ABSTRACT

ISOLATION AND IDENTIFICATION OF PHENOLIC COMPOUNDS FROM THE STEM BARK OF WHITE TURI (*Sesbania grandiflora*) AND THEIR ANTIBACTERIAL ACTIVITY

By

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This study has been carried out on the isolation and identification of phenolic compounds from the stem bark of white turi (*S. grandiflora*) as well as their antibacterial activity. This research was done by several steps including sample preparation, extraction, isolation and purification using TLC, VLC, CC, and structure analyses by spectroscopic method such as UV-Vis, IR, and NMR spectroscopies. Two purified compounds, sesbagrandiflorain A and B were succesfully isolated from *S. grandiflora* stem bark together with one unknown constituent (code:N-8). The compound (N-8) (39 mg) was afforded as a yellow crystal with a melting point of 220.1-222.8°C. Based on the spectroscopic evidence of N-8, this compound was predicted as dimeric of 2-arylbenzofuran which was suggested related with the structure of previous isolated compounds. However, the structure elucidation of N-8 is still in progress. The antibacterial activity of N-8 against *E.coli* exhibited that this compound has moderat activity with inhibition zone of 10 and 8.6 mm at the concentration of 200 ppm and 100 ppm, respectively.

Keywords: sesbagrandiflorain A and B , arylbenzofuran, *Sesbania grandiflora*, antibacterial, *E.coli*, phenolic compounds.

ABSTRAK

ISOLASI DAN IDENTIFIKASI SENYAWA FENOLIK DARI KULIT BATANG TUMBUHAN TURI PUTIH (*Sesbania grandiflora*) SERTA UJI AKTIVITAS ANTIBAKTERI

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Pada penelitian ini telah dilakukan isolasi dan identifikasi senyawa fenolik dari kulit batang tumbuhan turi putih (*S. grandiflora*) serta uji aktivitas antibakteri. Tahapan penelitian yang dilakukan yaitu preparasi sampel, ekstraksi, isolasi, pemurnian secara berulang menggunakan metode KLT, KCV, KK, dan analisis struktur senyawa ditentukan dengan metode spektroskopi UV-Vis, IR, dan NMR. Dua senyawa murni, sesbagrandiflorain A and B berhasil diisolasi dari kulit batang *S. grandiflora* bersama dengan satu senyawa yang tidak diketahui (kode:N-8). Senyawa (N-8) (39 mg) berupa kristal berwarna kuning dengan titik leleh 220,1-222,8^{o}C. Berdasarkan data spektroskopi N-8, senyawa ini diduga sebagai dimer dari 2-arilbenzofuran yang terkait dengan struktur senyawa yang telah diisolasi sebelumnya. Namun, penentuan struktur N-8 masih dalam proses. Aktivitas antibakteri N-8 terhadap bakteri *E. coli* menunjukkan bahwa senyawa ini memiliki aktivitas sedang dengan zona hambat 10 dan 8.6 mm pada konsentrasi 200 ppm dan 100 ppm.

Kata Kunci : sesbagrandiflorain A and B , arilbenzofuran, *Sesbania grandiflora* , antibakteri, *E. coli*, senyawa fenolik.