INTISARI

C-10 *masoaialactone* merupakan komponen utama dari minyak atsiri kulit batang *Massoia aromatica* Becc. yang berpotensi sebagai antibakteri dan antifungi. Penelitian ini bertujuan untuk mengetahui efek pemberian C-10 *Massoialactone* terhadap kultur multispesies biofilm. *C. albicans, P. aeruginosa, E. coli*.

Minyak masoyi diperoleh dari hasil destilasi uap dan air. Isolasi C-10 *Massoialactone* dilakukan dengan metode KLT. Analisis fitokimia berupa kromatografi lapis tipis (KLT) dan *gas chromatography – mass spectrometry* (GC-MS), penghambatan pembentukan fase pertengahan, pematangan dan degradasi multispesies biofilm melalui metode *broth microdillution*. diamati pembacaan *optical density* menggunakan *microplate reader* pada panjang gelombang 595 nm, *transmission electron microscope* (TEM) dan Scanning *electron microscope* (SEM) dilakukan untuk melihat perubahan ultrastructural multispesies biofilm .

Hasil GC-MS mengandung senyawa C-10 *Massoialactone* sebesar 96.59%. C-10 *Massoialactone* memiliki aktivitas penghambatan pada fase pertengahan maupun pematangan dan degradasi biofilm, baik mono, dual maupun multispesies, dibuktikan dengan penurunan pertumbuhan biofilm seiring dengan kenaikan konsentrasi isolat. Nilai ($MBIC_{50}$) C-10 *Massoialactone* dalam menghambat pembentukan fase pertengahan biofilm mono - spesies *E. coli*, *P. aeruginosa* dan *C. albicans* sebesar 0,231 % v/v; 0,225 % v/v dan 0,224 % v/v, fase pematangan sebesar 0,264 % v/v; 0,357 % v/v; 0,406 %, dual – spesies biofilm *C. albicans – E. coli* (0,402 % v/v; 0,290 % v/v), dan dual - spesies *P. aeruginosa – C. albicans* (0,446 % v/v; 0,167 % v/v) serta multispesies biofilm *P. aeruginosa – C. albicans – E. coli* (0,532 % v/v; 0,818 % v/v). Hasil analisa TEM pada biofilm mono-spesies *C. albicans, P. aeruginosa, E. coli* menunjukkan adanya lisis dan pemecahan sel. Hasil analisa SEM menujukkan terjadinya kerusakan sel dan kebocoran sel disebabkan sebagai penghambatan C-10 *Massoialactone*.

Kata kunci: *C-10 Massoialactone, multispesies biofilm, C. albicans, P. aeruginosa, E. coli*.

ABSTRACT

C-10 *masoaialactone* is a major component of the essential oil of *Massoia Aromatica Becc* bark which has a potential as an antibacterial and antifungal. This study aims to determine the effect of C-10 *Massoialactone*to the culture of multispecies biofilm of *C.albicans, P. aeruginosa, E. coli.*

Essential oil (*Massoyi* oil) obtained from the distillated of steam and water. The isolation of C-10 *Massoialactone* was done by TLC method. Phytochemical analysis was performed using a Thin Layer of Chromatography (TLC) and gas chromatography - mass spectrometry (GC-MS). Microtiter brote dilution method was employed to asses antibiofilm formation and biofilm degradation of C-10 *Massoialactone* against dual and multispesies biofilm. Transmission electron microscope (TEM) and Scanning electron microscope (SEM) were used for visualization in analysis of biofilm structure.

The GCMS result revealed the presence of C-10 *Massoialactone* (96.59 %). C-10 *Massoialactone* a dose defendant activity to inhibit intermediate & mature phase of as well as to degrade ferformed biofilms. The concentration of C-10 *Massoialactone* required to inhibit 50 % mono-spesies, intermediate phase of *E. coli*, *P. aeruginosa*, *C. albicans* biofilms. Was 0,231 % v/v, 0,225 % v/v, & 0,224 % v/v respectively, where as higher concentration of C-10 *Massoialactone* required to inhibit was mature phase of mono, dual & multispesies biofilm of the test organism. The result of TEM analysis in a mono-species biofilms of *C. albicans*, *P. aeruginosa*, *E.coli* showed that there were lysis and cell division. Whereas SEM analysis showed that there were cells damage and cells leakage caused by C-10 *Massoialactone*.

Keywords*: C-10 Massoialactone, multispecies biofilm, C. albicans, P. aeruginosa, E. coli.*