

NEWSLETTER

Centre for Advanced Sensory Science (CASS) Newsletter

#2 2016

Inspire with strength

The sensory and consumer space in Australia is undoubtedly fast moving. Judging by recent discussions we have had with multiple industry and university partners, it is clear that sensory and consumer science is in high demand. Ranging from the chemical analysis of flavour to understanding Chinese consumers, CASS has expanded its capabilities to meet these demands. The CASS team continues to evolve with a number of our PhD students having graduated and readily found jobs, which is not surprising given their valuable skills and knowledge. Recently two talented research assistants have joined the CASS team to focus on our consumer quality panel and flavour chemistry. Also, a Chinese interpreter has joined our team, and she will assist in the running of our Chinese consumer quality panel.

In this newsletter, we share our latest research and how it can help your business. CASS is dedicated to inspire and meet your consumer and sensory needs now and in the future.

Latest news

CASS is now one year in operation and we have made significant steps forward in over this time period. Dr Megan Thornton, our flavor specialist spent 3 weeks at National Engineering Research Centre of Seafood (NERCS) at Dalian Polytechnic University (DLPU) in Dalian, China, strengthening our collaborative links with our Chinese partners. In addition, we have established a Chinese consumer panel which will provide us imperative insights in the palates of the Chinese (see page 2). Finally, in order to prepare us for an exciting future ahead in terms of sensory science in Australia, we initiated the CASS academy which aims to train talented students in the area of sensory and consumer science (see page 4).



CASS (from top left to bottom right). Mr Andrew Costanzo, Dr Megan Thornton, Prof Russell Keast, Dr Ramon Hall, Dr Sara Cicerale, Ms Uracha Wanich, Dr Gie Liem, Ms Julia Low, Ms Carmen NG

“We want to get it right, consumers are so much driven by what they taste and smell that not paying significant attention to these drivers is a big risk for our company.”

- Industry partner

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Dr Megan Thornton

Another look at Aroma

When looking at the aroma of food and beverages, a seemingly individual smell of something like coffee can be made up of over 1000 volatile chemical compounds. This can make the determination of off-flavours or changes in aroma over time quite difficult for food industry purposes. In terms of aroma research, it then becomes important to determine which of those compounds are actually influencing the overall aroma. Gas Chromatography-Olfactometry (GC-O) is a method which allows for first the separation of the chemical components (GC), and then the identification of those which actually contribute to the aroma (Olfactometry). Assessors will sit at the instrument for a period of time, during which the separated compounds will be "introduced" to them through a nose piece. For each aroma that they perceive, assessors will note down a descriptor, and also sometimes an intensity rating. This information is then linked to the GC data to identify the chemical compounds responsible for perceived aromas, as well as how much influence they may have on the overall aroma (through intensity or other ratings of aroma strength and concentration).

GC-O, coupled with GC-Mass Spectrometry (GC-MS) for chemical identification, can therefore provide information for food industry on differences between samples, products, or batches, as well as help to identify the chemical causes of off-flavours and aromas in foods. When coupled with sensory evaluation, GC-O may also provide information on the chemical reasoning behind certain descriptors and liking ratings. (for more information contact megan.thornton@deakin.edu.au)



Quality panel

What is a Consumer Quality Panel?

It is the intersection between a trained panel, consumer research, and a focus group. CASS has a database of approximately 60 consumers who have passed a screening phase then undertaken approximately 6 hours of training in how to use various scales, eliciting descriptive and emotional responses and generating perceptual maps. Via our screening and training protocols we are able to provide high quality, detailed data for consumer products. For more information please contact russell.keast@deakin.edu.au



CASS preparation for a salmon tasting session

Chinese consumer panel

With over a billion consumers, China presents as a great opportunity for the Australian food industry. As we can all appreciate, Chinese food habits, choices and preferences are rather different from what we are used to in Australia. An in depth Chinese consumer understanding, is instrumental to the market success of products sought after by this population group. Our Chinese consumer panel exists of 30 recent immigrants from China, who are trained to use sensory and consumer techniques such as napping and flash profiling and selected for their ability to meaningfully verbalising what they perceive and like.

For more info: gie.liem@deakin.edu.au

Did you know that TASTE...?

Taste is a chemo-sensory system that identifies saliva soluble chemicals in our food and beverages.

Taste has been called a nutrient detection system with taste qualities identifying sugars, protein, and minerals.

There are five taste primaries or perceptions: sweet, sour, salty bitter, umami.

Taste is known as an analytic sense. If we mix two taste primaries such as bitter and sweet, we get a bitter-sweet mixture. For other senses such as smell or vision, mixing of odours or colours creates a new odour or colour—they are synthetic senses.

The taste quality is also associated with a like or dislike response and in this way may influence food consumption.

Taste receptors are only called taste receptors because they were identified in the oral cavity on taste cells.

So called 'taste receptors' are located in virtually every organ system of the body, their role is to identify nutrients, such as sugars.

There may be a coordinated response to nutrients throughout the alimentary canal initiated by taste receptors in the mouth and at the cell surface of the gastrointestinal tract.

We believe there are many other tastes beside the 5 primaries. These include: fat, carbohydrate, phosphorous, calcium.....



The Chinese consumer panel

In January 2016, Dr Thornton visited the National Engineering Research Centre of Seafood (NERCS) at Dalian Polytechnic University (DLPU) in Dalian, China. This followed a visit to CASS by Dr Hang Qi and Dr Qin Lei, from DLPU, in July 2015.

NERCS' research is focused on the analysis of seafood, including processed seafood products, due to Dalian's proximity to the North Sea. Much of their research focuses on the use of chemical analysis to investigate the effects of processing and storage on seafood products. The group is led by Professor Beiwei Zhu, one of only three members of the Chinese Academy of Engineering in the area of food research.

The aim of the visit was to further strengthen collaborations between DLPU and CASS, including writing a research paper and identifying areas in which we may work together in future. During this time, Dr Thornton presented her research to students and staff at the centre, and was also involved in research group meetings, student presentations and the development of partnerships for future international funding schemes. It is hoped that one of our DLPU colleagues will be visiting later in 2016 to learn more about sensory science.



Dr Megan Thornton and colleagues from Dalian Polytechnic University



CASS ACADEMY

This year marks the inaugural year of the CASS-Academy 12 week program, a training hub run by CASS for talented students who show an interest in sensory and consumer science.

With the number of graduates in the area of food and nutrition increasing, there is currently a fierce competition for graduate job positions. Employers are now placing a greater emphasis on what additional skills and experiences graduates have obtained aside from their formal university training.



The six selected students are provided with hands-on training alongside academic experts and other industry professionals to acquire skills, experiences, industry and academic insights into the area of sensory science. The 12 week program is divided into 3 x 4 week rotations, each covering a different aspect of sensory science. Topics which are covered include Qualitative Descriptive Analysis (QDA), Flavour Analysis and Consumer Science.

After the 12 week program, the students will have gained skills and knowledge in advanced sensory methodologies, critical analyses, flavour analyses, consumer research and developed teamwork, communication and presentation skills.

The 2016 program commenced on the 11th of April and will conclude in mid-September.

For more information about the CASS-Academy please visit our website www.deakin.edu.au/cass-research



Latest publications and presentations

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