

ABSTRAK

APLIKASI *EDIBLE COATING* BERBASIS KERATIN BULU AYAM, PATI JAGUNG (*MAIZENA*) DAN PEKTIN KULIT BUAH NAGA, TERHADAP KUALITAS PENYIMPANAN BUAH DAN SAYUR

(Puspa Indah Pramulasari, 2026, 68 Halaman, 8 Tabel, 9 Gambar, 4 Lampiran)

Edible coating merupakan lapisan tipis yang dapat dimakan dan diaplikasikan pada permukaan bahan pangan untuk memperlambat kerusakan serta memperpanjang umur simpan produk. Penelitian ini bertujuan untuk memanfaatkan limbah bulu ayam sebagai sumber keratin dan limbah kulit buah naga merah sebagai sumber pektin dalam pembuatan *edible coating* berbasis biopolimer yang ramah lingkungan. Penelitian dilakukan melalui proses ekstraksi pektin dari kulit buah naga merah dan ekstraksi keratin dari bulu ayam, kemudian dicampurkan dengan larutan pati jagung untuk menghasilkan *edible coating*. Variasi formulasi yang digunakan yaitu F1 sampai F5 dengan perbedaan konsentrasi gliserol dan madu. Karakteristik yang dianalisis meliputi uji visual, susut bobot, ketebalan, biodegradabilitas, daya simpan, serta karakteristik pektin berupa rendemen, kadar air, pH, dan kelarutan. Hasil penelitian menunjukkan bahwa penambahan gliserol dan madu berpengaruh terhadap sifat fisik *edible coating* yang dihasilkan. Formula F5 menghasilkan nilai susut bobot terendah sebesar 26%, menunjukkan kemampuan terbaik dalam mempertahankan kualitas bahan pangan selama penyimpanan. Ketebalan lapisan *edible coating* yang diperoleh berkisar antara 0,55–0,75 mm. Hasil pengujian biodegradabilitas menunjukkan bahwa seluruh formulasi dapat terdegradasi di dalam tanah. Pektin hasil ekstraksi memiliki rendemen sebesar 65,08%, pH 4, dan bersifat larut dalam air. Berdasarkan hasil penelitian, *edible coating* berbasis keratin bulu ayam, pektin kulit buah naga merah, dan pati jagung berpotensi digunakan sebagai kemasan pangan ramah lingkungan untuk memperpanjang umur simpan buah dan sayuran segar.

Kata kunci: *edible coating*, keratin bulu ayam, pektin kulit buah naga, *maizena*, *gliserol*, madu

ABSTRACT

APPLICATION OF AN EDIBLE COATING BASED ON CHICKEN FEATHER KERATIN, CORN STARCH, AND DRAGON FRUIT PEEL PECTIN TO IMPROVE THE STORAGE QUALITY OF FRUITS AND VEGETABLES

(Puspa indah pramulasari, 2026, 68 Pages, 8 Tables, 9 Pictures, 4 Attachment)

An *edible coating* is an edible thin layer applied to food surfaces to delay deterioration and extend the shelf life of food products. This study aimed to utilize chicken feather waste as a source of keratin and red dragon fruit peel waste as a source of pectin for the production of an environmentally friendly biopolymer-based *edible coating*. The edible coating formulation was prepared using corn starch (maize starch), chicken feather keratin, red dragon fruit peel pectin, and various concentrations of glycerol and honey as plasticizers. The research was conducted through pectin extraction from red dragon fruit peel and keratin extraction from chicken feathers, followed by blending with corn starch solution to produce edible coating formulations. Five formulations (F1–F5) with different concentrations of glycerol and honey were prepared. The characteristics analyzed included visual observation, weight loss, thickness, biodegradability, shelf life, and pectin properties such as yield, moisture content, pH, and solubility. The results showed that the addition of glycerol and honey significantly affected the physical properties of the edible coating. Formula F5 exhibited the lowest weight loss value of 26%, indicating the best performance in maintaining food quality during storage. The coating thickness ranged from 0.55 to 0.75 mm. Biodegradability testing demonstrated that all formulations were degradable in soil. The extracted pectin showed a yield of 65.08%, a pH value of 4, and good water solubility. Therefore, edible coating based on chicken feather keratin, red dragon fruit peel pectin, and corn starch has promising potential as an eco-friendly food packaging material for extending the shelf life of fresh fruits and vegetables.

Keywords: *edible coating*, chicken feather keratin, red dragon fruit peel pectin, corn starch, biodegradability.

KATA PENGANTAR