Oral Session | Postharvest/Food Technology and Process Engineering

[4-1330-A]Postharvest/Food Technology and Process Engineering (2)

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Wed. Sep 4, 2019 1:30 PM - 3:30 PM Hall A (Main Hall)

1:45 PM - 2:00 PM

[4-1330-A-02]Development and Characterization of Chitosan Film Incorporated with Cashew (*Anacardium Occidentale*) Leaf Extracts

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Chitosan is a material gotten from natural which is a non-toxic, biodegradable, biocompatible substance which contains antimicrobial and antioxidant properties. Normally, chitosan can be dissolved in acid affect the viscous solution that is suitable for making a film. Many studies reported that chitosan film combined with plant extracts showed the synergistic effect to antimicrobial properties. The previous studied found that cashew leaf extracts showed the biological properties such as antioxidant, antimicrobial, analgesic and anti-inflammatory. This research aimed to study the antimicrobial activities of cashew leaf extracted with water and 70% ethanol, and to study properties of chitosan film incorporated with cashew leaf extract. The result showed that ten percent of ethanolic and aqueous extracts could inhibit the growth of *Aspergillus niger*. An ethanolic extract (CLE) had lower of minimal inhibitory concentration (MIC = 6.25 µg/100µl) than those of aqueous extract (CLAq) (MIC = 12.5 µg/100µl) but showed the same minimal fungal concentration (MFC =25 µg/100µl). For film properties, film solutions were prepared as (i) 2% chitosan, (ii) 2% chitosan + 5% CLE (w/v), (iii) 2% chitosan + 5% CLAq (w/v). All the films were determined color, thickness, barrier properties (WVTR, WVP, OTR) and antifungal activities. The highest values of thickness was obtained by chitosan combined with 5% CLE followed by chitosan mixed with 5% CLAq and chitosan film (control). Moreover, chitosan mixed with 5% CLE also gave lower WVTR and WVP than the other films. Furthermore, only chitosan combined with 5% CLE presented the antifungal property against the growth of *A. niger*. The chitosan film combined with cashew leaf extract could be a new alternative way of natural antifungal package which can be used in food and agricultural produce.