

ABSTRAK

KARAKTERISASI MORFOLOGI, ANATOMI, DAN MOLEKULER *Coelogyne* ALAM DAN POTENSINYA SEBAGAI ANTI BAKTERI SECARA *IN SILICO* DENGAN *MOLECULAR DOCKING*

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Salah satu genus dari suku Orchidaceae yang terkenal adalah *Coelogyne*. Genus ini memiliki keanekaragaman dan potensi untuk dijadikan sebagai anti bakteri. *Coelogyne* banyak ditemukan di Kebun Raya Liwa, Lampung. Namun, masih memerlukan terkait karakterisasi dan identifikasi spesies serta potensinya sebagai anti bakteri yang belum banyak diteliti. Tujuan dari penelitian ini adalah karakterisasi morfologi, anatomi, dan Identifikasi molekuler pada *Coelogyne* alam serta mengetahui potensi *Coelogyne* sebagai anti bakteri secara *in silico* menggunakan *molecular docking*. Penelitian ini dilaksanakan pada bulan Oktober 2024 hingga Maret 2025. Hasil penelitian karakterisasi morfologi menunjukkan bahwa sampel C1, C2, dan C4 memiliki hubungan kekerabatan yang dekat berdasarkan karakteistik susunan daun, bentuk daun, dan bentuk ujung daun. Karakterisasi anatomi menunjukkan sampel C3 dan C4 memiliki hubungan kekerabatan yang dekat berdasarkan karakter lebar bukan stomata, panjang stomata, jumlah stomata, dan kerapatan stomata. Identifikasi molekuler menunjukkan terdapat dua spesies *Coelogyne*, yaitu *Coelogyne asperata* dan *Coelogyne dayana*, serta analisis *Molecular Docking* potensi *Coelogyne* sebagai anti bakteri diperoleh 2 senyawa unggul, (7,8-dimethoxy-9,10-dihydrophenanthrene-2,4,6-triol dan 7,8-dimethoxyphenanthrene 2,4,6-triol) dan 4 protein target (Gyrase B, Transpeptidase, Muramyl Ligase, dan Dihidropteroat Sintase).

Kata Kunci : *Coelogyne*, Anatomi, Molekuler, *Molecular Docking*, Morfologi.

ABSTRACT

MORPHOLOGICAL, ANATOMICAL, AND MOLECULAR CHARACTERIZATION OF NATURAL *Coelogyne* AND ITS POTENTIAL AS ANTIBACTERIAL IN SILICO WITH MOLECULAR DOCKING

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One of the famous genera of the Orchidaceae family is *Coelogyne*. This genus has diversity and potential to be used as an antibacterial. *Coelogyne* is widely found in the Liwa Botanical Garden, Lampung. However, it still requires characterization and identification of species and their potential as antibacterials that have not been widely studied. The purpose of this study is to characterize morphology, anatomy, and molecular identification of natural *Coelogyne* and to determine the potential of *Coelogyne* as an antibacterial in silico using *molecular docking*. This research was conducted from October 2024 to March 2025. The results of the morphological characterization study showed that samples C1, C2, and C4 had a close kinship based on the characteristics of leaf arrangement, leaf shape, and leaf tip shape. Anatomical characterization showed that samples C3 and C4 had a close kinship based on the characteristics of non-stomata width, stomata length, number of stomata, and stomata density. Molecular identification showed that there were two *Coelogyne* species, namely *Coelogyne asperata* and *Coelogyne dayana*, and Molecular Docking analysis of the potential of *Coelogyne* as an antibacterial obtained 2 superior compounds, (7,8-dimethoxy-9,10-dihydrophenanthrene-2,4,6-triol and 7,8-dimethoxyphenanthrene 2,4,6-triol) and 4 target proteins (Gyrase B, Transpeptidase, Muramyl Ligase, and Dihydropteroate Synthase).

Keywords: *Coelogyne*, Anatomy, Molecular, *Molecular Docking*, Morphology.