

ABSTRACT

Synthesis of 2-(2,4-dichlorophenyl)-3-(4-nitrophenyl)quinazolin-4(3H)-one and 2-(2,4-dichlorophenyl)-3-phenylquinazolin-4(3H)-one Using Microwave Irradiation

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Quinazolinone was known to be an important structure in antiviral drug development. The aim of this study is to obtain compound 2-(2,4-dichlorophenyl)-3-(4-nitrophenyl)quinazolin-4(3H)-one from two steps reaction. The first step is to synthesize 2-(2,4-dichlorophenyl)-4H-benzo[d][1,3]oxazin-4-one from reaction of anthranilic acid and 2,4-dichlorobenzoyl chloride in pyridine as solvent. In the second step, the obtained benzoxazinone was reacted with aniline derivative (p-nitroaniline) using microwave irradiation to obtain target compound.

As a comparison to investigate the effect of nitro substituent on the reaction, 2-(2,4-dichlorophenyl)-3-phenylquinazolin-4(3H)-one was synthesized by reacting benzoxazinone with aniline. Purity of the synthesized product were tested using TLC test and melting point determination. Identification of synthesized compound were confirmed by UV-Vis spectrophotometry, FT-IR and ¹H-NMR spectroscopy. The overall result based on the percentage yield, conclude that nitro substituent reduces the reactivity of reaction.

Reaction between benzoxazinone with aniline yielded 2-(2,4-dichlorophenyl)-3-(4-nitrophenyl)quinazolin-4(3H)-one and the opened ring compound 2,4-dichloro-N-(2-(phenylcarbamoyl)phenyl)benzamide in the yield of 16% and 51% respectively. Benzoxazinone and p-nitroaniline can not react in the same condition but can react in other condition to yield 2-(2,4-dichlorophenyl)-3-(4-nitrophenyl)quinazolin-4(3H)-one based on mass spectrum.

Keywords: quinazolinone, benzoxazinone, microwave irradiation, anthranilic acid, aniline, p-nitroaniline, 2,3-disubstitute quinazolin-4(3H)-one.