

ANALISIS KOMPOSISI KIMIA EKSTRAK *SOFT CORAL* (KARANG LUNAK) *LEMNALIA* SP. DENGAN METODE *GAS CHROMATOGRAPHY-MASS SPECTROMETRY* (GC-MS) DAN KROMATOGRAFI LAPIS TIPIS (KLT)

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ABSTRAK

Penelitian ini bertujuan untuk mengidentifikasi jenis senyawa yang terkandung dalam karang lunak *Lemnalia* sp. dan menganalisis profil GC-MS dari ekstrak karang lunak *Lemnalia* sp. yang diperoleh dari Pantai Lovina, Buleleng-Bali. Adapun metode analisis yang digunakan dalam penelitian ini adalah kromatografi lapis tipis (KLT) dan *Gas Chromatography Mass Spectrometry* (GC-MS).

Sampel karang lunak *Lemnalia* sp. diekstraksi dengan metode maserasi yang menghasilkan ekstrak berwarna kuning dengan berat 256 mg. Analisis KLT menghasilkan 2 spot noda berwarna ungu dan 1 spot noda berwarna ungu kecoklatan dengan nilai R_f berturut-turut yaitu 0,27; 0,43; dan 0,68 yang menunjukkan adanya kemungkinan senyawa terpenoid. Sedangkan profil GC-MS menunjukkan adanya 5 puncak senyawa yang teridentifikasi, diantaranya: 6-(3-hydroxyprop-1-en-2-yl)-4,8a-dimethyl-1,3,5,6,7,8-hexahydro naphthalen-2-one; 2,4,5,5,8a-pentamethyl-4a,6,7,8-tetrahydro-2H-chromene; (3E)-4,4-dimethyl-3-(3-methylbut-3-enylidene)-2-methylidenebicyclo[4.1.0] heptanes; 1-(15-methoxy-5-methyl-16-oxapentacyclo[13.2.2.0.1,13.0.2,10.05,9] nonadec-2-en-6-yl)ethanone; dan (-)-Sinularene.

Data tambahan dari analisis NMR menegaskan kemungkinan jenis senyawa utama yg terdapat dalam ekstrak kasar. Profil NMR menunjukkan signal khas pada δ_H 1.98 ppm dan 3.30 ppm yang merupakan gugus metil keton dan metoksi dari senyawa 1-(15-methoxy-5-methyl-16-oxapentacyclo [13.2.2.0.1,13.0.2,10.05,9]nonadec-2-en-6-yl)ethanone atau senyawa 4 yang merupakan senyawa utama.

Kata Kunci : *Lemnalia* sp., KLT, GC-MS, dan NMR.

**CHEMICAL COMPOSITION ANALYSIS OF SOFT CORAL LEMNALIA SP.
EXTRACT WITH GAS CHROMATOGRAPHY-MASS SPECTROMETRY
(GC-MS) AND THIN LAYER CHROMATOGRAPHY (TLC) METHODS**

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ABSTRACT

This study aims to identify the types of compounds and GC-MS profile of an extract of soft corals Lemnalia sp. Obtained at Lovina Beach, Buleleng, Bali. The type of compounds was identified by using thin layer chromatography (TLC), while the GC-MS profile was analysed by Gas Chromatography Mass Spectrometry (GC-MS).

The soft coral specimen was extracted by maceration method which produces a yellow extract (256 mg). TLC analysis resulted in two purple spots and one brownish purple spot with successive R_f values of 0.27; 0.43; and 0.68, indicating the possibility of terpenoids compounds. Besides, the GC-MS chromatogram showed the presence of 5 peak compounds that were identified as: 6-(3-hydroxyprop-1-en-2-yl)-4,8a-dimethyl-1,3,5,6,7,8-hexahydronaphthalen-2-one; 2,4,5,5,8a-pentamethyl-4a,6,7,8-tetrahydro-2H-chromene; (3E)-4,4-dimethyl-3-(3-methylbut-3-enylidene)-2-methylidenebicyclo[4.1.0]heptanes; 1-(15-methoxy-5-methyl-16-oxapentacyclo[13.2.2.0¹,13.0²,10.0⁵,9]nonadec-2-en-6-yl)ethanone; and (-)-Sinularene.

Additional ¹H NMR spectrum indicated the presence of diagnostic signals associate to distinctive methyl protons of the major components in the extract. For example, a typical signal at δ_H1.98 ppm and 3.30 ppm which is associatet to methyl group of ketones and methoxy from compounds 1-(15-methoxy-5-methyl-16-oxapentacyclo [13.2.2.0¹,13.0²,10.0⁵,9]nonadec-2-en-6-yl)ethanone.

Keywords: Lemnalia sp., TLC, GC-MS, and NMR.