SINTESIS HIBRIDA 4-AMINOKUINOLIN-ISOINDOLINON (3-BENZIL-2-(3-((7-KLOROKUINOLIN-4-IL)AMINO)PROPIL)-3-HIDROKSIISOINDOLIN-1-ON) SEBAGAI ANTIPLASMODIUM

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INTISARI

Telah dilakukan penelitian sintesis senyawa hibrida 4-aminokuinolin-isoindolinon yaitu 3-benzil-2-(3-((7-klorokuinolin-4-il)amino)propil)-3-hidroksiisoindolin-1-on dan melakukan uji aktivitas antiplasmodium senyawa hibrida secara *in vitro* terhadap *Plasmodium falciparum* 3D7. Sintesis senyawa hibrida dilakukan melalui tiga tahap. Tahap pertama yaitu reaksi Sonoghasira terkatalisis Cu(I) antara asam 2-iodobenzoat dan fenilasetilena pada suhu ruang selama 24 jam yang menghasilkan senyawa 3-benzilidenftalid. Tahap kedua yaitu reaksi substitusi nukleofilik aromatik antara 4,7-diklorokuinolin dan 1,3-diaminopropana pada suhu 80 ℃ selama 1 jam kemudian pada suhu 135 ℃ selama 14 jam yang menghasilkan senyawa *N*-(7-kloro-4-kuinolinil)-1,3-diaminopropana. Tahap ketiga yaitu reaksi adisi nukleofilik antara senyawa 3-benzilidenftalid dan *N*-(7-kloro-4-kuinolinil)-1,3-diaminopropana pada suhu 50℃ selama 14 jam menghasilkan senyawa hibrida 3-benzil-2-(3-((7-klorokuinolin-4-il)amino)propil)-3-hidroksiisoindolin-1-on. Senyawa hasil sintesis dianalisis dengan spektrometer FTIR, ^{1}H-NMR dan ^{13}C-NMR serta aktivitas antiplasmodium senyawa hibrida diuji secara *in vitro* terhadap *Plasmodium falciparum* 3D7.

Senyawa hibrida 3-benzil-2-(3-((7-klorokuinolin-4-il)amino)propil)-3-hidroksiisoindolin-1-on diperoleh sebagai padatan putih dan persen hasil sebesar 53%. Senyawa hibrida memiliki aktivitas antiplasmodium dengan nilai IC_{50} 1,902 µM dan tergolong senyawa yang sangat aktif sehingga berpotensi untuk dikembangkan sebagai antimalaria

Kata Kunci: senyawa hibrida, isoindolinon, 4-aminokuinolin, antiplasmodium, ftalid

SYNTHESIS OF 4-AMINOQUINOLINE ISOINDOLINONE HYBRID OF (3-BENZYL-2-(3-((7-CHLOROQUINOLIN-4-YL)AMINO)PROPYL)-3-HYDROXYISOINDOLIN-1-ONE) AS AN ANTIPLASMODIUM AGENT

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ABSTRACT

Synthesis of 4-aminoqinolin-isoindolinone hybrid of 3- benzyl-2-(3-((7-chloroquinolin-4-yl)amino)propyl)-3-hydroxyisoindolin-1-one and the *in vitro* antiplasmodium activity of the hybrid compound against *Plasmodium falciparum* 3D7 have been conducted. Synthesis of hybrid compound was carried out in three steps. The first step was the Cu(I) catalyzed Sonoghasira coupling between 2-iodobenzoic acid and phenylacetylene at room temperature for 24 h to form 3-benzylidenephthalide. The second stage was the aromatic nucleophilic substitution reaction between 4,7-dichloroquinoline and 1,3-diaminopropane at 80℃ for 1 h followed by heating at 135℃ for 14 h to produce *N*-(7-chloro-4-quinolinil)-1,3-diaminopropane . The third stage was the reaction of nucleophilic addition between *N*-(7-chloro-4-quinolinil)-1,3-diaminopropane and 3-benzylidenephtalide at 50℃ for 14 h to generate the hybrid compound 3-benzyl-2-(3-((7-chloroquine-4-il)amino)propyl-3-hydroxyisoindolin-1-on. The synthesized compound was then analyzed by FTIR, ^{1}H-NMR and ^{13}C-NMR spectrometers, and the hybrid compound was subjected to the in vitro antiplasmodium assay to *Plasmodium falciparum* 3D7.

The hybrid of 3-benzyl-2-(3-((7-chloroquine-4-il)amino)propyl-3-hydroxyisoindolin-1-on was obtained as white solids in 53% yield. The hybrid displayed antiplasmodium activity with an IC_{50} value of 1.902 µM and can be classified as a very active compound which has the potential to be developed as an antimalarial.

Keywords: hybrid compound, isoindolinone, 4-aminoquinoline, antiplasmodium, phtalide