

ABSTRAK

POTENSI EKSTRAK KULIT UMBI KENTANG (*Solanum tuberosum* L.) SEBAGAI PENGHAMBAT PENYAKIT CROWN ROT PADA BUAH PISANG (*Musa* spp.) SECARA *IN VITRO* DAN *IN VIVO*

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Penyakit *crown rot* merupakan salah satu penyebab penurunan mutu dan daya simpan buah pisang, sedangkan penggunaan fungisida sintesis berisiko menimbulkan residu, resistensi patogen, dan dampak lingkungan. Penelitian ini bertujuan mengevaluasi potensi ekstrak kulit umbi kentang (*Solanum tuberosum* L.) dalam menghambat penyakit *crown rot* serta mempertahankan mutu fisik dan kimia buah pisang selama penyimpanan. Penelitian dilaksanakan melalui uji *in vitro* menggunakan Rancangan Acak Lengkap dan uji *in vivo* menggunakan Rancangan Acak Kelompok, masing-masing terdiri atas enam perlakuan dan lima ulangan. Perlakuan meliputi kontrol negatif, kontrol positif berbahan aktif propineb, serta ekstrak kulit umbi kentang dengan konsentrasi 40%, 20%, 10%, dan 5%. Data dianalisis menggunakan uji F dan dilanjutkan dengan Uji Jarak Berganda Duncan pada taraf 5%. Hasil penelitian menunjukkan bahwa ekstrak kulit umbi kentang berpotensi menghambat pertumbuhan patogen pada uji *in vitro*, yang ditunjukkan oleh diameter koloni lebih rendah dan daya hambat lebih tinggi dibandingkan kontrol. Pada uji *in vivo*, ekstrak menunjukkan potensi dalam memperlambat perkembangan penyakit. Ekstrak juga berpotensi mempertahankan kandungan asam tertitrasi total, tetapi belum memberikan pengaruh nyata terhadap susut bobot, indeks warna, kekerasan, kemanisan, dan vitamin C. Beberapa parameter utama tidak menunjukkan perbedaan nyata antarkonsentrasi. Konsentrasi 5% telah memberikan penghambatan yang baik pada uji *in vitro*, sedangkan konsentrasi 10% menunjukkan respons terbaik secara deskriptif pada uji *in vivo* berdasarkan intensitas penyakit terendah dan efikasi tertinggi.

Kata kunci: *crown rot*, ekstrak kulit umbi kentang, *Fusarium oxysporum*, pisang, *Solanum tuberosum* L.

ABSTRACT

POTENTIAL OF POTATO PEEL EXTRACT (*Solanum tuberosum* L.) AS AN INHIBITOR OF CROWN ROT DISEASE IN BANANA FRUIT (*Musa* spp.) UNDER *IN VITRO* AND *IN VIVO* CONDITIONS

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*Crown rot disease is one of the causes of reduced quality and shelf life of banana fruit, while the use of synthetic fungicides may lead to chemical residues, pathogen resistance, and environmental impacts. This study aimed to evaluate the potential of potato peel extract (*Solanum tuberosum* L.) to inhibit crown rot disease and maintain the physical and chemical quality of banana fruit during storage. The study consisted of an *in vitro* test using a Completely Randomized Design and an *in vivo* test using a Randomized Block Design, each comprising six treatments and five replications. The treatments included a negative control, a positive control containing propineb as the active ingredient, and potato peel extract at concentrations of 40%, 20%, 10%, and 5%. The data were analyzed using the F-test and followed by Duncan's Multiple Range Test at the 5% significance level. The results showed that potato peel extract had the potential to inhibit pathogen growth in the *in vitro* test, as indicated by lower colony diameters and higher inhibition percentages than the controls. In the *in vivo* test, the extract showed potential to slow disease development. The extract also showed potential to maintain total titratable acidity but had no significant effect on weight loss, color index, fruit firmness, sweetness, or vitamin C content. Several observed parameters showed no significant differences among extract concentrations. A concentration of 5% provided good inhibition in the *in vitro* test, whereas a concentration of 10% showed the best descriptive response in the *in vivo* test based on the lowest disease intensity and the highest efficacy.*

Keywords: *banana, crown rot, Fusarium oxysporum, potato peel extract, Solanum tuberosum L.*