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Sintesis senyawa 6-amino-2-(E)-2{(4- metoksifenil) etenil}- 4(3h)-kuinazolinon = Synthesisof 6- amine- 2-{(- 4 metoxyphenyl ethenyl}-4 (3h) quinazolinone

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Abstrak

[ABSTRAK
Perkembangan resistensi bakteri terhadap antibiotik menyebabkan perlunya penelitian untuk menemukan senyawa baru yang memiliki aktivitas antibiotik. Senyawa golongan kuinazolinon telah diketahui memiliki aktivitas sebagai antibiotik. Oleh karena itu, dilakukan penelitian sintesis senyawa baru dari golongan kuinazolinon dengan substitusi gugus stiril dan amin. Penelitian ini bertujuan untuk memperoleh senyawa 6-amino-2-[(E)-2-(4-metoksifenil)etenil]-4(3H)-kuinazolinon dan kondisi optimal yang dibutuhkan. Senyawa baru 6-amino-2-[(E)-2-(4-metoksifenil)etenil]-4(3H)-kuinazolinon disintesis melalui empat tahapan. Tahap pertama, sintesis 2-metil-4(3H)-kuinazolinon melalui reaksi kondensasi antranilamida dengan asetamida dalam pelarut asam asetat glasial dengan radiasi gelombang mikro. Tahap kedua, sintesis senyawa 2-metil-6-nitro-4(3H)-kuinazolinon melalui reaksi nitrasi 2-metil-4(3H)-kuinazolinon dengan asam nitrat berasap dan asam sulfat pekat pada suhu ruang. Tahap ketiga, sintesis senyawa 6-nitro-2-[(E)-2-(4-metoksifenil)etenil]-4(3H)-kuinazolinon melalui reaksi kondensasi antara p-metoksibenzaldehid dengan 2-metil-6-nitro-4(3H)-kuinazolinon dalam pelarut asam asetat glasial dan natrium asetat anhidrat sebagai dehydrating agent menggunakan radiasi gelombang mikro. Tahap keempat, sintesis senyawa 6-amino-2-[(E)-2-(4-metoksifenil)etenil]-4(3H)-kuinazolinon melalui reduksi senyawa 6-nitro-2-[(E)-2-(4-metoksifenil)etenil]-4(3H)-kuinazolinon menggunakan serbuk besi dan HCl dalam pelarut methanol pada suhu 45-550C dengan radiasi ultrasonik. Nilai rendemen tahap 1 90,19%, tahap 2 79,62%, tahap 3 63,93%, dan tahap 4 80,98%. Berdasarkan penelitian, senyawa produk yang didapat pada setiap tahapan menunjukan struktur senyawa kimia yang diharapkan. Struktur senyawa produk tahap 1 dan 2 dikonfirmasi menggunakan metode spektroskopi IR, tahap 3 dan 4 menggunakan metode spektroskopi UV-Vis, IR dan 1HNMR.
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ABSTRACT
The growth of bacterial resistance to antibiotics led to the need for research to find new compounds that have antibiotic activity. The class of quinazolinone compounds known to have activity as an antibiotic. Therefore, research synthesis of a new compound from the class of kuinazolinon by substituting stiril and amine

groups. This study aims to obtain compound 6-amino-2-[(E)-2-(4-methoxyphenyl) ethenyl]-4(3H)-quinazolinone and optimal conditions required. The new compound 6-amino-2-[(E)-2-(4-methoxyphenyl)ethenyl]-4(3H)-quinazolinone synthesized through four steps. The first step is synthesis of 2-methyl-4(3H)-quinazolinone through a condensation reaction between anthranilamide with acetamide in glacial acetic acid using microwave irradiation. The second step is synthesis of 2-methyl-6-nitro-4(3H)-quinazolinone through nitration reaction of 2-methyl-4(3H)-quinazolinone using fuming nitric acid and concentrated sulfuric acid at room temperature. The third step is synthesis 6-nitro-2-[(E)-2-(4-methoxyphenyl)ethenyl]-4(3H)-quinazolinone through condensation reaction between p-metoksibenzaldehid with 2-methyl-6-nitro-4(3H)-kuinazolinon in glacial acetic acid and anhydrous sodium acetate as a dehydrating agent using microwave irradiation. The fourth step is synthesis 6-amino-2-[(E)-2-(4-methoxyphenyl)ethenyl]-4(3H)-kuinazolinon through reduction reaction of 6-nitro-2-[(E)-2-(4-methoxyphenyl)ethenyl]-4(3H)-quinazolinone using iron powder and hydrochloric acid in methanol at 45-550C with ultrasonic radiation. Yield values obtained at each step 1, 2, 3, and 4 respectively are 90,19%, 79.62%, 63.93% and 80.98%. Based on the research, the product obtained at each stage showed the expected chemical structure. The products structure of steps 1 and 2 were confirmed using IR spectroscopy methods, steps 3 and 4 were confirmed using UV-Vis, IR and 1HNMR spectroscopy method., The growth of bacterial resistance to antibiotics led to the need for research to find
new compounds that have antibiotic activity. The class of quinazolinone compounds known to have activity as an antibiotic. Therefore, research synthesis of a new compound from the class of kuinazolinon by substituting stiril and amine groups. This study aims to obtain compound 6-amino-2-[(E)-2-(4-methoxyphenyl) ethenyl]-4(3H)-quinazolinone and optimal conditions required. The new compound 6-amino-2-[(E)-2-(4-methoxyphenyl)ethenyl]-4(3H)-quinazolinone synthesized through four steps. The first step is synthesis of 2-methyl-4(3H)-quinazolinone through a condensation reaction between anthranilamide with acetamide in glacial acetic acid using microwave irradiation. The second step is synthesis of 2-methyl-6-nitro-4(3H)-quinazolinone through nitration reaction of 2-methyl-4(3H)-quinazolinone using fuming nitric acid and concentrated sulfuric acid at room temperature. The third step is synthesis 6-nitro-2-[(E)-2-(4-methoxyphenyl)ethenyl]-4(3H)-quinazolinone through condensation reaction between p-metoksibenzaldehid with 2-methyl-6-nitro-4(3H)-kuinazolinon in glacial acetic acid and anhydrous sodium acetate as a dehydrating agent using microwave irradiation. The fourth step is synthesis 6-amino-2-[(E)-2-(4-methoxyphenyl)ethenyl]-4(3H)-kuinazolinon through reduction reaction of 6-nitro-2-[(E)-2-(4-methoxyphenyl)ethenyl]-4(3H)-quinazolinone using iron powder and hydrochloric acid in methanol at 45-550C with ultrasonic radiation. Yield values obtained at each step 1, 2, 3, and 4 respectively are 90,19%, 79.62%,

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