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Psidiumguajava Leaves Extract Incorporated Chitosan Antioxidant Film for Food Packaging †

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Abstract: The goal of food packaging is to contain food in an exceedingly cost-efficient approach that satisfies industry needs, and consumers want to keep up food safety and minimize environmental impacts. However, usage of plastic films for food preservation drags towards the negative aspect like phthalate leach. So, this example demanded to provide the bio-active film from non-toxic and antioxidant-rich bio-sources. During this study, we tend to see the development, characterization, and application studies of chitosan films increased for their antioxidant activity by *Psidiumguajava* leaves extract (PGL) incorporation. The film was prepared by adding a reduced glycerin concentration and 1%, 3%, fifth chitosan, and 1%, 3%, 5% PGL extract. The morphology, optical nature, water exposure, and mechanical characteristics of the chitosan-GLE composite films was studied. An increase within the PSL concentration resulted in films with inflated thickness and decreased moisture content. As glycerin concentration decreased, elongation at break (EB), water solubility, and moisture content of GLE incorporated chitosan films decreased whereas, durability (TS), density, and surface hydrophobicity increased considerably. Microscopic views indicated smooth and uniform surface morphology without obvious cracks, breaks, or openings on the surfaces when incorporating glycerin as a plasticizer. PSL films possessed higher durability with reduced elongation magnitude relation than the pure chitosan film. Application studies to fig fruit and raisins preservation for twenty-eight days storage indicated higher oxidization resistance for the 5% PSL film than a commercial polyamide/polyethylene film. Results highlight the potential and promising nature of PSL impregnated chitosan films as an appropriate difference for active packaging films for food preservation.

Keywords: *Psidiumguajava*leaves; chitosan; antioxidant film; glycerol; active packaging.

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Conflicts of Interest

The authors declare no conflict of interest.