



**February 12 - 15, 2012, Anchorage Downtown Marriot Hotel.  
Anchorage, Alaska, U.S.A.**

9 January 2013

**To: Md. Zaidul Islam Sarker, Ph.D Professor Faculty of Pharmacy  
International Islamic University Malaysia  
Kuantan Campus, Bandar Indera Mahkota, 25200  
Kuantan, Pahang, Malaysia**

Dear Dr. Sarker,

The organizing committee of the *Pacific Fisheries Technologists' 2012* conference would like to extend to you an invitation to our annual conference in Anchorage, Alaska, USA, February 12-15<sup>th</sup>, 2012. The theme for our conference, "*The Perfect Catch*" is focused on a seafood product quality concept. We are programming presentation and panel discussions dealing with fish and seafood quality, seafood safety, global sustainability of fishery products, aquaculture, HACCP and regulatory affairs. We look forward to the following scheduled ORAL presentation you will deliver during the conference:

**- SIMULTANEOUS EXTRACTION AND FRACTIONATION OF PUFA FROM TROPICAL TUNA  
(*THUNNUS TONGOL*) HEAD USING PRESSURE SWING TECHNIQUE OF SUPERCRITICAL CO<sub>2</sub> (SC-CO<sub>2</sub>)**

Other events of the conference include:

- A President's reception and a banquet at the Anchorage Downtown Marriot Hotel;
- A Workshop "Smoked Seafood for Fun and Profit" following the Conference. The Workshop will be held in Kodiak at the Fishery Industrial Technology Center from February 16<sup>th</sup> -18<sup>th</sup>, 2012. (<http://pftfish.net/2012/smokedseafood.html>). The suggested hotel is Kodiak Inn, Best Western. 236 Rezanof Drive, Kodiak, AK 99615. Phone: (907) 486-5712.

We'll provide transportation to and from hotel for the scheduled events during the workshop in Kodiak. We are pleased to learn you'll be attending the workshop. Additional information on registration fees and lodging at the conference hotel may be found on our website at: <http://www.pftfish.net/>.

I look forward to meeting you in Anchorage in February.

Yours truly,



**Alex Oliveira, 2012 PFT Program Chair  
Associate Professor Seafood Chemistry  
University of Alaska  
School of Fisheries and Ocean Sciences**

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**SIMULTANEOUS EXTRACTION AND FRACTIONATION OF PUFA FROM TROPICAL TUNA  
(*Thunnus tongol*) HEAD USING PRESSURE SWING TECHNIQUE OF SUPERCRITICAL CO<sub>2</sub>  
(SC-CO<sub>2</sub>)**

*Oral presentation*

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**Abstract**

Tuna fishes are known as one of the main commodity of fisheries which is generally marketed as canned food or as loins/steaks. Tuna head is about 25% of body weight and discarded as processing leftover during canning process. The objective of this study was to use this fish waste (head) as a source of fish oil especially PUFA. Simultaneous extraction and fractionation of PUFA from tuna head were conducted using pressure swing technique of SC-CO<sub>2</sub>. The dry and grinded sample was pressurised with pure CO<sub>2</sub> and then soaked in the vessel for 1 hrs, and extracted continuously for 20 min at optimal conditions of 35 MPa, 65 °C, 3 ml min<sup>-1</sup>. The pressurization-soaking-extraction treatment was denoted as “pressure swing method” in this study. The total fish oil (13.11 g/100 g wt.) from head was extracted in 7 successive pressurization-soaking-extraction steps and the yield of each step was defined as fractional yield. Fatty acid constituents of each fractional yield were analyzed separately by gas chromatography. The short chain fatty acid constituents were found to be extracted mainly in the first 3 fractions and the next 4 fractions were predominant in MUFA and PUFA. Significant amount of DHA (26.83%) were extracted from fraction 4 followed by fraction 7. During the holding periods the liquid CO<sub>2</sub> penetrated into the sample matrix and dissolved the readily soluble SFA portion of the oil which was eluted preferentially faster compared with either MUFA or PUFA. Therefore, multiple pressure swing steps could extract and fractionate the short chain fatty acid from relatively less soluble portions of long chain PUFA-rich sample matrix. However, PUFA-rich fraction extracted from tuna head may effectively serve as a source of EPA and DHA in food and pharmaceutical industries.

Presenter's short-bio: Md. Zaidul Islam Sarker, B. Sc (Hons) & M. Sc (Biochemistry), M. Sc (Food Processing), Ph. D (Fats & Oils) is a Professor of Nutraceuticals in the Department of Pharmaceutical Technology, International Islamic University of Malaysia. Formerly he was a Research Associated at Tohoku University, Japan, JSPS Postdoctoral Fellow at NARO, Japan, JSPS Visiting Scientist at Tohoku University and Associate Professor at Universiti Putra Malaysia. In 2010 he obtained Young Scholar Award of Pacifichem, organized by American Chemical Society. His research areas are supercritical fluid extraction, fractionation and particle formation of fats, oils & nutraceuticals. He has published over 100 scientific papers in international reputed and referred journals.