

**PENGHAMBATAN PERTUMBUHAN JAMUR *Malassezia furfur*
(Robin) Baillon ATCC 14521 PENYEBAB PENYAKIT KULIT
DENGAN EKSTRAK METANOL BIJI JINTAN HITAM
(*Nigella sativa* L.)**

Latifa Shafa Maura Selohadi

19/441295/BI/10287

Rina Sri Kasiamdari, S.Si., Ph.D.

INTISARI

Malassezia furfur merupakan spesies khamir yang umum diasosiasikan dengan berbagai penyakit kulit seperti *pityriasis versicolor*, *atopic dermatitis*, *psoriasis*, ketombe, serta *seborrheic dermatitis*. Khamir ini bersifat *anthropophilic* dan bergantung pada lipid. Selama ini digunakan obat ketokonazol sebagai yang bersifat hepatotoksik sehingga perlu dicari obat alternatif alami. Jintan hitam (*Nigella sativa* L.) memiliki senyawa antifungi seperti alkaloid, flavonoid, dan tanin yang mampu menghambat pertumbuhan khamir. Maka dari itu penelitian ini bertujuan untuk mengetahui aktivitas antifungi pada ekstrak metanol biji jintan hitam serta perbandingan efektivitas antifungi dari ekstrak metanol biji jintan hitam dibandingkan dengan ketokonazol. Penelitian dilakukan dengan ekstraksi biji jintan hitam menggunakan maserasi, koleksi sampel khamir, identifikasi komponen ekstrak biji jintan hitam dengan GCMS (*Gas Chromatography Mass Spectrometry*), uji aktivitas senyawa antifungi dengan metode difusi kertas cakram, penentuan *Minimum Inhibitory Concentration* (MIC) ekstrak biji jintan hitam, serta pengamatan morfologi sel khamir. Hasil penelitian menunjukkan ekstrak biji jintan hitam mengandung *methyl palmitate*, *linoleic acid*, *palmitic acid*, *methyl isostearate*, dan *methyl linoleate*. Hasil uji penghambatan pertumbuhan fungi dengan ekstrak biji jintan hitam 70%, 60%, 30%, dan 10% memiliki kemampuan menghambat pertumbuhan khamir dengan zona hambat berturut turut $14,71 \pm 1,10$ mm, $13,38 \pm 0,53$ mm, $2,36 \pm 0,65$ mm, $1,63 \pm 0,32$ mm. Nilai MIC dari ekstrak biji jintan hitam adalah 0,5%. Sel khamir yang sudah rusak menunjukkan warna biru setelah diwarnai dengan *methylene blue*. Kesimpulan dari penelitian ini adalah ekstrak biji jintan hitam (*Nigella sativa* L.) pada konsentrasi 70% punya kemampuan daya hambat kuat, sebesar $14,71 \pm 1,10$ mm yang tidak berbeda signifikan dengan perlakuan ketokonazol 2% sebesar $16,63 \pm 2,34$ mm.

Kata kunci: *Malassezia furfur*, ekstrak biji jintan hitam, ketokonazol, pertumbuhan

**INHIBITION OF FUNGAL GROWTH *Malassezia furfur* (Robin)
Baillon ATCC 1452 CAUSES SKIN DISEASES WITH
METHANOL EXTRACT OF BLACK CUMIN SEEDS
(*Nigella sativa* L.)**

**Latifa Shafa Maura Selohadi
19/441295/BI/10287
Rina Sri Kasiamdari, S.Si., Ph.D.**

ABSTRACT

Malassezia furfur is a yeast species that is commonly associated with various skin diseases such as pityriasis versicolor, atopic dermatitis, psoriasis, dandruff, and seborrheic dermatitis. This yeast is anthropophilic and depends on lipids. So far, the drug ketoconazole has been used as a hepatotoxic drug, so it is necessary to look for natural alternative drugs. Black cumin (*Nigella sativa* L.) has antifungal compounds such as alkaloids, flavonoids and tannins which can inhibit the growth of yeast. Therefore, this study aims to determine the antifungal activity of the methanol extract of black cumin seeds and to compare the antifungal effectiveness of the methanol extract of black cumin seeds compared to ketoconazole. The research was carried out by extracting black cumin seeds using maceration, collecting yeast samples, identifying the components of black cumin extract using GCMS (Gas Chromatography Mass Spectrometry), testing the activity of antifungal compounds using the paper disk diffusion method, determining the Minimum Inhibitory Concentration (MIC) of black cumin seed extract, as well as observing the morphology of yeast cells. The research results showed that black cumin seed extract contains methyl palmitate, linoleic acid, palmitic acid, methyl isostearate, and methyl linoleate. The results of the fungal growth inhibition test with black cumin seed extract 70%, 60%, 30%, and 10% had the ability to inhibit yeast growth with inhibition zones respectively 14.71 ± 1.10 mm, 13.38 ± 0.53 mm, 2.36 ± 0.65 mm, 1.63 ± 0.32 mm. The MIC value of black cumin seed extract is 0.5%. Damaged yeast cells showed blue color after staining with methylene blue. The conclusion of this research is that black cumin seed extract (*Nigella sativa* L.) at a concentration of 70% had a strong inhibitory capacity of 14.71 ± 1.10 mm which was not significantly different from the 2% ketoconazole treatment of 16.63 ± 2.34 mm.

Keywords: *Malassezia furfur*, black cumin extract, ketoconazole, fungal growth