ABSTRAK

Fitri Amorita Agritina Purba, NIM 4223510018 (2026). Uji Aktivitas Antiinflamasi Isolat Alkaloid Getah Kemenyan *(Styrax benzoin)* pada Tikus Galur Wistar secara *In Vivo.*

Getah kemenyan *(Styrax benzoin)* merupakan salah satu bahan alam yang mengandung berbagai metabolit sekunder, termasuk senyawa golongan alkaloid yang berpotensi sebagai antiinflamasi. Penelitian ini bertujuan untuk mengkarakterisasi isolat alkaloid getah kemenyan menggunakan Liquid Chromatography Tandem Mass Spectrometry (LC-MS/MS) serta mengevaluasi aktivitas antiinflamasinya secara in vivo pada tikus putih jantan galur Wistar dengan metode carrageenan induced paw edema. Isolasi alkaloid dilakukan menggunakan metode ekstraksi asam-basa, kemudian isolat dikarakterisasi menggunakan LC-MS/MS dan diuji aktivitas antiinflamasinya pada lima kelompok perlakuan, yaitu kontrol negatif (Na-CMC 0,5%), kontrol positif (natrium diklofenak), serta isolat alkaloid getah kemenyan konsentrasi 5%, 10%, dan 15%. Hasil karakterisasi LC-MS/MS menunjukkan bahwa isolat masih mengandung berbagai metabolit sekunder, termasuk beberapa senyawa yang memiliki atom nitrogen sebagai karakteristik utama golongan alkaloid. Berdasarkan hasil identifikasi, diperoleh tiga kandidat senyawa yang diduga termasuk golongan alkaloid, yaitu senyawa dengan rumus molekul $C_{33}H_{32}N_6O_6$, $C_{41}H_{34}N_8O$, dan $C_{30}H_{26}N_4O_3$. Hasil uji in vivo menunjukkan bahwa isolat alkaloid getah kemenyan memiliki aktivitas antiinflamasi yang ditunjukkan oleh kemampuan menghambat pembentukan edema, dengan konsentrasi 15% memberikan aktivitas terbaik. Berdasarkan hasil penelitian dapat disimpulkan bahwa isolat alkaloid getah kemenyan *(Styrax benzoin)* diduga mengandung senyawa golongan alkaloid dan memiliki aktivitas antiinflamasi pada tikus putih jantan galur Wistar.

Kata kunci: *Styrax benzoin*, alkaloid, LC-MS/MS, antiinflamasi, carrageenan-induced paw edema.

ABSTRACT

Fitri Amorita Agritina Purba, NIM 4223510018 (2026). Anti-inflammatory Activity of Alkaloid Isolate from *Styrax benzoin* Resin in Wistar Rats In Vivo.

Styrax benzoin resin is a natural product containing various secondary metabolites, including alkaloid compounds with potential anti-inflammatory activity. This study aimed to characterize the alkaloid isolate of Styrax benzoin resin using Liquid Chromatography Tandem Mass Spectrometry (LC-MS/MS) and to evaluate its anti-inflammatory activity in vivo in male Wistar rats using the carrageenan-induced paw edema method. The alkaloid isolate was obtained through an acid-base extraction method, followed by characterization using LC-MS/MS and evaluation of its anti-inflammatory activity in five treatment groups: a negative control (0.5% Na-CMC), a positive control (diclofenac sodium), and alkaloid isolate concentrations of 5%, 10%, and 15%. The LC-MS/MS analysis revealed that the isolate contained various secondary metabolites, including several nitrogen-containing compounds, which are characteristic of the alkaloid class. Based on the identification results, three candidate compounds were suspected to belong to the alkaloid group, with the molecular formulas $C_{33}H_{32}N_6O_6$, $C_{41}H_{34}N_8O$, and $C_{30}H_{26}N_4O_3$. The in vivo study demonstrated that the alkaloid isolate of Styrax benzoin resin exhibited anti-inflammatory activity by inhibiting edema formation, with the 15% concentration showing the greatest activity. It can be concluded that the alkaloid isolate of Styrax benzoin resin is presumed to contain alkaloid compounds and exhibits anti-inflammatory activity in male Wistar rats.

Keywords: *Styrax benzoin,* alkaloid, LC-MS/MS, anti-inflammatory, carrageenan-induced paw edema.

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