ABSTRAK

PENGARUH *COATING MAGGOT OIL* DAN *PALM STEARIN* PADA BUAH NANAS *(Ananas Comosus (*L.)) SELAMA PENYIMPANAN SUHU DINGIN

Oleh

Gira Laura Sihombing

Nanas Madu (MD2) (*Ananas comosus (*L.)) merupakan buah tropis bernilai ekonomi tinggi namun memiliki masa simpan terbatas akibat tingginya laju respirasi dan kerentanan terhadap kerusakan fisiologis selama penyimpanan. Penelitian ini bertujuan mengevaluasi efektivitas *edible coating* berbahan *maggot oil* dan *palm stearin* dalam memperpanjang umur simpan dan menjaga mutu buah nanas selama penyimpanan pada suhu 7°C. Perlakuan yang diuji meliputi *maggot oil* dalam tiga konsentrasi (12,5%, 15%, 17,5%) dengan penambahan emulsifier Tween 80, serta pembanding berupa *OE wax* dan *palm stearin*. Evaluasi mutu dilakukan berdasarkan parameter susut bobot, laju respirasi, total padatan terlarut (TPT), kekerasan, vitamin C, keasaman, pertumbuhan jamur (*mold*) dan *shell pitting* selama 35 hari penyimpanan. Hasil menunjukkan bahwa *coating maggot oil* 15% paling efektif dalam menekan susut bobot dan mempertahankan kadar air buah. Sementara itu, *palm stearin* menunjukkan performa terbaik dalam memperlambat pematangan, ditunjukkan oleh tekstur yang lebih stabil dan warna kulit yang masih dominan hijau. Peningkatan nilai respirasi dan TPT teramati hingga hari ke-14, sejalan dengan puncak aktivitas metabolik buah. Temuan ini menunjukkan bahwa penggunaan *edible coating* berbahan alami berpotensi besar

dalam memperpanjang daya simpan dan menjaga kualitas pascapanen buah tropis. Aplikasi ini juga mendukung prinsip keberlanjutan melalui pemanfaatan limbah biologis sebagai bahan fungsional dalam pengemasan pangan.

Kata kunci: *maggot oil*, *palm stearin*, nanas MD2, *edible coating*, penyimpanan dingin

ABSTRACT

THE EFFECT OF *MAGGOT OIL* AND *PALM STEARIN COATING*

ON PINEAPPLE (*Ananas comosus* (L.))

DURING COLD STORAGE

By

Gira Laura Sihombing

MD2 pineapple (*Ananas comosus* **(L.))** is a high-value tropical fruit commodity with a relatively short shelf life due to its high respiration rate and susceptibility to physiological deterioration during storage. This study aimed to evaluate the effectiveness of edible coatings based on maggot oil and palm stearin in extending shelf life and maintaining postharvest quality during cold storage at 7°C. Treatments included maggot oil at three concentrations (12.5%, 15%, and 17.5%) combined with Tween 80 emulsifier, and comparison with OE wax and palm stearin coatings. Quality parameters assessed over 35 days included weight loss, respiration rate, total soluble solids (TSS), firmness, vitamin C, titra tabel acidity, mold development, and shell pitting. Results showed that 15% maggot oil coating was most effective in minimizing weight loss and preserving moisture content. Palm stearin demonstrated the best performance in delaying ripening, indicated by lower skin yellowing and more tabel texture. A peak in respiration and TSS was observed on day 14, consistent with the climacteric phase of fruit ripening. Overall, the application of natural-based edible coatings effectively reduced physiological

and microbial deterioration during cold storage. These findings support the use of bio-based coating materials as a sustainable postharvest strategy to enhance the shelf life and quality of tropical fruits, while promoting circular economy through the utilization of agricultural by-products.

Keywords: *maggot oil, palm stearin, MD2 pineapple, edible coating, cold storage*