Accepted Manuscript

Effect of amino acids and frequency of reuse frying oils at different temperature on acrylamide formation in palm olein and soy bean oils via modeling system

G. Daniali, S. Jinap, M. Sanny, C.P. Tan

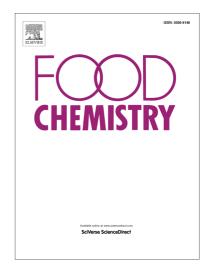
PII: S0308-8146(17)31708-9

DOI: https://doi.org/10.1016/j.foodchem.2017.10.070

Reference: FOCH 21893

To appear in: Food Chemistry

Received Date: 13 June 2017 Revised Date: 2 October 2017 Accepted Date: 11 October 2017



Please cite this article as: Daniali, G., Jinap, S., Sanny, M., Tan, C.P., Effect of amino acids and frequency of reuse frying oils at different temperature on acrylamide formation in palm olein and soy bean oils via modeling system, *Food Chemistry* (2017), doi: https://doi.org/10.1016/j.foodchem.2017.10.070

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.

ACCEPTED MANUSCRIPT

Effect of amino acids and frequency of reuse frying oils at different temperature on acrylamide formation in palm olein and soy bean oils via modeling system

Daniali, G.^a, Jinap S.^{a,b*}, Sanny, M,^a, Tan C.P.^c

^aDepartment of Food Science, Faculty of Food Science and Technology, Universiti Putra Malaysia, 43400 UPM, Serdang, Selangor, Malaysia, ^b Food Safety and Food Integrity, Institute of Tropical Agriculture, Universiti Putra Malaysia, 43400 UPM, Serdang, Selangor, Malaysia, ^c Department of Food Technology, Faculty of Food Science and Technology, Universiti Putra Malaysia, 43400 UPM, Serdang, Selangor, Malaysia

Corresponding author: *Email: jinap@upm.edu.my; sjinap@gmail.com

Abstract

This work investigated the underlying formation of acrylamide from amino acids in frying oils during high temperatures and at different times via modeling systems. Eighteen amino acids were used in order to determine which one was more effective on acrylamide production. Significantly the highest amount of acrylamide was produced from asparagine (5987.5 μ g/kg) and the lowest from phenylalanine (9.25 μ g/kg). A constant amount of asparagine and glutamine in palm olein and soy bean oils was heated up in modelling system at different temperatures (160,180 and 200 °C) and times (1.5, 3, 4.5, 6, 7.5 min). The highest amount of acrylamide was found at 200 °C for 7.5 min (9317 and 8511 μ g/kg) and lowest at 160 °C for 1.5 min (156 and 254 μ g/kg) in both frying oils and both amino acids. Direct correlations have been found between time (R2=0.884), temperature (R2=0.951) and amount of acrylamide formation, both at p<0.05.

Download English Version:

https://daneshyari.com/en/article/7586186

Download Persian Version:

https://daneshyari.com/article/7586186

<u>Daneshyari.com</u>