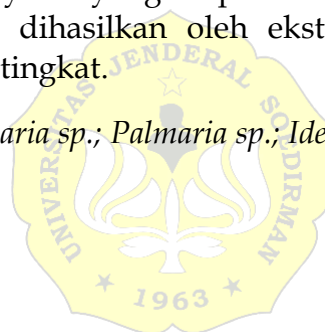


ABSTRAK

Identifikasi morfologi spesies Rhodophyta memiliki kelemahan dan sering terjadi kesalahan identifikasi. Penelitian ini bertujuan untuk mengidentifikasi *Gracilaria* sp. (PK. G) dan *Palmaria* sp. (PK. P) melalui analisis molekuler menggunakan penanda genetik spesifik, serta mengetahui potensi antibakteri dari metabolit sekunder yang dihasilkan *Gracilaria* sp. (PK. G) dan *Palmaria* sp. (PK. P). Identifikasi molekuler dilakukan dengan beberapa tahapan, yaitu isolasi DNA, amplifikasi DNA dengan primer COX11549R (5'-AGG CAT TTC TTC AAA NGT ATG ATA -3') dan COX143F (5'-TCA ACA AAT CAT AAA GAT ATT GGW ACT -3'), analisis BLAST, dan analisis filogenetik. Ekstraksi metabolit sekunder dengan maserasi bertingkat dan MAE menggunakan pelarut n-heksana, etil asetat, metanol, dan etanol. Analisis metabolomik menggunakan LC HRMS (*Liquid Chromatography High Resolution Mass Spectrometry*). (PK.G) lebih dekat kekerabatannya dengan spesies *Gracilaria edulis* dengan nilai *bootstrap* 100 dan kemiripan 99%, namun PK. P berkerabat dekat dengan *Sarcodia ciliata* dengan nilai *bootstrap* 99 dan kemiripan 93%. PK. G dan PK. P juga memiliki aktivitas antibakteri namun masih tergolong respon yang lemah. Berdasarkan hasil analisis metabolomik, terdapat 4 senyawa yang berpotensi sebagai antibakteri. Keempat senyawa tersebut terutama dihasilkan oleh ekstrak PK.P pelarut n-heksana melalui metode maserasi bertingkat.

Kata kunci: Rhodophyta; Gracilaria sp.; Palmaria sp.; Identifikasi molekuler; Antibakteri.



ABSTRACT

The morphological identification of Rhodophyta species had some weakness and misidentifications that sometimes occur. The aim of this study was to identify *Gracilaria* sp. (PK. G) and *Palmaria* sp. (PK. P) by molecular analysis using specific markers for genetics, and to determine the antibacterial potential of secondary metabolites produced by *Gracilaria* sp. (PK. G) and *Palmaria* sp. (PK. P). Molecular identification was carried out in several steps, namely DNA isolation, DNA amplification with COX11549R primers (5'-AGG CAT TTC TTC AAA NGT ATG ATA -3') and COX143F (5'-TCA ACA AAT CAT AAA GAT ATT GGW ACT -3'), BLAST analysis and phylogenetic analysis. The extraction of secondary metabolites carried out by using stratified maceration method and MAE method with four solvents namely n-hexane, ethyl acetate, methanol and ethanol. Metabolomics analysis was held using LC HRMS (Liquid Chromatography High Resolution Mass Spectrometry). (PK.G) was more closely related to the species *Gracilaria edulis* with a bootstrap value of 100 and a similarity of 99%, but PK. P was closely related to *Sarcodia ciliates* with a bootstrap value of 99 and a similarity of 93%. It turned out that PK. G and PK. P also has antibacterial activity but is still classified as a weak response. Based on the metabolomics analysis, there were 4 compounds that have potential as antibacterials. These four compounds are mainly produced by n-hexane extract of PK.P via stratified maceration method.

Keywords: Rhodophyta; Gracilaria sp.; Palmaria sp.; Molecular identification; Antibacterial.

