

## ABSTRAK

Telah dilakukan penelitian pengawetan cabai merah (*Capsicum annum* L.) secara kimia *edible coat* menggunakan gel lidah buaya (*Aloe vera* L.) dengan penambahan *Carboxy Methyl Cellulose* (CMC) dan minyak atsiri lengkuas (*Alpinia galanga*). Penelitian ini bertujuan untuk mendapatkan kondisi optimum pelapisan cabai merah dengan *edible coat* gel lidah buaya yang diperkaya minyak atsiri lengkuas agar dapat memperpanjang umur simpan cabai merah selama penyimpanan, mengetahui lama umur simpan dari cabai merah yang telah dilapisi *edible coat* gel lidah buaya yang diperkaya minyak atsiri lengkuas dan mengetahui kualitas dari cabai merah yang telah dilapisi *edible coat* gel lidah buaya yang diperkaya minyak atsiri lengkuas. Metode penelitian meliputi determinasi daun lidah buaya dan cabai merah di Laboratorium Struktur Tumbuhan. Gel lidah buaya didapat dengan cara mengupas daun lidah buaya dan diambil gel nya dan dianalisis kadar glukomanannya dengan cara ekstraksi oleh alkohol. Minyak atsiri lengkuas dianalisis menggunakan GC-MS. Optimasi konsentrasi digunakan variasi konsentrasi gel lidah buaya (0%, 5%, 7,5%, 10% b/v aquades), CMC (0,5%, 1%, 1,5% b/v aquades) dan minyak atsiri lengkuas (0,25%, 0,50%, 0,75% v/b gel lidah buaya + CMC) lalu dianalisis perubahan fisik dan susut bobot cabai selama 20 hari di suhu ruang ( $25,5 \pm 0,61^{\circ}\text{C}$ ). Analisis penentuan total bakteri digunakan metode *Total Plate Count* (TPC). Hasil analisis glukomanan dari gel lidah buaya menyatakan kandungan glukomanan (16,39%). Sedangkan analisis GC-MS minyak atsiri lengkuas mengandung 66 senyawa dengan kandungan terbesar adalah senyawa 1,8-sineol. Hasil optimasi konsentrasi gel lidah buaya terpilih konsentrasi 10% (segar selama 6 hari, rata-rata susut bobot  $4,13\% \pm 1,55$  per hari) sedangkan konsentrasi CMC terpilih adalah 1,5% (segar selama 10 hari, rata-rata susut bobot  $3,21\% \pm 0,99$  per hari) dan konsentrasi minyak atsiri lengkuas terpilih adalah 0,50% (segar selama 12 hari, rata-rata susut bobot  $5,15\% \pm 1,71$  per hari). Total mikroba mengalami penurunan sehingga kualitas pasca panen cabai merah meningkat dengan perlakuan *coating* 10% gel lidah buaya dengan penambahan 1,5% CMC dan 0,50% minyak atsiri lengkuas.

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**PENGARUH PENGGUNAAN *EDIBLE COAT* LIDAH BUAYA (*Aloe vera* L.) YANG DIPERKAYA MINYAK ATSIRI LENGKUAS (*Alpinia galanga*) TERHADAP UMUR SIMPAN DAN KUALITAS CABAI MERAH (*Capsicum annum* L.)**

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**Kata kunci:** cabai merah, *edible coat*, gel lidah buaya, CMC, minyak atsiri lengkuas

### **ABSTRACT**

*Research has been carried out on chemical preservation of red chili (*Capsicum annum* L.,) edible coat using aloe vera gel (*Aloe vera* L.,) with the addition of Carboxy Methyl Cellulose (CMC) and galangal essential oil (*Alpinia galanga*). This study aims to obtain the optimum conditions for coating red chili with aloe vera edible coat gel enriched with galangal essential oil in order to extend the shelf life of red chili during storage, find out the shelf life of red chili which has been coated with aloe vera edible coat gel enriched with galangal essential oil and find out the quality of red chili which has been coated with aloe vera edible coat enriched with galangal essential oil. Research methods include determination of aloe vera leaves and red chili in the Laboratory of Plant Structure. Aloe vera gel is obtained by peeling aloe vera leaves and taking the gel and analyzing the glucomannan levels by extraction by alcohol. Galangal essential oil was analyzed using GC-MS. Concentration optimization used variations in the concentration of aloe vera gel (0%, 5%, 7.5%, 10% b / v aquades), CMC (0.5%, 1%, 1.5% b / v aquades) and galangal essential oil (0.25%, 0.50%, 0.75% v / b aloe vera gel + CMC) then physical changes and weight loss of chili for 20 days at room temperature ( $25.5 \pm 0.61$  °C) were analyzed. Analysis of total bacterial determination is used the Total Plate Count (TPC) method. The results of glucomannan analysis of aloe vera gel expressed glucomannan content (16.39%). While the GC-MS analysis of galangal essential oil contains 66 compounds with the largest content is 1.8-sineol compounds. The results of the optimization of selected aloe vera gel concentration were 10% (fresh for 6 days, average shrinkage weight of  $4.13\% \pm 1.55$  per day) while the selected CMC concentration was 1.5% (fresh for 10 days, on average shrinkage weight of  $3.21\% \pm 0.99$  per day) and the concentration of selected galangal essential oil is 0.50% (fresh for 12 days, average shrinkage weight of  $5.15\% \pm 1.71$  per*

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day). The total microbes decreased so that the quality of post-harvest red chili increased by coating 10% aloe vera gel with the addition of 1.5% CMC and 0.50% galangal essential oil.

**Keywords:** red chili, edible coating, aloe vera gel, CMC, galangal essential oil