

4th International Conference and Exhibition on

Food Processing & Technology

August 10-12, 2015 London, UK

Continuous frying improves the longevity of palm olein for processing of extruded product

Azmil Haizam Ahmad Tarmizi
Malaysian Palm Oil Board, Malaysia

Comparative frying studies for processing of extruded product were conducted under continuous and intermittent frying conditions. The former which simulates the industrial production of snack food was conducted using a pilot scale continuous fryer while the latter (constituted as control experiments) was performed using batch fryers. Thermal stability of palm olein was evaluated at 155°C across 8 hours day⁻¹ for a total of 5 days. Continuous frying tends to reduce the free fatty acid by more than two folds compared to intermittent frying. Smoke point is inversely correlated with the oil acidity and continuous frying resulted in higher smoke point (188°C) in comparison to its counterpart (177°C). Interestingly, palm olein used for continuous frying gave the induction period of greater than 23 hours regardless to frying intervals: The values obtained were relatively similar to that of fresh palm olein (27.4 hours). On the other hand, repeated frying exhibited a gradual decrease in the induction period at the end of frying session (12.2 hours). Frying at lower temperature provides opportunity for palm olein to retain almost three quarters of its initial tocopherols during continuous frying. Nevertheless, this is not true for intermittent frying because only 27% of tocopherols remained after 5 days of operation. The levels of polar and polymer compounds were minimal and comparable in both frying protocols. In conclusion, continuous frying demonstrated higher resistance against thermolytic, oxidative and polymeric reactions and hence improves the usability of palm olein under prolonged frying operations.

Biography

Azmil Haizam Ahmad Tarmizi is a Senior Research Officer at the Malaysian Palm Oil Board. He joined the organisation in 2004 after obtaining his Master's degree in Bioprocess Engineering from the University of Technology Malaysia. In 2012, he earned his PhD degree in Food and Nutritional Sciences from the University of Reading UK. His major research areas are focusing on the frying process and technology, quality of oils and fats and palm based reference materials. He has published more than 20 peer reviewed and technical papers and presented many papers in local and international conferences.

azmil_haizam@mpob.gov.my

Notes: