

ABSTRAK

EFEKTIVITAS ASAP CAIR CANGKANG BUAH AREN TERHADAP PATOGEN BUSUK BASAH (*Erwinia carotovora*) PADA BUAH CABAI MERAH (*Capsicum annuum* L.)

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Cangkang buah aren (*Arenga pinnata* L.) belum termanfaatkan secara optimal dan hanya sebagian kecil dimanfaatkan sebagai pupuk tanaman. Cangkang buah aren dapat dijadikan sebagai asap cair melalui proses pirolisis. Asap cair dari limbah cangkang buah aren mengandung lignin, selulosa, hemiselulosa, dan senyawa karbon lainnya, yang dapat digunakan sebagai antibakteri, antijamur dan pestisida nabati. Penelitian ini bertujuan untuk mengetahui konsentrasi paling baik dari aplikasi asap cair aren terhadap penyakit busuk basah (*Erwinia carotovora*) cabai merah. Penelitian ini dilaksanakan di Laboratorium Mikrobiologi Universitas Siliwangi dilaksanakan dari Bulan Oktober 2023 sampai Maret 2024. Percobaan *in vitro* disusun dalam Rancangan Acak Lengkap yang terdiri atas enam taraf konsentrasi, yaitu: 0%, 2%, 4%, 6%, dan 10% dengan empat ulangan dan dilanjutkan dengan Uji Beda Duncan. Sedangkan pada uji *in vivo*, dua taraf perlakuan konsentrasi asap cair yaitu 0% dan 60%, yang disusun dalam Uji-T tidak berpasangan. Hasil pengujian *in vitro* menunjukkan bahwa, perlakuan konsentrasi asap cair 6% efektif memperluas diameter zona hambat terhadap pertumbuhan koloni biakan *E. carotovora*. Perlakuan konsentrasi asap cair 6% sama efektif dengan 8 dan 10 %. Sedangkan hasil pengujian *in vivo*, menyatakan bahwa perlakuan konsentrasi asap cair 60% memiliki efektivitas sebagai zat antimikroba dalam menekan serangan patogen *Erwinia carotovora* pada buah cabe merah.

Kata kunci: Antimikroba, asap cair, cangkang buah aren, *Erwinia carotovora*.

ABSTRACT

EFFECTIVENESS OF LIQUID SMOKE FROM PALM FRUIT SHELLS AGAINST THE WET ROT PATHOGEN (*Erwinia carotovora*) OF RED CHILI FRUITS (*Capsicum annum* L.)

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Palm fruit shells (*Arenga pinnata* L.) need to be utilized optimally and only a small portion is used as plant fertilizer. Palm fruit shells can be used as liquid smoke through a pyrolysis process. Liquid smoke from palm fruit shell waste contains lignin, cellulose, hemicellulose and other carbon compounds, which can be used as an antibacterial, antifungal and botanical pesticide. This research aimed to determine the best concentration of palm oil liquid smoke application against wet rot (*Erwinia carotovora*) of red chilies. This research was carried out at the Microbiology Laboratory of Siliwangi University from October 2023 to March 2024. The *in vitro* experiment was arranged in a completely randomized design consisting of six concentration levels, namely: 0%, 2%, 4%, 6%, and 10% with four repetitions and continued with the Duncan Difference Test. Meanwhile, in the *in vivo* test, two treatment levels of liquid smoke concentration were 0% and 60%, which were arranged in an unpaired T-test. *In vitro* test results showed that treatment with a 6% liquid smoke concentration was effective in expanding the diameter of the inhibition zone on the growth of *Erwinia carotovora* culture colonies. Treatment with a 6% liquid smoke concentration was as effective as 8 and 10%. The results of *in vivo* testing showed that treatment with a 60% concentration of liquid smoke was effective as an antimicrobial agent in suppressing the attack of the *Erwinia carotovora* pathogen on red chilies.

Key words: Antimicrobial, *Erwinia carotovora*, liquid smoke, palm fruit shell.