ISOLASI SENYAWA SITOTOKSIK DARI EKSTRAK ETIL ASETAT JAMUR SIMBION *Cladosporium bruhnei* (WR_{10}) ASAL SPON LAUT *Haliclona fascigera*

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ABSTRAK

Telah dilakukan penelitian mengenai isolasi senyawa sitotoksik dari ekstrak etil asetat jamur simbion (WR_{10}) asal spon laut *Haliclona fascigera*. Identifikasi jamur simbion WR_{10} dilakukan secara molekuler dengan metoda determinasi gen 18S rRNA menggunakan alat PCR (*Polymerase Chain Reaction*). Dari hasil identifikasi, dapat diketahui bahwa jamur simbion WR_{10} adalah *Cladosporium bruhnei* strain USN 11 18S ribosomal RNA gene. Untuk mendapatkan senyawa sitotoksik, *C. bruhnei* dikultivasi dalam media beras selama 60 hari. Kemudian diekstraksi menggunakan pelarut etil asetat dengan cara maserasi dan diuapkan secara *in vacuo*. Uji aktivitas sitotoksik ekstrak dan senyawa hasil isolasi dilakukan dengan metode *Brine Shrimp Lethality Test* (BSLT) menggunakan larva udang *Artemia salina* L. Berdasarkan hasil skrining sitotoksik, diketahui nilai LC_{50} ekstrak adalah 50,11 ppm. Ekstrak selanjutnya diisolasi menggunakan metoda kromatografi sehingga diperoleh 2 senyawa murni yaitu senyawa E.1 dan E.2.

Senyawa E.1 sebanyak 77,5 mg berupa gum, berwarna putih, tidak berbau dan mudah larut dalam pelarut metanol, etil asetat dan *n*-heksana dengan jarak leleh 49,9-51,1 ºC. Senyawa E.2 sebanyak 59,4 mg berupa kristal, berwarna putih, tidak berbau, dan mudah larut dalam pelarut metanol, etil asetat dan *n*-heksana dengan jarak leleh 186-189ºC. Karakterisasi kedua senyawa tersebut dilakukan dengan metoda spekstroskopi (UV-Vis dan IR) dan diidentifikasi kemurnian senyawanya dengan menggunakan HPLC dan GC-MS. Hasil uji aktivitas sitotoksik senyawa murni E.1 dam E.2 menunjukan kedua senyawa tersebut bersifat sitotoksik dengan nilai LC_{50} masing-masingnya 104,71 ppm dan 76,55 ppm.

ABSTRACT

A study about the isolation of cytotoxic compounds from the ethyl acetate extract of symbiotic fungus (WR_{10}) from marine sponge *Haliclona fascigera* had been done. Identification of symbiotic fungus WR10 had been done by the method of determination of molecular 18S rRNA gene using a PCR (Polymerase Chain Reaction). From the results of the identification, symbiotic fungi WR10 was identified as *Cladosporium bruhnei* strain USN 11 18S ribosomal RNA gene. To get the cytotoxic compound, *C. bruhnei* was cultivated in rice media for 60 days. Then it was extracted using ethyl acetate solvent by method of maceration, and evaporated *in vacuo*. Test cytotoxic activity of extracts and isolated compounds was conducted by method of *Brine Shrimp Lethality Test* (BSLT) using larval of shrimp *Artemia salina* L. Based on results cytotoxic screening, it can be known LC50 values of extract was 50.11 ppm. Further, etil asetat extract was isolated by using chromatographic methods and was obtained two pure compounds i.e. E.1 and E.2 compounds.

E.1 compound was obtained as much as 77.5 mg in the form of gum, white, odorless and easily soluble in methanol, ethyl acetate and n-hexane with a melting point range of 49.9 - 51.1 °C. E.2 compound was obtained as much as 59.4 mg with a characteristic as crystalline, white, odorless, and easily soluble in methanol, ethyl acetate and n-hexane with a melting range 186-189^{o}C. Characteristic of these compounds had been done by spectroscopy methode (UV-Vis, IR) and identified the purity of these compound by using HPLC and GC-MS. The test results cytotoxic activity of pure compounds E.1 and E.2 showed that the two compounds were cytotoxic with LC50 value of 104.71 ppm and 76.55 ppm respectively.