SINTESIS SENYAWA ANALOG KURKUMIN DARI VANILIN TERBROMINASI DAN UJI AKTIVITASNYA SEBAGAI ANTIMALARIA

Rafian Azhar Abdul Rozak

13/352459/PA/15663

INTISARI

Sintesis senyawa analog kurkumin (2,6-bis(5-bromo-4-hidroksi-3-metoksi benzilidin)sikloheksa-1-on) dari vanillin dan telah dilakukan uji aktivitasnya sebagai antimalaria. Senyawa 2,6-bis(5-bromo-4-hidroksi-3-metoksibenzilidin)sikloheksa-1-on disintesis melalui vanillin yang dibrominasi kemudian direaksikan dengan sikloheksanon. Senyawa 2,6-bis(4-hidroksi-3-metoksibenzilidin)sikloheksa-1-on disintesis dengan mereaksikan langsung antara vanillin dengan sikloheksanon. Senyawa hasil sintesis kemudian dianalisis dengan spektrofotometer FTIR, spektrometer MS, dan ^{1}H-NMR. Analog kurkumin hasil sintesis kemudian diuji aktivitasnya sebagai antimalaria dengan metode penghambatan polimerisasi hem.

Hasil sintesis senyawa 2,6-bis(4-hidroksi-3-metoksibenzilidin)sikloheksa-1-on menghasilkan rendemen sebanyak 83,79% dan hasil sintesis senyawa 2,6-bis(5-bromo-4-hidroksi-3-metoksibenzilidin)sikloheksa-1-on menghasilkan rendemen sebanyak 42,54%. Kedua senyawa analog kurkumin memiliki aktivitas antimalaria dengan IC_{50} 19,95 mM dan 20,88 mM, sedangkan IC_{50} klorokuin sebagai kontrol positif 6,03 mM.

Kata kunci: antimalaria, vanillin, bromovanilin, analog kurkumin.

SYNTHESIS OF CURCUMIN ANALOGUES FROM BROMINATED VANILIN AND ASSAYS ACTIVITIES AS ANTIMALARIAL

Rafian Azhar Abdul Rozak

13/352459/PA/15663

ABSTRACT

Synthesis of curcumin analogue (2,6-bis(5-bromo-4-hydroxy-3-methoxybenzylidene) cyclohexanone) from brominated vanillin and assays activities as antimalarial have been conducted. The compound of 2,6-bis(5-bromo-4-hydroxy-3-methoxy benzylidene)cyclohexanone synthesized through vanillin brominated was then reacted with cyclohexanone. The 2,6-bis(4-hydroxy-3-methoxybenzylidene) cyclohexanone was synthesized through reacting directly between vanillin with cyclohexanone. The synthesized compounds were then analyzed by FTIR spectrophotometer, MS spectrometer and ^{1}H-NMR. The analogue curcumin were then tested the activities as antimalarial by hem polymerization inhibition method.

The synthesis compound of 2,6-bis(4-hydroxy-3-methoxybenzylidene) cyclohexanone was produced 83.79% yield and the compound of 2,6-bis(5-bromo-4-hydroxy-3-methoxybenzylidene) cyclohexanone was produced 42.54% yield. Both compounds of curcumin analogue have antimalarial ativity with IC_{50} 19.95 mM and 20.88 mM, meanwhile IC_{50} chloroquine as a positive control was 6.03 mM.

Keywords: antimalarial, vanillin, bromovanilin, curcumin analogue.