

ABSTRAK

Sonia Fitriani, NIM 4182220006 (2018), Aktivitas Biologis Minyak Esensial Daun dan Biji Jamblang (*Syzygium cumini*) dan Potensinya Sebagai Antivirus SARS-CoV-2 Secara *In Silico*

Penelitian ini bertujuan untuk mengetahui potensi senyawa antivirus SARS-CoV-2 dari minyak esensial daun dan biji Jamblang (*Syzygium cumini*) beserta mekanisme antivirusnya terhadap SARS-CoV-2 dengan pendekatan *in silico*. Minyak daun dan biji jamblang diperoleh melalui proses destilasi. Minyak hasil destilasi kemudian di analisis menggunakan *Gas Chromatography Mass Spectrophotometer* (GC-MS). Hasil analisis GCMS dievaluasi menggunakan program MASSLAB. Data yang diperoleh dari alat GCMS kemudian dianalisis lanjut menggunakan software *PubChem NCBI database* (<https://pubchem.ncbi.nlm.nih.gov/>) dan *PASS online*. Hasil analisis *GC-MS* menunjukkan terdapat 45 senyawa bioaktif pada daun jamblang dan 69 senyawa bioaktif pada biji jamblang. Hasil analisis *PubChem* menunjukkan bahwa diperoleh sebanyak 10 senyawa yang memiliki aktivitas sebagai antiviral. Hasil analisis *PASS online* menunjukkan mekanisme antivirus sebagai *3Clpro inhibitor* (*3 C-like protease (Human coronavirus) inhibitor*) dengan nilai P_a tertinggi sebesar 0,315 pada senyawa 1-Nitro-2-acetamido-1,2-dideoxy-d-mannitol dan nilai P_a terendah sebesar 0,198 pada senyawa Guaiol. Hasil penelitian ini dapat dijadikan landasan dalam program pengembangan pemanfaatan potensi senyawa bioaktif pada minyak esensial daun dan biji jamblang sebagai antivirus. Pada penelitian selanjutnya perlu dilakukan analisis pada bagian tanaman yang lain dan melakukan perbandingan untuk melengkapi database yang sudah tersedia.

Kata Kunci: *Jamblang (Syzygium cumini), In silico, Antivirus, SARS-CoV-2.*



ABSTRACT

Sonia Fitriani, NIM 4182220006 (2018). Biological Activity of Essential Oil of Jamblang Leaves and Seeds (*Syzygium cumini*) and its Potential as an Antiviral for SARS-CoV-2 *In Silico*

This study aims to determine the potential of SARS-CoV-2 antiviral compounds from the essential oil of Jamblang leaves and seeds (*Syzygium cumini*) and its antiviral mechanism against SARS-CoV-2 with an *in silico* approach. Jamblang leaf and seed oil is obtained through a distillation process. The distilled oil was then analyzed using a *Gas Chromatography Mass Spectrophotometer* (GC-MS). The results of the GCMS analysis were evaluated using the MASSLAB program. The data obtained from the GCMS tool was then further analyzed using the *PubChem NCBI database* (<https://pubchem.ncbi.nlm.nih.gov/>) software and *online PASS*. The results of the GC-MS analysis showed that there were 45 bioactive compounds in jamblang leaves and 69 bioactive compounds in jamblang seeds. The results of PubChem analysis showed that as many as 10 compounds were obtained that have antiviral activity. The results of the online PASS analysis showed antiviralecanism as a *3Clpro inhibitor* (*3 C-like protease (Human coronavirus) inhibitor*) with the highest Pa value of 0.315 in the compound 1-Nitro-2-acetamido-1,2-dideoxy-d-mannitol and the lowest Pa value of 0.198 in the compound Guaiol. The results of this study can be used as a basis in the development program for the utilization of potential bioactive compounds in essential oils of jamblang leaves and seeds as antivirals. In the next study, it is necessary to analyze other parts of the plant and make comparisons to complete the database that is already available.

Kata Kunci: *Jamblang (Syzygium cumini), In silico, Antiviral, SARS-CoV-2.*

