SINTESIS DAN UJI ANTIPLASMODIUM *IN VITRO* HIBRID 4-AMINOKUINOLIN-ISOINDOLINON (3-BENZIL-2-(4-((7-KLOROKUINOLIN-4-IL)AMINO)BUTIL)-3-HIDROKSIISOINDOLIN-1-ON)

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INTISARI

Sintesis hibrid 4-aminokuinolin-isoindolinon berupa 3-benzil-2-(4-((7-klorokuinolin-4-il)amino)butil)-3-hidroksiisoindolin-1-on serta uji antiplasmodium secara *in vitro* terhadap *Plasmodium falciparum* 3D7 telah dilakukan. Sintesis hibrid tersebut dilakukan melalui tiga tahapan reaksi. Tahap pertama yaitu reaksi substitusi nukleofilik aromatik antara 4,7-diklorokuinolin dengan 1,4-diaminobutana pada 80 ℃ selama 1 jam dan dilanjutkan 135 ℃ selama 14 jam untuk menghasilkan *N*-(7-klorokuinolin-4-il)butana-1,4-diamin. Tahap kedua merupakan reaksi Sonogashira antara asam 2-iodobenzoat dengan fenilasetilen terkatalisis CuI pada 30 ℃ selama 24 jam untuk membentuk senyawa 3-benziliden-1-ftalid. Tahap terakhir adalah reaksi adisi nukleofilik antara produk tahap pertama dan kedua pada 50 ℃ selama 14 jam untuk menghasilkan hibrid 4-aminokuoinolin-isoindlinon. Setiap produk reaksi dikarakterisasi menggunakan spektrometer FTIR, ^{1}H-NMR dan ^{13}C-NMR.

Senyawa hibrid 3-benzil-2-(4-((7-klorokuinolin-4-il)amino)butil)-3-hidroksiisoindolin-1-on dihasilkan sebagai padatan putih kekuningan dengan persen hasil 68%. Hasil uji aktivitas antiplasmodium secara *in vitro* terhadap parasit *Plasmodium falciparum* 3D7 menunjukkan bahwa senyawa hibrid 3-benzil-2-(4-((7-klorokuinolin-4-il)amino)butil)-3-hidroksiisoindolin-1-on tidak memiliki aktivitas antiplasmodium, yaitu dengan IC_{50} sebesar 839 μM.

Kata kunci: senyawa hibrid, isoindolinon, 4-aminokuinolin, antiplasmodium, ftalid

SYNTHESIS AND *IN VITRO* ANTIPLASMODIAL ASSAY OF 4-AMINOQUINOLINE-ISOINDOLINONE HYBRID OF (3-BENZYL-2-(4-((7-CHLOROQUINOLINE-4-YL)AMINO)BUTYL)-3-HYDROXYISOINDOLIN-1-ONE)

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ABSTRACT

Synthesis of 4-aminoquinoline-isoindolinone hybrid of (3-benzyl-2-(4-((7-chloroquinoline-4-yl)amino)butyl)-3-hydroxyisoindolin-1-one) and its *in vitro* antiplasmodial assay against *Plasmodium falciparum* 3D7 have been conducted. The synthesis of 4-aminoquinoline-isoindolinone hybrid was carried out in three steps. The first step was the nucleophilic aromantic substitution reaction between 4,7-dichloroquinoline and 1,4-diaminobutane at 80 ℃ for 1 h, then at 135 ℃ for 14 h to produce *N*-(7-choroquinoline-4-yl)butane-1,4-diamine. The second step was the Sonogashira coupling between 2-iodobenzoic acid and phenylacetylene in the presence of CuI as catalyst at 30 ℃ for 24 h to form 3-benzyliden-1-phthalide. The last step was nucleophilic addition reaction between product of the first step and the second step at 50 ℃ for 14 h to generate the 4-aminoquoinoline-isoindolinone hybrid. The products were characterized by FTIR, ^{1}H-NMR and ^{13}C-NMR spectrometers.

The hybrid compound of 3-benzyl-2-(4-((7-chloroquinoline-4-yl)amino)butyl)-3-hydroxyisoindolin-1-one was produced as yellowish white solid in 68% yield. The *in vitro* antiplasmodial assay against *Plasmodium falciparum* 3D7 showed that the hybrid compound did not display activity as antiplasmodial (IC_{50} 839 μM).

Keywords: hybrid compound, isoindolinone, 4-aminoquinoline, antiplasmodial, phthalide