Book of Abstracts

The 1st International Conference on Agriculture, Food Security & Safety

(AgroFood 2019)

07th-08th November 2019 | Colombo, Sri Lanka

Committee of the AgroFood 2019

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www.agrofoodconference.com

Book of Abstracts of the 1st International Conference on Agriculture, Food Security & Safety (AgroFood 2019)

Edited by Prof. Samih Abubaker and Dr. Asna Urooj

ISBN 978-955-3450-02-9

Published by iConferences, No: 178/13/B6, Gamsabha Road, Kelanimulla, Angoda, 10620, Sri Lanka

Tel: +94(0) 11 2419433

Fax: +94(0) 11 2419433

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ANTISEPTIC PROPERTIES OF ACMELLA PLANT EXTRACTS AND IDENTIFICATION OF MICROBES ON FISH PROCESSING SURFACES

Uthpala T.G.G[1]*, Navarathne N.M.M.G.S.B[1]

[1]Department of Food Science & Technology, Faculty of Applied Sciences, University of Sri Jayewardenepura, Sri Lanka

*Email: gimhani@sci.sjp.ac.lk

Identification of microorganisms in fish food processing surfaces (FFPS) is important in controlling safety and quality of processed food products. The purpose of this study was to identify and control of bacteria grown on stainless-steel (SS) FFPS using Acmella plant extract. Three SS (ALSI 304) food processing surfaces were prepared in the laboratory and it was made to contact with fresh fish samples (tuna) for 2 hours. These three surfaces were kept undisturbed for 2 days at room temperature after removing samples and rinsing surface with fresh water. After rinsing, one surface was treated with Acmella plant extract and the other with a commercial sanitizer (positive control). The rest surface was kept untreated as the negative control. Swab samples were collected using 100cm^2 template after 2, 4, 8, 24 and 48 hour intervals and total plate count was obtained using PCA media. Simultaneously, inoculated fish samples were taken and identified types of microbes using VITEK 2 analyzer and gram staining. There were 2.55, 2.82, >9 log cfu /100cm2 for Acmella treated, positive control and negative control surfaces respectively after 48 hours, against initial population of 4.48 log cfu/100cm^2. Higher value of reduction was reported by Acmella, which was not significantly differed ($p>0.05$) with positive controller however, was differed with negative controller ($p<0.05$). Moreover, identified microbes on SS FFPS were *Micrococcus luteus, Staphylococcus haemolyticus, Staphylococcus warneri, Staphylococcus pasteuri and Acinetobacter baumannii complex*. Acmella plant extract is an effective alternative for commercial sanitizers in suppressing growth of microorganisms on FFPS and four gram-positive and one gram- negative isolates were identified. Hence, water extracts of *Acmella oleracea* can be considered in the management of microbes in FFPS.

Keywords: Fish processing surfaces, Tuna fish, Acmella extracts, stainless steel surfaces, surface sanitizer

Acknowledgement: University Research Grant (ASP/01/RE/SCI/2017/22) of University of Sri Jayewardenepura