



Food Oral Processing Laboratory

Newsletter 3

October 2016



OUR MISSION

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FOP Group have been busy attending discussions and conferences. Led by Dr. Xinmiao Wang, students of the FOP group participated in organizing the 2nd Asian Sensory and Consumer Research Symposium, held in Shanghai between 15th and 17th of May 2016 and actively participated as volunteers. Members included *Master students*: Lv Zhihong, Gang Zheng Ying, Huifang Cai, Lv Cong; *PhD student*: Ms. Xia Hu; *Postdoctoral fellow*: Dr. Rutuja Upadhyay. Prof. Jianshe Chen was the key member of the scientific committee and had two invited lectures at the Conference. FOP students presented posters which received a very good response from the delegates from industry and academia. There was wonderful exchange of ideas during the Food Oral Processing conference workshop and the FOP members Marco Morgenstern, Prof. Jianshe Chen and Dr. Rutuja Upadhyay had all the questions answered from the audience. Hopefully next year the FOP students will pluck up the courage to contribute towards oral presentation during the next International Conference. Zhejiang Gongshang University was the co-organizer of the conference.



WORKSHOP AT SENSEASIA 2016: FOP Group had organized a workshop at SenseAsia on [] []. The session was chaired by Marco Morgenstern, New Zealand Institute for Plant & Food Research Limited. Topics included were:

1. Oral physiological and food physical perspectives of eating and sensory perception

J. Chen, Zhejiang Gongshang University, China

2. Importance of dynamic texture for flavor and interactions with consumers

D. Paredes, Takasago International Corp (USA), USA

3. Tribological approach to the sensory properties of oil-in-water emulsions

R. Upadhyay, J. Chen, Zhejiang Gongshang University, China



FOP WORKSHOP Q&A SESSION

MS. GANGYING ZHENG, MS. MINGSONG SU & ZHIHONG VISIT TO SHANGHAI HUADONG HOSPITAL

China has stepped into an aging society. With the increase of age and recession of physiological function, health problems are becoming a big challenge for elderlies, especially, eating and swallowing problem. Chewing and swallowing disorders may cause nutrient deficiency even causing choking. Main objectives of the investigation were to (1) establish feasible techniques for assessing major oral physiological properties of elderly patients; (2) establish possible correlations between those oral physiological properties and their influences on the eating and swallowing capability of elderly patients; and (3) establish reliable and objective methods for texture standardization of those elderly patients.

The Iowa Oral Performance Instrument (IOPI® Medical LLC Redmond, Washington, USA) and in-house made device for biting force for measuring main oral physiological properties. Another part of the experiment was eating and swallowing capability. Water swallow test and Volume-viscosity swallow test (V-VST) were used for testing swallowing capability. And the samples which involved in V-VST test is different concentration of 0.54%, 1.16%, 2.36% prepared according to IDDSI Standardization. The participants we recruited were the elderly who had different levels of dysphagia problem. First stage patient tests have been completed at Shanghai Huadong hospital. Second part investigation is planned for October/November. This project is sponsored by Chinese Society of Nutrition.



IDDSI MEETING: Industrial partners from Qirui Pharmaceutical Ltd. Jiangsu, Jian An Pharmaceutical Ltd., Shenzhen, Suzuken Co. Ltd. & Nutri Co. Ltd. from Japan and Prof. Zulin Dou from Zhongshan University met Prof. Jianshe Chen for discussion of the design & standardization of dysphagia food and for possible multipartner collaboration.



LV ZHIHONG,

I was so glad and lucky to be a summer intern in the instrumental team of product performance evaluation (PPE) group, Research and I Shanghai. My task was to investigate correlations between instrumental data and sensory perception based on the data collected from 100+ skin parameters and 3 questionnaires from 120 volunteers, and then to decode them. However, it is difficult to determine this kind of correlation because of large set of data. I learnt and used different statistical methods to find correlations. When I met some intricate problems, I tried to make links with other departments, e.g. scientific computing team, and tried to come to a solution with the help of some valuable suggestions. Fortunately, hydration perception was found to have a high correlation with a kind of optical effects. My line manager was satisfied with the new finding and was ready to establish a new methodology on instrument to predict hydration perception which is quite good to reduce ability of statistical analysis has been enhanced significantly. A wonderful experience indeed!



HUIFANG CAI, AGRICULTURAL PRODUCTS PROCESSING RESEARCH INSTITUTE, GUANGDONG

I got an opportunity to do my internship at the Agricultural Products Processing Research Institute, Guangdong. The project title was -processing study of *Moringa* and microencapsula closely with the extract processing and analysis of nutritive composition from *Moringa* leaves. The nutritive composition included reducing sugar, polyphenols, protein, vitamin C, total flavonoids and so on. The relevant products such as *Moringa* tea, *Moringa* candy were also explored during my internship. I also helped fellow mates with the writing skills for two of their publications and also learnt about how to write a patent.



RECENT PUBLICATIONS

Laguna, L., Barrowclough, R.A., Chen, J., Sarkar, A. (2016). New approach to food difficulty perception: Food structure, food oral processing and individual's physical strength. *Journal of Texture Studies*, in Press. DOI: 10.1111/jtxs.12190.

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, 7, 1969-1975.

Morel, P., Fiszman, F.* Chen, J. (2016). The role of starch and saliva on tribology studies and sensory perception of protein-added yogurts. *Food & Function*, accessible online. 10.1039/C6FO00259E.

Mosca, A.C.* & Chen, J. (2016). Food oral management: physiology and objective measurements. *Current Opinion in Food Science*, 9, 11-20.

tribological study on the astringency sensation of red wines. *Journal of Texture Studies*, 47(5), 392-402.

Laguna, L., Mingioni, M., Maitre, I., Van Wymelbeke, V., Pirttijarvi, T., Artigas, M. G., Izabella, G.-K., Chen, J. & Sarkar, A. (2016). Perception of difficulties encountered in eating process from European elderlies' perspective. *Journal of Texture Studies*, 47, 342-352. DOI: 10.1111/jtxs.12192

Laguna, L., Ettelaie, R., Holmes, M. & Chen, J. (2016). A comparison between young and elderly adults investigating the manual and oral capabilities during the eating process. *Journal of Texture Studies*, 47, 361-372.

Laguna, L., Hetherington, M.M., Chen, J., Artigas, G. & Sarkar, A. (2016). Measuring eating capability, liking and difficulty perception of older adults: A textural consideration. *Food Quality and Preference*, 53, 47-56.

Chen, J.* (2016). Food for elderly: challenges and opportunities. *Journal of Texture Studies*, 47, 255-256.

Chen, L.*, Chen, J., Wu, K. & Yu, L. (2016). Improved low pH emulsification properties of glycosylated peanut protein isolate by ultrasound Maillard reaction. *Journal of Agricultural and Food Chemistry*, 64, 5531-5538.

Ettelaie, R.*, Holmes, M., Chen, J. & Farshchi, A. (2016). Steric stabilising properties of hydrophobically modified starch: amylose vs amylopectin. *Food Hydrocolloids*, 58, 364-377.

Upadhyay, R., Brossard, N. & Chen, J.* (2016). Mechanisms underlying astringency: introduction to an oral tribology approach. *Journal of Physics D*, 49, 10 (11pp)

Mingioni, M., Mehinagic, E., Laguna, L., Sarkar, A., Pirttijarvi, T., van Wymelbeke, V., Artigas, G., Chen, J., Kautola, H., Jarvenpaa, E., Maenpaa, T., Tahvonen, R., Grabska-Kobylecka, I. & Maitre, I. (2016). Fruit and vegetables liking among European elderly according to food preferences, attitudes towards food and dependency. *Food Quality and Preference*, 50, 27-37.

Chen, L., Chen, J., Yu, L. & Wu, K. (2016). Improved emulsifying capabilities of hydrolysates of soy protein isolate pretreated with high pressure microfluidization. *LWT-Food Science & Technology*, 69, 1-8.

Laguna, L. and Chen, J.* (2016). The eating capability: constituents and assessments. *Food Quality and Preference*, 48, 345-358.

ORBITUARY

**Malcolm Cornelius Bourne**

May 18, 1926 - October 3, 2016
are those who die in the

Malcolm Bourne died peacefully at home with his wife Janice and daughter Virginia at his side. He had mesothelioma and was in hospice care. Born to Winifred Collins and Herbert Bourne in Moonta, South Australia, ten minutes before his twin Margaret Cornelius. Malcolm and his

family soon moved to Adelaide where he became a very serious student learning science. At 13 years of age, chemistry became his first love, moving to a close second only when he married his precious wife Elizabeth Schumacher a decade later. They were happily married more than 53 years (1953-2007) before she died of cancer. He and Elizabeth had five children who brought joy to their life always. In 2008 Malcolm married Janice Robinson adding Janée Robinson (Mike Monk) and T. Leslie Robinson (Molly), loved stepchildren along with a step grandchild Mayla Robinson. Over his long career as a chemist and food scientist, Malcolm desired that his God-given gifts and his hard work to hone those gifts be used in the service of humankind to honor God. He lectured in over 40 countries and traveled to many more, worked to advance the use of good-tasting soy milk in Asian countries where malnourishment was prevalent, headed up a Chinese government-sponsored symposium in 1984 to further agriculture in China, spent two years helping to set up a graduate food science department at the University of the Philippines in Los Banos and, long into retirement, lectured around the country and the world, as well as mentored students and others in their fields of study. He was especially interested in Post-Harvest Food Loss and worked to spread the word, and solutions, for decades through papers, lectures, encyclopedia articles and upper-level classes at Cornell University. Among the many awards and honors Malcolm received over his long career in Food Science, he was and especially honored when he was presented with the International Award by the Institute of Food Technologists in 1992. Malcolm Bourne, Ph.D. graduated from the University of Adelaide, South Australia, AUS with a B.S. in Chemistry, worked ten years in industry as a chemist at Mum in Food Science and Ph.D. in Chemistry at the University of California, Davis. He then joined the faculty of Cornell University, as a full time research professor at the Agricultural Experiment Station in Geneva, NY. He was an Emeritus Professor in retirement. His major work at Cornell was in rheology and in the measurement of food texture. He wrote the definitive book on texture still used today.

We, all the FOP members, were fortunate enough to spend valuable time with him during his visit to ZGSU and FOP Laboratory and share wonderful memories of him and shall cherish the same throughout our lives.

MAY HIS SOUL REST IN PEACE.

GRANT INFORMATION: Grants and scholarships are available for the postdoctoral fellows and PhD students. Please contact us for more details.

CONTACT DETAILS: PROF. JIANSHE CHEN

Email: jschen@zjgsu.edu.cn; j.chen@food.leeds.ac.uk Tel: (00)86 571 28008904 Fax: (00)86 571 28008900 Web: www.spxy.zjgsu.edu.cn

ADDRESS: Lab No. 337, Food Oral Processing Laboratory, School of Food Science and Biotechnology, No. 18 Xuezheng Street, Zhejiang Gongshang University, Hangzhou 310018, CHINA.

EDITOR: Dr. Rutuja Upadhyay, Email: rutuja.upadhyay54@yahoo.com