عنوان مقاله:

Effect of Emulsion Condition of Oil Phase on Microstructure and Anti-Fungal Properties of Emulsified Films Based on Carboxymethyl Cellulose

محل انتشار:

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خلاصه مقاله:

Background: A comparison of the various microstructural and antimicrobial properties of emulsified films indicated significant differences. This study aimed to determine the effect of emulsion condition of oil phase on microstructure and anti-fungal properties of emulsified films based on carboxymethyl cellulose. Methods: Emulsified films containing macro and nano emulsion of cinnamon essential oils were prepared at different concentrations (0.25%, 0.5% and 1 W/V). The anti-fungal test was performed in three replicate for each sample. The count of fungal spores was undertaken under the microscope by using the Neubarer cell until reaching the spore number of 106 CFU/ml. The films were cut using sterilized punch and placed on an inoculated culture medium. The plates were placed inside the incubator at 25°C for 24 hours. The output data were reported as the diameter of the non-growth halo and the anti-fungal index. Results: The decrease in the size of emulsion droplets below 100 nm resulted in a better dissemination from the cell wall of microorganisms and the anti-film efficiency improved. The microscopic images were an indicator of smooth surfaces for nano-emulsion films similar to control films, and the nano-droplets had better stability in the film matrix. Conclusion: This study introduced a new kind of nano-active packaging film with some of its improved .functional properties

کلمات کلیدی:

Nano emulsion, Emulsified film, microstructure, Anti-fungal index