ABSTRAK

IDENTIFIKASI JAMUR ENDOFIT SIMBION NUDIBRANCHIA KODE K5 DAN K6 SERTA UJI ANTIBAKTERINYA TERHADAP *Pseudomonas aeruginosa*

Nuri Rahmadani[1], Harwoko[2], Hendri Wasito[2]

Latar Belakang : *Pseudomonas aeruginosa* merupakan agen penyebab infeksi nosokomial yang sulit ditangani akibat tingginya resistensi terhadap antibiotik, sehingga diperlukan sumber antibakteri alternatif yang lebih efektif. Fungi endofit simbion nudibranchia diketahui menghasilkan beragam senyawa bioaktif yang berpotensi antibiotik dengan menghambat pertumbuhan bakteri patogen. Penelitian ini bertujuan untuk mengidentifikasi morfologi fungi endofit kode K5 dan K6, menentukan spesies fungi K5 secara molekuler, serta mengevaluasi aktivitas antibakteri keduanya terhadap *P. aeruginosa*.

Metodologi : Fungi diisolasi pada media PDA hingga diperoleh kultur murni, kemudian dikarakterisasi secara morfologi dan dianalisis molekuler menggunakan Sanger sequencing. Fermentasi dilakukan pada media beras selama 14 hari, dilanjutkan dengan maserasi menggunakan etil asetat selama 24 jam. Ekstrak yang diperoleh diuji aktivitas antibakterinya menggunakan metode difusi sumuran.

Hasil : Hasil penelitian menunjukkan bahwa fungi kode K5 dan K6 berturut-turut teridentifikasi sebagai *Aspergillus flavus* dan *Penicillium citrinum*. Uji antibakteri menunjukkan bahwa ekstrak etil asetat K5 dan K6 pada konsentrasi 10% menghasilkan zona hambat sebesar 4,57 ± 0,12 mm dan 14,66 ± 1,13 mm.

Kesimpulan : Dengan demikian, kedua fungi endofit asal nudibranchia ini memiliki aktivitas antibakteri terhadap *P. aeruginosa*, dengan potensi yang tergolong lemah pada K5 dan kuat pada K6.

Kata Kunci : Antibakteri, *Aspergillus flavus*, Fungi endofit,, *Penicillium citrinum*, *Pseudomonas aeruginosa*.

[1]Mahasiswa Jurusan Farmasi Fakultas Ilmu-Ilmu Kesehatan Universitas Jenderal Soedirman
[2] Jurusan Farmasi Fakultas Ilmu-Ilmu Kesehatan Universitas Jenderal Soedirman

ABSTRACT

IDENTIFICATION OF ENDOPHYTE FUNGUS SYMBIONTS OF NUDIBRANCH CODE K5 AND K6 AND THEIR ANTIBACTERIAL TEST AGAINST *Pseudomonas aeruginosa*

Nuri Rahmadani[1], Harwoko[2], Hendri Wasito[2]

Background : *Pseudomonas aeruginosa* is a causative agent of nosocomial infections that is difficult to control due to its high resistance to antibiotics, thereby necessitating alternative and more effective antibacterial sources. Endophytic fungi symbiotic with nudibranchs are known to produce a variety of bioactive compounds with the potential to inhibit pathogenic bacterial growth. This study aims to identify the morphology of the endophytic fungi coded K5 and K6, determine the species of fungus K5 through molecular analysis, and evaluate the antibacterial activity of both isolates against *P. aeruginosa*.

Methodology : The fungi were isolated on PDA medium until pure cultures were obtained, then characterized morphologically and analyzed molecularly using Sanger sequencing. Fermentation was carried out on rice medium for 14 days, followed by maceration with ethyl acetate for 24 hours. The resulting extracts were tested for antibacterial activity using the well diffusion method.

Results : The results of the study showed that the fungi coded K5 and K6 were identified as *Aspergillus flavus* and *Penicillium citrinum*, respectively. Antibacterial testing revealed that the ethyl acetate extracts of K5 and K6 at a concentration of 10% produced inhibition zones of 4.57 ± 0.12 mm and 14.66 ± 1.13 mm, respectively.

Conclusion : Thus, both endophytic fungi isolated from nudibranchs exhibit antibacterial activity against *P. aeruginosa*, with weak potency in K5 and strong potency in K6.

Keywords : Antibacterial, *Aspergillus flavus*, Endophytic fungi, *Penicillium citrinum*, *Pseudomonas aeruginosa*.

[1]Student of the Department of Pharmacy, Faculty of Health Sciences, Jenderal Soedirman University
[2]Department of Pharmacy, Faculty of Health Sciences, Jenderal Soedirman University