

Synthesis of a new bis(1,2,4-triazole) derivative with antimicrobial activity

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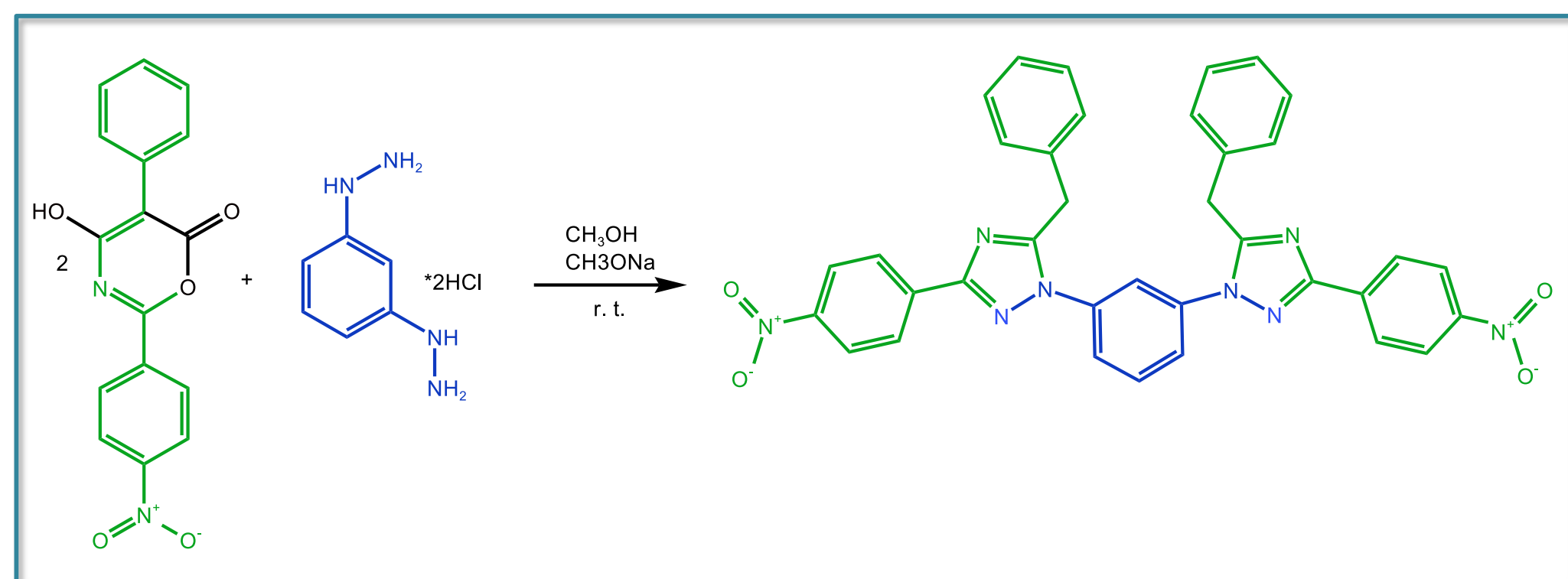
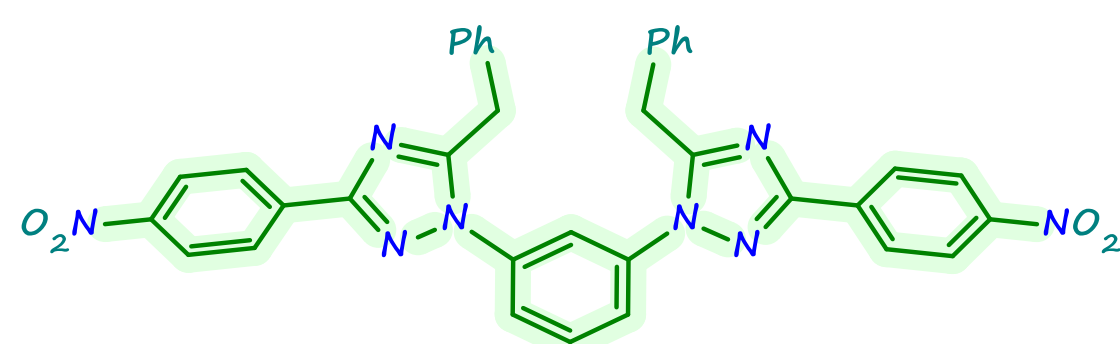
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INTRODUCTION & AIM

The study of compounds related to bis(1H-1,2,4-triazole) derivatives plays an important role in the chemistry of heterocyclic compounds, and these derivatives are also of great significance in modern pharmaceuticals. These structures are active drugs with antifungal and antimicrobial effects (fluconazole, itraconazole) [1]. The literature also notes a wide range of their biological activity: antitumour [2], analgesic [3], and antineurodegenerative. It is known that they can inhibit tumour DNA methylation in sarcoma 180. It is worth noting that some bis(1H-1,2,4-triazole) compounds can be used in the treatment of Alzheimer's disease, and the search for new, more effective pharmacophores for the creation of drugs for the treatment of neurodegenerative diseases is ongoing. Thus, the study of bis(1H-1,2,4-triazole) derivatives is a relevant task in the chemistry of heterocyclic compounds and modern pharmacology.

METHOD

To obtain 1,1'-(benzene-1,3-diyl)bis[5-benzyl-3-(4-nitrophenyl)-1H-1,2,4-triazole], we investigated the reaction of 4-hydroxy-2-(4-nitrophenyl)-5-phenyl-6H-1,3-oxazine-6-one and m-phenylenedihydrazine dihydrochloride (Scheme 1).



Scheme 1. Reaction of 4-hydroxy-2-(4-nitrophenyl)-5-phenyl-6H-1,3-oxazine-6-one and m-phenylenedihydrazine dihydrochloride

RESULTS & DISCUSSION

In the ¹H NMR spectrum (Fig. 1) of the obtained compound, resonance signals of protons of the "-CH₂-" group (4.34 (c, 4H)), protons of the phenyl ring (positions 5-8) (7.82 (s, 3H), 7.93 (s, 1H)), aromatic protons of the benzyl radical (7.16-7.27 (m, 10H)), and aromatic protons of the p-nitrophenyl radical (8.29-8.39 (q, 8H)).

