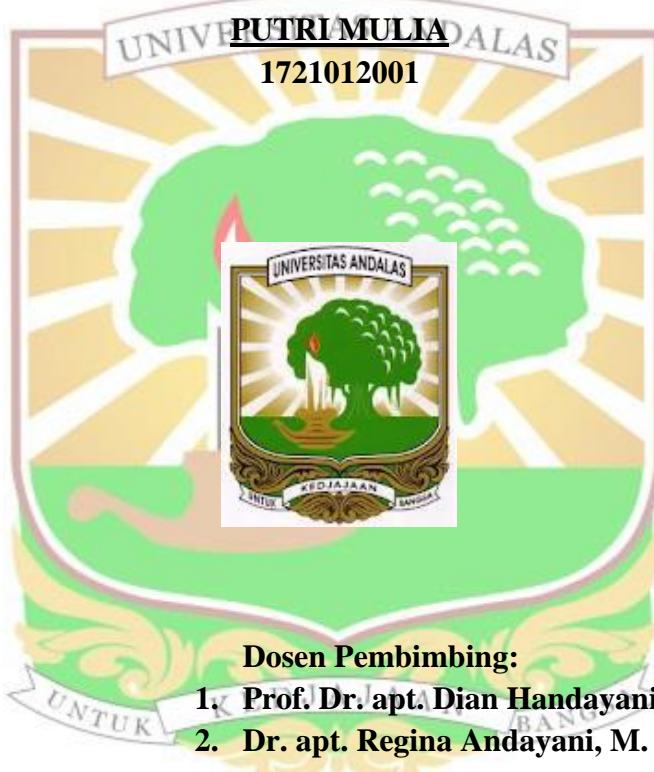


**ISOLASI SENYAWA METABOLIT SEKUNDER DARI JAMUR
ENDOFIT *Fusarium proliferatum* AED₃ DAN UJI AKTIVITAS
SITOTOKSIK TERHADAP SEL KANKER T47D SECARA
*IN VITRO***

OLEH:



Dosen Pembimbing:

1. Prof. Dr. apt. Dian Handayani
2. Dr. apt. Regina Andayani, M. Si

**PROGRAM STUDI MAGISTER FARMASI
FAKULTAS FARMASI
UNIVERSITAS ANDALAS
2020**

**ISOLASI SENYAWA METABOLIT SEKUNDER DARI JAMUR
ENDOFIT *Fusarium proliferatum* AED₃ DAN UJI AKTIVITAS
SITOTOKSIK TERHADAP SEL KANKER T47D SECARA
*IN VITRO***

Putri Mulia, Dian Handayani, Regina Andayani

ABSTRAK

Tanaman mangrove merupakan salah satu host jamur endofit. Jamur endofit diketahui mampu menghasilkan senyawa metabolit sekunder dengan aktivitas sitotoksik. Penelitian ini bertujuan untuk mengisolasi, mengidentifikasi, dan menentukan aktivitas sitotoksik senyawa metabolit sekunder jamur *Fusarium proliferatum* AED₃ yang berasal dari tanaman mangrove *Ardisia elliptica*. Koloni jamur *Fusarium proliferatum* AED₃ dikultivasi pada media beras selama empat minggu, lalu dimaserasi dengan etil asetat. Ekstrak etil asetat dilarutkan dengan pelarut metanol dan di *defatting* dengan menggunakan pelarut n-heksan, dan dilanjutkan dengan uji aktivitas sitotoksik dengan metode BSLT (*Brine Shrimp Lethality Test*). Fraksi metanol diisolasi untuk pemisahan senyawa dengan kromatografi kolom dan dilanjutkan dengan rekristalisasi. Senyawa hasil isolasi dikarakterisasi dengan UV, HPLC, IR, dan LC-MS/MS. Dari hasil isolasi diperoleh senyawa murni sebanyak 14,6 mg (senyawa PO). Senyawa tersebut berupa gom berwarna putih. Hasil analisis KLT dengan eluen n-heksana:etil asetat (7:3) didapatkan satu noda dengan Rf 0,5. Berdasarkan hasil karakterisasi secara fisikokimia dan dibandingkan dengan data literatur, disimpulkan senyawa PO identik dengan beauvericin (C₄₅H₅₇N₃O₉). Uji sitotoksik senyawa PO dengan metode MTT [3-(4,5-dimetiltiazol-2)-2,5-difeniltetrazolium bromida] terhadap sel kanker T47D diperoleh IC₅₀ 112,2 µg/mL. Hasil uji sitotoksik terhadap sel T47D adalah yang pertama kali dilaporkan.

*Kata kunci - jamur endofit, *Fusarium proliferatum*, aktivitas sitotoksik, sel kanker T47D, beauvericin*

ISOLATION OF SECONDARY METABOLITE COMPOUND FROM ENDOPHYTIC FUNGI *Fusarium proliferatum* AED₃ AND CYTOTOXIC ACTIVITY AGAINST T47D CANCER CELLS BY IN VITRO

Putri Mulia, Dian Handayani, Regina Andayani

ABSTRACT

Mangrove plants are one of the hosts for endophytic fungi. Endophytic fungi are known to be able to produce secondary metabolite with cytotoxic activity. This study aims to isolate, identify, and determine cytotoxic activity of secondary metabolite of *Fusarium proliferatum* AED₃ derived from the mangrove plant *Ardisia elliptica*. The colony of *Fusarium proliferatum* AED₃ were cultivated on rice media for four weeks, then macerated with ethyl acetate. The ethyl acetate extract were dissolved with methanol solvent and defatting using n-hexane as solvent and continued with cytotoxic activity test using the BSLT (Brine Shrimp Lethality Test) method. The methanol fraction was isolated for the separation of compounds by column chromatography followed by recrystallization. The isolated compound was characterized by UV, HPLC, IR, and LC-MS/MS. From the isolation results, 14,6 mg of pure compound (PO compound) was obtained. The compound is in the form of a white gum. The results of TLC analysis with the eluent n-hexane: ethyl acetate (7:3) shows a stain with Rf 0,5. Based on the results of physicochemical characterizations and compared with literature data, it was concluded that the PO compound was identical to beauvericin ($C_{45}H_{57}N_3O_9$). The cytotoxic test of PO compound by MTT [3-(4,5-dimethylthiazole-2-yl)-2,5-diphenyltetrazolium bromide] method against T47D cancer cells obtained IC₅₀ 112,2 µg/mL. The result of cytotoxic test on T47D cancer cells was first reported.

Keywords - Endophytic fungi, *Fusarium proliferatum*, cytotoxic activity, T47D cancer cells, beauvericin