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Master Thesis Defense

Entitled

*EFFECT OF HIGH-PRESSURE PROCESSING ON QUALITY AND SHELF LIFE OF GREEN
FRESH JUICE PRODUCED FROM A BLEND OF FRUIT AND VEGETABLE*

by

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Date & Venue

1:00 pm

Tuesday, 13 April 2021

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Abstract

Background: The technology of high hydrostatic pressure (HPP) in food processing started to take a huge attention in food industries due to its ability to increase the shelf life of processed products by inactivating food-borne microorganisms and undesired enzymes that cause changes not acceptable by the consumers. Because of the treatments take place at low temperature and because no chemical preservatives are added, advantageous and gives more value to the product and matches consumer demand for healthy products.

Aims: The aim of this thesis was to study the effect of HPP on certain quality parameters of green fruit juice compared to thermal process during shelf-life.

Method: A green fruit juice composed of Fresh rocket leaves and green apple fruits was used for the study. HPP treatments were performed at 200MPa and 600MPa for 180s at 4 °C, and the thermal treatment of the green juice was done at 85 °C for 120 second in addition to the control. The microbiological, physical, chemical properties of the juices were analyzed at day 0, 3, 6, 14, 21 and 28.

Results: The study confirmed that HPP treatment can maintain the quality of the green juice with very minor changes compared to thermal process. Results of the microbial growth shows a significant reduction in TPC, yeast and molds for HPP treated samples compared to the thermal processed samples. The results of Brix, pH and ascorbic acid for all samples shows no significant different during the storage and among the treatments. However, results of the color analysis were significantly different between both HPP treatments (200MPa & 600MPa) and thermal processed sample. For the chlorophyll a, results showed that the impact of the thermal process is high compare to HPP and this indicate that HPP treatment can maintain the chlorophyll a in green juices. The study confirmed that HPP would be preferred non-thermal treatment for treating fresh green juices, however further studies needed to understand the enzymes reaction during the treatment and shelf life.

Keywords: non-thermal processes, high pressure, green fruit juice, color.