UJI EFEKTIFITAS MINYAK ATSIRI DAUN SEREH WANGI LENABATU *(Cymbopogon nardus L.)* SEBAGAI PENGHAMBAT PERTUMBUHAN JAMUR KERAK (*Lichenes*) PADA CAGAR BUDAYA BATU

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INTISARI

Penelitian ini dilakukan untuk menguji efektivitas minyak atsiri sereh wangi lena batu dalam membasmi *lichenes* pada batu. Minyak nilam tersebut diperoleh dari proses destilasi uap dan air. Metode yang dilakukan adalah dengan menganalisis sifat fisika sampel yaitu berat jenis, indeks bias, kandungan logam berat Pb, Cd, Cr (menggunakan Spektrofotometri Serapan Atom), dan komponen kimianya (menggunakan Kromatografi Gas-Spektroskopi Massa). Hasil penelitian menunjukkan bahwa sifat fisika minyak atsiri sereh wangi lenabatu mempunyai indeks bias 1,469 dan berat jenisnya 0,8830 g/mL. Hasil analisis logam berat Pb, Vd, dan Cr menunjukkan tidak terdeteksinya logam berat Pb dan Cd, meskipun terdapat kandungan Cr 6,093 mg/kg. Analisis komposisi kimia menunjukkan adanya 20 komponen senyawa minyak atsiri sereh wangi lenabatu yang memiliki komponen utama minyak atsiri sereh wangi lenabatu yaitu sitronela 47,30%, β-sitronelol 16,05%, trans-geraniol 12,98%, linalil asetat 4,91% dan *trans-caryophyllene* 4,70%.

Minyak atsiri sereh wangi lenabatu diaplikasikan ke cagar budaya batu dengan variasi konsentrasi, yaitu : 1%, 5%, 10%, 15%, 20% dan 25%. Hasil uji aktivitas antijamur hasil isolasi *lichenes* menunjukkan adanya penghambatan terhadap pertumbuhan jamur yang dapat dilihat dari diameter zona penghambatan minyak atsiri sereh wangi lenabatu konsentrasi 1%, 5%, 10%, 15%, 20%, 25%. Jumlah tersebut berturut-turut sebesar 0 mm, 6 mm, 12 mm, 18 mm, 29 mm, dan 33 mm. Pengamatan dilanjutkan terhadap pertumbuhan *lichenes* pada permukaan batu dengan menggunakan *Scanning Electron Massa*. Data analisis menunjukkan semakin tinggi konsentrasi minyak atsiri sereh wangi lenabatu semakin efektif dalam menghambat pertumbuhan jamur pada *lichenes.*

Kata kunci: sereh wangi lenabatu, Kromatografi Gas-Spektroskopi Massa , Spektrofotometri Serapan Atom, *Scanning Electron Massa*, *lichenes*, jamur

THE EFFECTIVITY OF *Cymbopogon nardus L.* AS A GROWTH INHIBITOR OF *LICHENES* ON STONE CULTURAL HERITAGE

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ABSTRACT

This research has been conducted to examine the effectivity of *Cymbopogon nardus L* to eradicate lichenes on stone cultural heritages. The oil was resulted from steam and water distillations. The method used in this research was analyzing the physic samples, i.e. density, refractive index, and heavy metal content of Pb, Cd, and Cr (using the atomic absorption spectrophotometry) and the chemical component (using Gass Chromatography—Mass Spectroscopy). The result indicated that physical characteristic of essential oil had refractive index of 1,469 and density of 0,8846 gr/mL. The analysis on Pb, Cd, and Cr heavy metals indicated that those metal were not detected, eventhough there existed 6,093 mg/kg of Cr. The chemical component analysis indicated the existence of 20 compound components which had five main components, i.e. Citronella 47,30%, β-citronellol 16,05%, Trans-Geraniol 12,98%, Lynalil Acetate 4,91%, and Trans-Caryophyllene 4,70%.

The *Cymbopogon nardus L* was applied into some stone cultural heritages which had concentration variations as follows: 1%, 5%, 10%, 15%, 20% and 25%. The antifungi activities which were resulted from lichens isolation process indicated a prevention of fungi growth. Those results could be found in diametrical zone of oil concentrations of 1%; 5%; 10%; 15% ; 20%; 25% respectively, which were as much as 0 mm; 6 mm; 12 mm; 18 mm; 29 mm and 33 mm. The observations were then continued to lichens growth on he stone surface using the Mass Electron Scanning. The analysis showed that higher concentration of *Cymbopogon nardus L* were more effective to inhibit the growth of fungi on Lichenes.

Keywords: *Cymbopogon nardus L*, GC-MS, Atomic Absorption Spectroscopy, Scanning Electron Microscopy, *lichenes*, fungus.