ABSTRACT

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THE UTILIZATION OF PECTIN FROM PAPAYA PEEL IN EDIBLE COATING MAKING TO EXTEND THE SHELF LIFE OF FRESH-CUT APPLE

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(xvii+79 pages, 23 figures, 8 tables, 9 appendices)

Papaya (*Carica papaya* L.) peel contains pectin, a high molecular weight polysaccharides that can be used as a thickening agent in the preparation of jams, jellies, marmalade, and also in edible coatings due to its ability to form gels. This research was aimed to characterize pectin extracted from papaya peel, determine the characteristics of edible film made of pectin-starch formulations, and its application as edible coating to fresh-cut apples in order to extend the shelf life. The pectin extracted from papaya peel was classified as low methoxyl pectin (LMP) that required calcium ions in order for it to form gel. The pectin was then utilized in edible films making together with corn starch addition. There were two factors which included pectin amount (0.75 g, 1.0 g, 1.25 g) and corn starch concentration (40%, 50%, 60%, based on weight of pectin). The selected edible films formulation was pectin amount of 1 g with 50% corn starch (based on pectin weight). The selected formulation was made into edible coating and applied to fresh-cut apples which was stored in room and refrigeration temperature. At room temperature storage, the control (uncoated) fresh-cut apples had the shelf life of 2 days, while the coated fresh-cut apples had the shelf life for 3 days. At refrigeration temperature storage, the control (uncoated) fresh-cut apples had the shelf life of 12 days, while the coated fresh-cut apples had the shelf life for 15 days. In conclusions, for both room temperature and refrigeration storage, the application of edible coatings had proven to contribute in maintaining the color of fresh-cut apples from browning, inhibit weight loss and tissue softening, depletion of TTA and TDS, also lower bacteria, yeast and molds count, that eventually resulted in a prolonged shelf life of coated fresh-cut apples.

Keywords: *Carica papaya* L., edible coating, fresh-cut apple, pectin
References: 73 (1995-2018)

ABSTRAK

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APLIKASI EDIBLE COATING BERBASIS PEKTIN DARI KULIT BUAH PEPAYA UNTUK MEMPERPANJANG UMUR SIMPAN APEL POTONG SEGAR

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Kulit pepaya (Carica papaya L.) mengandung pektin, sebuah polisakarida dengan berat molekul tinggi yang dapat digunakan sebagai bahan pengental dalam pembuatan selai, permen jeli, marmalade, dan edible coating karena kemampuannya untuk membentuk gel. Penelitian ini ditujukan untuk mengkarakterisasi pektin yang diekstrak dari kulit papaya, menentukan karakteristik edible film dengan formulasi berbasis pektin dan pati, dan aplikasi edible coating untuk memperpanjang umur simpan apel potong segar. Pektin yang diekstrak dari kulit papaya termasuk pektin dengan kadar metoksil rendah yang membutuhkan ion kalsium untuk membentuk gel. Pektin tersebut kemudian digunakan dalam pembuatan edible film dengan tambahan pati jagung. Dua faktor yang digunakan adalah jumlah pektin (0.75 g, 1.0 g, 1.25 g) dan konsentrasi pati jagung (40%, 50%, 60%, berbasis berat pektin). Formulasi edible film yang terpilih adalah 1 g pektin dengan 50% pati jagung (berbasis berat pektin). Formulasi tersebut kemudian dibuat menjadi edible coating dan diaplikasikan ke apel potong segar yang selanjutnya disimpan pada suhu ruang dan suhu dingin. Pada penyimpanan suhu ruang, apel potong segar yang tidak dilapisi edible coating (kontrol) memiliki umur simpan 2 hari, sedangkan apel potong segar yang dilapisi edible coating memiliki umur simpan 3 hari. Pada penyimpanan suhu dingin, apel potong segar yang tidak dilapisi edible coating (kontrol) memiliki umur simpan 12 hari, sedangkan apel potong segar yang dilapisi edible coating memiliki umur simpan 15 hari. Oleh karena itu, aplikasi edible coating terbukti dapat memperpanjang umur simpan apel potong segar dengan mempertahankan mutu seperti tingkat kecerahan apel potong segar, menghambat susut bobot dan pelunakan tekstur, menurunnya total asam tertitrasi dan total padatan terlarut, serta mempertahankan angka total mikroba, total kapang dan khamir yang rendah.

Kata kunci: Carica papaya L., edible coating, apel potong segar, pektin
Referensi: 73 (1995-2018)