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**Judul** : Aktivitas Antibiotika (+)-1,1'-Bislunatin dari Jamur Endofit *Diaporthe* sp. GNBP-10 yang Diisolasi dari Tanaman Gambir (*Uncaria gambier* Roxb.)  
**Subject** : Antibiotic Activities of (+)-1,1'-Bislunatin Compound produced by Endophytic Fungus *Diaporthe* sp. GNBP-10 isolated from Gambir Plant (*Uncaria gambier* Roxb.)

## ABSTRAK

Antibiotika merupakan senyawa yang dihasilkan oleh mikroba tertentu, dan dalam jumlah yang sangat kecil dapat membunuh mikroba patogen. Jamur endofit diketahui mampu menghasilkan senyawa bioaktif seperti antibiotika yang berpotensi membunuh mikroba patogen. *Diaporthe* sp. GNBP-10 merupakan salah satu jamur endofit hasil isolasi dari tumbuhan gambir (*Uncaria gambier* Roxb.) yang mampu menghasilkan senyawa (+)-1,1'-bislunatin. Tujuan penelitian ini adalah untuk mengetahui nilai *Minimum Inhibitory Concentration* (MIC) antibiotika (+)-1,1'-bislunatin terhadap *B. subtilis*, *E. coli*, *S. aureus*, *M. luteus*, *C. albicans*, *S. cerevisiae*, *R. minuta*, *A. niger*, dan *A. flavus*, serta mengetahui pengaruh (+)-1,1'-bislunatin terhadap perubahan morfologi sel khamir *C. albicans*. Nilai MIC ditentukan dengan metode *broth dilution*, apoptosis sel khamir diamati dengan ekstraksi DNA dan *Scanning Electron Microscope* (SEM). Hasil penelitian menunjukkan senyawa (+)-1,1'-bislunatin memiliki aktivitas antibakteri terhadap *S. aureus*, *B. subtilis*, *E. coli*, dan *M. luteus* dengan nilai MIC 64 mg/L, serta antifungal terhadap *C. albicans*, *R. minuta*, *S. cerevisiae*, *A. niger* dengan nilai MIC 64 mg/L serta terhadap *A. flavus* sebesar 32 mg/L. Senyawa (+)-1,1'-bislunatin menyebabkan pengkerutan dinding sel khamir *C. albicans* pada konsentrasi 128 mg/L.

*Kata kunci* : (+)-1,1'-bislunatin, *Minimum Inhibitory Concentration*, apoptosis

## ABSTRACT

Antibiotic substances are bioactive compounds produced by certain microbes, which can kill or inhibit microbial growth including pathogen in very small amounts. Some endophytic fungus has been known to have the ability in producing bioactive compounds such as antibiotic. *Diaporthe* sp. GNBP-10 is an endophytic fungus was isolated from Gambir plant (*Uncaria gambier* Roxb.) which can to produced metabolite compounds (+)-1,1'-bislunatin. The purposes of this study were determined the *Minimum Inhibitory Concentrations* (MIC) of (+)-1,1'-bislunatin compound against *Bacillus subtilis*, *Escherichia coli*, *Staphylococcus aureus*, *Micrococcus luteus*, *Candida albicans*, *S. cerevisiae*, *Rhodotorula minuta*, *Aspergillus niger*, and *A. flavus*, and also examined the effect of (+)-1,1'-bislunatin compound on the morphological changes of the yeast *C. albicans*. Broth dillution method was used to determined MIC values, DNA extraction was done to detect the apoptotic mechanism on yeast cells, while morphological changes of yeast cell was observed by SEM. The results showed that (+)-1,1'-bislunatin compound have an antibacterial activity against *S. aureus*, *B. subtilis*, *E. coli*, and *M. luteus* with the MIC values of 64 mg/L. The MIC values against *C. albicans*, *S. cerevisiae*, *R. minuta*, *A. niger* were 64 mg/L, while for *A. flavus* was 32 mg/L. The cell wall of *C. albicans* shranked at 128 mg/L (+)-1,1'-bislunatin compound.

Keywords : (+)-1,1'-bislunatin, MIC, apoptosis

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