

Sintesis dan uji aktivitas antibakteri senyawa 6-amino-2-[(E) - (4-hidroksi-3- metoksifenil) etenil] 3,4 dihidrokuinazolin-4-on dan senyawa antaranya = Synthesis and antibacterial activity of compound 2-[(E)-(-4-hydroxy-3- methoxyphenyl) ethenyl]-6- nitro 3,4-dihydroquinazolin-4-one and its intermediate / Arif Arrahman

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Abstrak

**ABSTRAK**  
Resistensi yang terjadi pada trimetoprim dan beberapa antibiotika konvensional lainnya menyebabkan pencarian akan molekul antibakteri baru dari golongan senyawa yang berbeda sangat dibutuhkan. Senyawa turunan kuinazolinon diketahui memiliki aktivitas antibakteri, oleh karena itu sintesis senyawa 6-amino-2-[(E)-(4-hidroksi-3-metoksifenil)etenil]-3,4-dihidrokuinazolin-4-on dan senyawa antaranya yang diujikan sebagai antibakteri perlu dilakukan. Senyawa 6-amino-2-[(E)-(4-hidroksi-3-metoksifenil)etenil]-3,4-dihidrokuinazolin-4-on disintesis dengan empat tahap reaksi. Tahap pertama adalah sintesis 2-metil-3,4-dihidrokuinazolin-4-on, tahap kedua adalah sintesis 2-metil-6-nitro-3,4-dihidrokuinazolin-4-on, tahap ketiga adalah sintesis 2-[(E)-(4-hidroksi-3-metoksifenil)etenil]-6-nitro-3,4-dihidrokuinazolin-4-on dan tahap keempat adalah sintesis 6-amino-2-[(E)-(4-hidroksi-3-metoksifenil)etenil]-3,4-dihidrokuinazolin-4-on. produk yang dihasilkan dari setiap tahapan dimurnikan dengan cara pencucian dan rekristalisasi, kemudian diuji kemurniannya dengan jarak lebur dan kromatografi lapis tipis. Bobot molekul senyawa dianalisis dengan LC-MS, Struktur senyawa dielusidasi menggunakan spektrofotometri UV-Vis, FT-IR, <sup>1</sup>H-NMR dan <sup>13</sup>C-NMR, COSY, HMQC dan HMBC. Uji aktivitas antibakteri dilakukan pada bakteri Staphylococcus aureus ATCC 25923, Salmonella typhimurium ATCC 14028 dan Escherichia coli ATCC 25922. Hasil penelitian menunjukkan bahwa senyawa target telah berhasil disintesis dan dimurnikan berdasarkan metode kimia organik. Struktur senyawa telah dibuktikan kebenarannya melalui elusidasi struktur. Hasil uji aktivitas antibakteri senyawa 6-amino-2-[(E)-(4-hidroksi-3-metoksifenil)etenil]-3,4-dihidrokuinazolin-4-on tidak menunjukkan aktivitas antibakteri.

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**ABSTRACT**

Resistance in trimethoprim and several conventional antibacterials, made the searching for new antibacterial agent from different groups of compound became necessary. Quinazolinone derivative was known having antibacterial activity, for those reasons, synthesis of compound 6-Amino-2-[(E)-(4-hydroxy-3-methoxyphenyl)ethenyl]-6-nitro-3,4-dihydroquinazolin-4-one and its intermediate as antibacterials was necessary to be conducted. The titled compound was synthesized via four steps. First step was synthesis of 2-methyl-3,4-

dihydroquinazolin-4-one. Second step was synthesis of 2-methyl-6-nitro-3,4-dihydroquinazolin-4-one. Third step was synthesis of 2-[(E)-(4-hydroxy-3-methoxyphenyl)ethenyl]-6-nitro-3,4-dihydroquinazolin-4-one. Fourth step was synthesis of 6-Amino-2-[(E)-(4-hydroxy-3-methoxyphenyl)ethenyl]-6-nitro-3,4-dihydroquinazolin-4-one. The synthesized product from each step was purified by washing and recrystallization. The purity testing was performed by examining melting range and thin layer chromatography. Molecular mass of synthesized compound was determined using LC-MS. Structure of synthesized compound was elucidated using UV-Vis, FT-IR, <sup>1</sup>H-NMR and <sup>13</sup>C-NMR, COSY, HMQC and HMBC. Screening for antibacterial activity was performed against *Staphylococcus aureus* ATCC 25923, *Salmonella typhimurium* ATCC 14028 and *Escherichia coli* ATCC 25922. The result indicated that titled compound has successfully been synthesized and purified using organic chemistry method. Structure of desired compound was confirmed based on structural elucidation analysis. The result of antibacterial activity of compound 6-Amino-2-[(E)-(4-hydroxy-3-methoxyphenyl)ethenyl]-6-nitro-3,4-dihydroquinazolin-4-one did not perform antibacterial activity.