

ABSTRACT

COMPARISON OF INHIBITORY TEST OF ROBUSTA COFFEE BEAN EXTRACT (*Coffea canephora*) AND BLACK PEPPER FRUIT EXTRACT (*Piper nigrum*) AGAINST *Malassezia furfur* FUNGUS *IN VITRO*

By

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Background: *Malassezia furfur* is a fungus causing skin diseases such as *pityriasis versicolor* that requires natural treatment alternatives due to side effects and resistance from repeated use of antifungal drugs. Robusta coffee beans and black pepper fruit are known to contain secondary metabolite compounds potentially serving as antifungals. This study aimed to determine the comparison of the inhibitory activity of Robusta coffee bean (*Coffea canephora*) ethanol extract and black pepper fruit extract (*Piper nigrum*) against the growth of *Malassezia furfur*.

Methods: This was a laboratory experimental study with a Post-test only control group design conducted at the University of Lampung Laboratory. The research samples used 96% ethanol extracts of Robusta coffee beans and black pepper fruit with a concentration series of 100%, 50%, 25%, 12.5%, and 6.25% using the well diffusion method on *Sabouraud Dextrose Agar* (SDA) media. Variable measurement was performed by measuring the formed inhibition zone diameter, and data analysis utilized the Shapiro-Wilk test and Levene test, followed by the T-test.

Results: Robusta coffee bean extract at concentrations of 100%, 50%, 25%, 12.5%, and 6.25% produced average inhibition zones of 13.39 mm, 11.25 mm, 5.72 mm, 1.99 mm, and 0 mm, respectively. Meanwhile, black pepper extract at the same concentrations produced inhibition zones of 7.75 mm, 6.94 mm, 1.60 mm, 0 mm, and 0 mm.

Conclusions: Robusta coffee bean extract (*Coffea canephora*) is more effective than black pepper fruit extract (*Piper nigrum*) in inhibiting the growth of *Malassezia furfur*. There was a significant difference ($p < 0.05$) between the two extracts at concentrations from 100% to 12.5%.

Keywords: *Coffea canephora*, *Malassezia furfur*, *Piper nigrum*

ABSTRAK

PERBANDINGAN UJI DAYA HAMBAT EKSTRAK BIJI KOPI ROBUSTA (*Coffea canephora*) DAN EKSTRAK BUAH LADA HITAM (*Piper nigrum*) TERHADAP JAMUR *Malassezia furfur in vitro*

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Latar Belakang: *Malassezia furfur* merupakan jamur penyebab penyakit kulit seperti *pityriasis versicolor* yang memerlukan alternatif pengobatan alami akibat adanya efek samping dan resistensi dari pemakaian berulang obat antijamur. Biji kopi robusta dan buah lada hitam diketahui mengandung senyawa metabolit sekunder yang berpotensi sebagai antijamur. Penelitian ini bertujuan untuk mengetahui perbandingan aktivitas daya hambat ekstrak etanol biji kopi robusta (*Coffea canephora*) dan ekstrak buah lada hitam (*Piper nigrum*) terhadap pertumbuhan *Malassezia furfur*.

Metodologi Penelitian: Jenis penelitian ini adalah eksperimental laboratorik dengan rancangan *Post-test only control group design* yang dilakukan di Laboratorium Universitas Lampung. Sampel penelitian menggunakan ekstrak etanol 96% biji kopi robusta dan buah lada hitam dengan seri konsentrasi 100%, 50%, 25%, 12,5%, dan 6,25% menggunakan metode difusi sumuran pada media *Sabouraud Dextrose Agar* (SDA). Pengukuran variabel dilakukan dengan mengukur diameter zona hambat yang terbentuk dan analisis data menggunakan uji *Shapiro-Wilk* dan uji *Levene* dilanjut dengan uji *T-test*.

Hasil Penelitian: Ekstrak biji kopi robusta pada konsentrasi 100%, 50%, 25%, 12,5%, dan 6,25% menghasilkan rata-rata zona hambat berturut-turut 13,39 mm; 11,25 mm; 5,72 mm; 1,99 mm; dan 0 mm. Sedangkan ekstrak lada hitam pada konsentrasi yang sama menghasilkan zona hambat 7,75 mm; 6,94 mm; 1,60 mm; 0 mm; dan 0 mm.

Simpulan Penelitian: Ekstrak biji kopi robusta (*Coffea canephora*) lebih efektif dibandingkan ekstrak buah lada hitam (*Piper nigrum*) dalam menghambat pertumbuhan jamur *Malassezia furfur*. Terdapat perbedaan signifikan ($p < 0,05$) antara kedua ekstrak pada konsentrasi 100% hingga 12,5%.

Kata Kunci: *Coffea canephora*, *Malassezia furfur*, *Piper nigrum*