Session Agenda

2 pm  
Alison Turnbull  
Marine Biotoxin Risk Assessment of Australian Wild-Caught Abalone

Synopsis: Australia has the world's largest wild capture abalone fishery, totalling around 4000 tonnes per annum. The Codex Alimentarius Commission recently recognized marine biotoxins as a potential hazard in abalone. As a result we conducted a risk assessment for wild-caught Australian abalone according to prescribed Codex Working Principles (CAC/GL 62-2007). An acute exposure assessment of PSTs (paralytic shellfish toxins) in abalone was conducted by examining a variety of scenarios. The potentially consumed dose of PST ($\mu$g toxin kg$^{-1}$ body weight) was calculated for a range of meal types, serving sizes, processing reductions and people of different body weights. Dose was calculated by the multiplying the weight of each tissue type in the meal by the maximum concentrations of PSTs recorded in those tissues during toxic phytoplankton blooms in Australia (0.59 and 2.44 mg saxitoxin eq kg$^{-1}$ in foot and viscera respectively) and summing the components. Calculated doses for each scenario were compared to the EFSA provisional Acute Reference Dose (0.5 $\mu$g kg$^{-1}$ b.w.), and a designated dose derived from the bivalve regulatory maximum level (1.33 $\mu$g kg$^{-1}$ b.w.). The tissues of the abalone consumed played a significant role in determining the potential ingested dose. The consumption of meals of processed abalone foot resulted in doses ranging from 0.20 – 1.48 $\mu$g kg$^{-1}$ b.w. for a 60 kg person. Doses from the consumption of meals consisting of whole abalone and abalone viscera ranged from 0.58 – 9.15 $\mu$g kg$^{-1}$ b.w. for a 60 kg person. The Acute Reference Dose and designated dose were exceeded in several scenarios. These findings may be a concern for human health if such doses were found regularly. However, other data showing that less than 1.6% of abalone are contaminated with PSTs above regulatory levels, and the lack of any confirmed illness associated with marine biotoxins in abalone support the final conclusion of a low risk of illness associated with Australian wild-caught abalone.

To be presented at the upcoming International Conference for Molluscan Shellfish Safety in Chile in March.  
http://icmss2015.com/

2.30 pm  
Thomas Madigan  
Integration of Rapid Methods to Assess Freshness of Perishable Foods

Synopsis: Traditional ways to assess freshness and other quality related traits can be can be time consuming or difficult to achieve. Some biochemical techniques have complicated extractions steps and also use harmful reagents, whereas microbiological techniques can take several days before results are known. While trained sensory panels can provide a rapid objective measure; properly trained sensory panels can be difficult to access and are expensive to train and establish. Recent advances in analytical and microbiological techniques offer improved ability to develop rapid and objective measures; application of these
techniques can offer solutions that are specific to individual products. Pyrosequencing is a highly sensitive technique for assessing microbial communities that can be used to identify specific spoilage organisms. These organisms can be used as targets for real-time PCR assays that provide quantitative information on the freshness status on the product. The use of solid phase microextraction provides a simple, safe and rapid extraction technique that can be applied with gas chromatography – mass spectrometry to evaluate volatile characteristics of foods. This information can be used to confirm quality characteristics and also identify individual volatiles that change during storage that can be used to objectively measure freshness. Importantly, the analysis of volatiles can provide information on both microbial spoilage and chemical spoilage factors such as oxidation. Near-infrared reflectance spectroscopy calibrations can also be developed to model quality related traits – this technique can then be applied on-line in manufacturing lines for improved process control or evaluation.

To be presented at the upcoming Australian Institute of Food Science Technology Conference in August 2015. 
http://www.aifst.asn.au/food-for-all.htm

3:00 pm  Afternoon Tea and Poster Presentations

Jessica Tan
Microbiological Survey of Salmonella and Campylobacter on Chicken Meat at Retail in South Australia

Stephen Pahl
Storage Characteristics of Yellowtail Kingfish Portions

3:30 pm  Andrew Maronich
2016 Conference of the International Journal of Food Science and Technology

In February Food Safety & Innovation staff member Andrew Maronich attended the IJFST 50th Celebration Conference in New Zealand. The conference was celebrating the 50th volume of IFST’s scientific journal published by Wiley and encompassed the diversity of Food Science and Technology looking into current and future food trends and innovative consumer science. Food Safety & Innovation are putting together a bid for hosting the 2016 conference in Adelaide, South Australia.


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