

**INHIBITORY POWER OF TURMERIC (*Curcuma domestica* Val.)  
ESSENTIAL OIL ON THE GROWTH OF THE FUNGI *Aspergillus flavus***

Nydia Elian Puspitaningtyas<sup>1</sup>, Subiyono<sup>2</sup>, Zulfikar Husni Faruq<sup>3</sup>  
<sup>1,2,3</sup>Medical Laboratory Technologist, Ministry of Health Yogyakarta,  
Ngadinegaran MJ III/62 Yogyakarta, Telp. (0274) 374200  
email : nydia18elian@gmail.com

**ABSTRACT**

**Background :** Microorganisms that cause disease in humans, one of which is fungi. The fungus *Aspergillus flavus* causes otomycosis. Otomycosis treatment is usually carried out by giving an azole antifungal drug which can have both beneficial and detrimental effects. Traditional medicine can provide an alternative, namely by utilizing plants that contain lots of active compounds that can act as antifungals. One of them is turmeric rhizome which contains as much as 1.5-2.5% essential oil. Tumerone, carvakrol,  $\alpha$ -felandren, and terpinolen are constituents that make up essential oils that have the ability to inhibit fungal growth.

**Purpose :** To determine the inhibition of the essential oil of turmeric rhizome (*Curcuma domestica* Val.) on the growth of the fungus *Aspergillus flavus*.

**Methods :** This research is a pure experimental research with Post Test Only with Control Group Design. The subjects of this study were *Aspergillus flavus* mushroom aged 24 hours which was inoculated on SDA media and given essential oil with concentrations of 20%, 40%, 60%, 80% and 100%. Observation of the inhibitory power of turmeric rhizome essential oil as antifungal by measuring the zone of inhibition using a caliper.

**Result :** The average diameter of the inhibition zone on the growth of the fungus *Aspergillus flavus* at concentrations of 20%, 40%, 60%, 80% and 100% was 3,3 mm; 6,3 mm; 7,5 mm; 10,3 mm and 14,3 mm. The higher the concentration of essential oil, the larger the diameter of the inhibition zone. The results of statistical analysis showed that there was a difference in the mean diameter of the inhibition zone of various concentrations of turmeric rhizome essential oil on the inhibition of the growth of the fungus *Aspergillus flavus*.

**Conclusion :** Turmeric rhizome essential oil (*Curcuma domestica* Val.) can inhibit the growth of the fungus *Aspergillus flavus*.

**Keywords :** Turmeric rhizome essential oil, *Aspergillus flavus*, antifungal

**DAYA HAMBAT MINYAK ATSIRI RIMPANG KUNYIT (*Curcuma domestica Val.*) TERHADAP PERTUMBUHAN JAMUR *Aspergillus flavus***

Nydia Elian Puspitaningtyas<sup>1</sup>, Subiyono<sup>2</sup>, Zulfikar Husni Faruq<sup>3</sup>  
<sup>1,2,3</sup>Jurusan Teknologi Laboratorium Medis Poltekkes Kemenkes Yogyakarta,  
Ngadinegaran MJ III/62 Yogyakarta, Telp. (0274) 374200  
email : nydia18elian@gmail.com

**ABSTRAK**

**Latar Belakang :** Mikroorganismen penyebab penyakit pada manusia salah satunya adalah jamur. Jamur *Aspergillus flavus* menyebabkan penyakit otomikosis. Pengobatan otomikosis biasanya dilakukan dengan memberikan obat antifungi golongan azol yang dapat memberikan efek menguntungkan dan merugikan. Obat tradisional dapat memberikan alternatif yakni dengan memanfaatkan tanaman yang banyak mengandung senyawa aktif yang mampu berperan sebagai antijamur. Salah satunya adalah rimpang kunyit yang mengandung minyak atsiri sebanyak 1,5-2,5%. Tumeron, karvakrol,  $\alpha$ -felandren, dan terpinolen merupakan konstituen yang menyusun minyak atsiri yang memiliki kemampuan menghambat pertumbuhan jamur.

**Tujuan :** Mengetahui daya hambat minyak atsiri rimpang kunyit (*Curcuma domestica Val.*) terhadap pertumbuhan jamur *Aspergillus flavus*.

**Metode :** Penelitian ini merupakan penelitian eksperimen murni dengan rancangan *Post Test Only with Control Group Design*. Subjek penelitian ini adalah jamur *Aspergillus flavus* berumur 24 jam yang diinokulasikan pada media SDA dan diberi minyak atsiri dengan konsentrasi 20%, 40%, 60%, 80% dan 100%. Pengamatan daya hambat minyak atsiri rimpang kunyit sebagai antifungi dengan mengukur zona hambat menggunakan jangka sorong.

**Hasil :** Rata-rata diameter zona hambat pada pertumbuhan jamur *Aspergillus flavus* pada konsentrasi 20%, 40%, 60%, 80% dan 100% adalah 3,3 mm; 6,3 mm; 7,5 mm; 10,3 mm dan 14,3 mm. Semakin tinggi konsentrasi minyak atsiri maka semakin besar diameter zona hambatnya. Hasil analisa statistik menunjukkan adanya perbedaan rerata diameter zona hambat berbagai konsentrasi minyak atsiri rimpang kunyit terhadap daya hambat pertumbuhan jamur *Aspergillus flavus*.

**Kesimpulan :** Minyak atsiri rimpang kunyit (*Curcuma domestica Val.*) dapat menghambat pertumbuhan jamur *Aspergillus flavus*.

**Kata Kunci :** Minyak atsiri rimpang kunyit, *Aspergillus flavus*, antifungi