

RINGKASAN

Produk bubuk seperti minuman coklat instan umumnya dikemas menggunakan plastik yang bersifat *non-biodegradable* dan berpotensi menimbulkan pencemaran lingkungan. Oleh karena itu, *edible film* dikembangkan sebagai alternatif kemasan *biodegradable* yang lebih ramah lingkungan. Pada penelitian ini *edible film* dibuat dengan menggunakan bahan maizena dan protein *whey* dengan bahan pengisi selulosa tongkol jagung. Penelitian ini bertujuan untuk mengkaji pengaruh maizena dan protein *whey* dengan bahan pengisi selulosa tongkol jagung terhadap karakteristik *edible film*, serta mengkaji pengaruh maizena dan protein *whey* dengan bahan pengisi selulosa tongkol jagung terhadap karakteristik kimia dan organoleptik minuman coklat instan.

Rancangan percobaan menggunakan rancangan acak lengkap (RAL) dengan 9 perlakuan, 3 ulangan, dan sebanyak 27 unit percobaan. Pengukuran terhadap karakteristik *edible film* dilakukan terhadap ketebalan, laju transmisi uap air (WVTR), dan kelarutan. Tiga perlakuan paling ideal dilakukan penelitian lanjut untuk diaplikasikan pada bubuk minuman coklat instan dan disimpan selama 10 hari. *Edible film* diaplikasikan dan dilakukan pengujian pada bubuk minuman coklat meliputi pengukuran berat, kadar air, kadar asam lemak bebas (FFA), warna bubuk minuman coklat instan serta uji hedonik (warna, rasa, aroma, homogenitas, dan penerimaan keseluruhan) minuman coklat instan.

Hasil penelitian menunjukkan bahwa perbandingan maizena dan protein *whey*, persentase selulosa tongkol jagung, dan interaksi keduanya tidak memberikan pengaruh nyata terhadap ketebalan, WVTR, dan kelarutan. Ketebalan *edible film* yang dihasilkan yaitu 0,13–0,145 mm, nilai WVTR berkisar 3,52–4,94 g/m²/jam, dan nilai kelarutan berkisar 39–47,63%. Hasil penelitian juga menunjukkan bahwa *edible film* menghambat peningkatan kadar FFA, mengurangi perubahan berat dan warna secara nyata, namun berpengaruh tidak nyata terhadap kadar air, serta meningkatkan mutu sensori bubuk minuman coklat instan.

SUMMARY

Powdered products such as instant chocolate drinks are generally packaged using non-biodegradable plastics that have the potential to cause environmental pollution. Therefore, edible films have been developed as a more environmentally friendly biodegradable packaging alternative. In this study, edible film was made using cornstarch and whey protein with corn cob cellulose as a filler. This study aims to examine the effect of cornstarch and whey protein with corn cob cellulose filler on the characteristics of edible film, and to examine the effect of cornstarch and whey protein with corn cob cellulose filler on the chemical and organoleptic characteristics of instant chocolate drinks.

The experimental design used a completely randomized design (CRD) with 9 treatments, 3 replicates, and a total of 27 experimental units. Measurements of edible film characteristics were made for thickness, water vapor transmission rate (WVTR), and solubility. The three most ideal treatments were further studied for application to instant chocolate beverage powder and stored for 10 days. The edible film was applied and tested on the chocolate beverage powder, including measurements of weight, moisture content, free fatty acid (FFA) content, color of the instant chocolate beverage powder, as well as hedonic test (color, taste, aroma, homogeneity, and overall acceptance) of instant chocolate drinks.

The results showed that the ratio of cornstarch and whey protein, the percentage of corn cob cellulose, and the interaction between the two had no significant effect on thickness, WVTR, and solubility. The thickness of the edible film produced was 0.13–0.145 mm, the WVTR value ranged from 3.52–4.94 g/m²/hour, and the solubility value ranged from 39–47.63%. The results also showed that edible films inhibited the increase in FFA levels, significantly reduced changes in weight and color, had no significant effect on moisture content, and improved the sensory quality of instant chocolate powder.