

ABSTRAK

Sintesis Senyawa Analog Kurkumin A-135 (2,5-bis (3-bromobenzylidene)-cyclohexanone) sebagai Senyawa Anti-TB menggunakan Metode Irradiasi Microwave dengan Variasi Katalis (HCl, H₂SO₄, H₃PO₄).

Analog kurkumin A-135 (2,5-bis (3-bromobenzylidene)-cyclohexanone) merupakan salah satu senyawa turunan kurkumin yang memiliki potensi terapi dalam pengobatan anti tuberculosis. Pada penelitian ini dilakukan sintesis senyawa A-135 menggunakan metode irradiasi mikrowave dan katalis HCl, H₂SO₄, dan H₃PO₄, serta karakterisasi dan elusidasi senyawa tersebut dengan berbagai jenis instrumen. Hasil penelitian menunjukkan bahwa sintesis menggunakan katalis H₂SO₄ tanpa pelarut menghasilkan rendemen paling tinggi mencapai 158,3% (1,848g) dari massa teoritis pada kondisi basah dan 51,4% (0,600g) dari massa teoritis setelah pengeringan. Hasil uji titik lebur didapatkan penggunaan katalis H₂SO₄ + THF menghasilkan titik lebur 113,3°C – 113,9°C dengan jarak lebur relatif sempit, yaitu $\Delta 0,6^{\circ}\text{C}$, menunjukkan senyawa yang relatif paling murni dari pemilihan katalis lainnya.

Kata Kunci : Kurkumin, A-135, Anti-Tuberculosis (Anti-TB), Irradiasi Mikrowave, Katalis, Rendemen

ABSTRACT

Synthesis of Curcumin Analog A-135 (2,5-bis (3-bromobenzylidene)-cyclohexanone) as Anti-Tuberculosis Agent using MAOS (Microwave-Assisted Organic Synthesis) and Catalyst Optimization Approach (HCl, H₂SO₄, H₃PO₄).

Analog curcumin A-135 (2,5-bis(3-bromobenzylidene)-cyclohexanone) is one of the curcumin derivative compounds that has therapeutic potential in anti-tuberculosis treatment. In this study, the synthesis of compound A-135 was carried out using microwave irradiation and catalysts HCl, H₂SO₄, and H₃PO₄, as well as characterization and elucidation of the compound using various types of instruments. The research results showed that synthesis using H₂SO₄ catalyst without solvent produced the highest yield, reaching 158.3% (1.848 g) of the theoretical mass in wet conditions and 51.4% (0.600 g) of the theoretical mass after drying. The melting point test results showed that using H₂SO₄ + THF catalyst resulted in a melting point of 113.3°C – 113.9°C with a relatively narrow melting range, Δ0.6°C, indicating the compound was relatively the purest compared to other catalyst selections.

Keywords : Curcumin, A-135, Anti-Tuberculosis (Anti-TB), Microwave Irradiation, Catalyst, Yield.