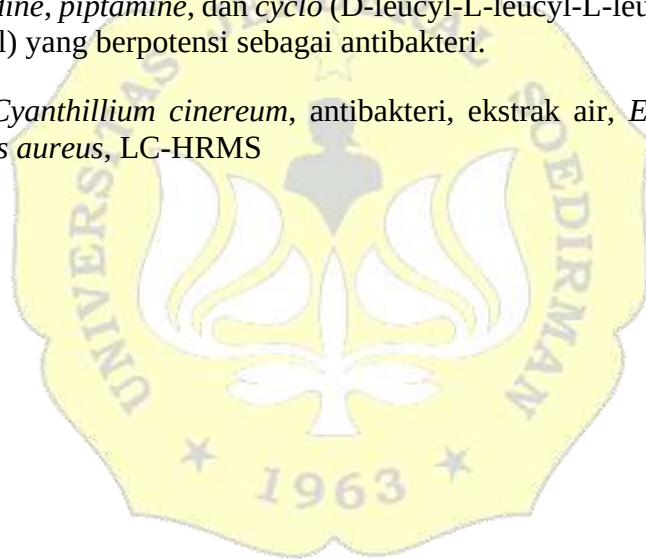


ABSTRAK

Resistensi mikrobial masih menjadi tantangan serius dalam dunia kesehatan di Indonesia, sehingga pengembangan antibiotik tetap menjadi topik penting. Tumbuhan sawi langit (*Cyanthillium cinereum*) dikenal secara tradisional sebagai obat, khususnya melalui air rebusannya, sehingga air digunakan sebagai pelarut pada penelitian ini. Tujuan penelitian adalah mengidentifikasi senyawa metabolit sekunder dan mengevaluasi aktivitas antibakteri fraksi ekstrak air *C. cinereum* terhadap *Escherichia coli* dan *Staphylococcus aureus*. Ekstraksi dilakukan dengan metode infundasi, dilanjutkan fraksinasi menggunakan Kromatografi Cair Vakum (KCV). Fraksi yang dihasilkan diuji aktivitas antibakterinya menggunakan metode difusi sumuran, disertai skrining fitokimia dan identifikasi senyawa aktif dengan LC-HRMS. Skrining fitokimia menunjukkan adanya flavonoid dan alkaloid pada ekstrak air dan flavonoid, alkaloid, dan terpenoid pada fraksi 2. Fraksi 2 menunjukkan aktivitas antibakteri pada konsentrasi 5.000–20.000 ppm dengan kategori resisten hingga intermediet terhadap *E. coli* dan dengan kategori intermediet hingga sensitif terhadap *S. aureus*. Identifikasi LC-HRMS menunjukkan adanya senyawa 2-hexadecylpyridine, piptamine, dan cyclo (D-leucyl-L-leucyl-L-leucyl-L-leucyl-L-leucyl) yang berpotensi sebagai antibakteri.

Kata kunci: *Cyanthillium cinereum*, antibakteri, ekstrak air, *Escherichia coli*, *Staphylococcus aureus*, LC-HRMS



ABSTRACT

Microbial resistance is still a serious challenge in the health sector in Indonesia, so antibiotic development remains an important topic. The sky mustard plant (*Cyanthillium cinereum*) is traditionally known as a medicine, especially through its boiled water, so water is used as a solvent in this study. The purpose of this study was to identify secondary metabolite compounds and evaluate the antibacterial activity of the water extract fraction of *C. cinereum* against *Escherichia coli* and *Staphylococcus aureus*. Extraction was carried out using the infundation method, followed by fractionation using Vacuum Liquid Chromatography (VLC). The resulting fractions were tested for antibacterial activity using the well diffusion method, accompanied by phytochemical screening and identification of active compounds with LC-HRMS. Phytochemical screening showed the presence of flavonoids and alkaloids in the extract and flavonoids, alkaloids, and terpenoids in fraction 2. Fraction 2 showed antibacterial activity with inhibition zones of 3,82–13,53 mm against *E. coli* (resistant to intermediate) and 12,51–15,38 mm against *S. aureus* (intermediate to sensitive) at concentrations of 10.000–20.000 ppm. LC-HRMS identification showed the presence of bioactive compounds such as 2-hexadecylpyridine, piptamine, and cyclo (D-leucyl-L-leucyl-L-leucyl-L-leucyl-L-leucyl) which have the potential as antibacterials.

Keywords: *Cyanthillium cinereum*, antibacterial, water extract, *Escherichia coli*, *Staphylococcus aureus*, LC-HRMS

