be from any scientific background but one aim of the bursaries is to attract people who have not studied Food Chemistry, Food Science or Food Technology to study food flavors
Novelty	A brief summary of the work should clearly state the background to the project, the hypotheses to be tested and explain the novelty of the work and its potential to further our understanding of flavor science
Interdisciplinary	Projects that involve training the student in more than one scientific discipline will be favoured
Experimental design and data analysis	All projects should describe appropriate methodology for experimental design and data analysis
Language	English
Application	All documents should be countersigned by the Professor concerned. The application should be sent electronically. Evidence of enrolment in the academic year 2017/2018 at the university/institute should accompany the documents
Bursary	<p>The bursary will be used to give the student an extra incentive and make projects attractive to high calibre students. The bursary of EUR 3000 will be awarded to the 6 selected first year PhD students during 2018, based on research-related invoices countersigned by the respective professors. Invoices can relate to expenses such as purchase of equipment, databases, participation in conferences, visits to laboratories, etc. In addition, the 6 winning 1st year PhD students will be offered the opportunity of visiting a selected sponsor company laboratory. Any unused part of the bursary will be handed over to the respective department of the university/institute by December 31, 2018.</p> <p>Bursary winners will need to submit mid and full year short summaries of research progress. The progress reports will be due on June 29, 2018 and December 31, 2018.</p> <p>Bursary winners and their research guide/professor may be invited to attend an annual review meeting (one day event) to interact with the industrial sponsors. Tentative dates – End January – Mid February, 2019. Further information on this event will be communicated in due course</p>