



NOQULAY IQLIM SHAROITIDA ZAMONAVIY AGROTEKNOLOGIYALAR QO'LLASH ORQALI QISHLOQ XO'JALIGINI KOMPLEKS RIVOJLANTIRISH ISTIQBOLLARI

**mavzusidagi xalqaro ilmiy-amaliy
konferensiya materiallari**



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TABIIY FANLAR VA AGROBITEKNOLOGIYA FAKULTETI

AGRONOMIYA VA TUPROQSHUNOSLIK KAFEDRASI

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SYNTHESIS AND PROPERTIES OF N'-(1,1,1-TRIFLUORO-2-HYDROXY-4-OXO-4-(P-TOLYL) BUTAN-2-YL) BENZOHYDRAZIDE

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Abstract: In this scientific work, the synthesis of the organic compound N'-(1,1,1-trifluoro-2-hydroxy-4-oxo-4-(p-tolyl) butan-2-yl) benzohydrazide and its physicochemical properties have been studied. The compound is obtained by condensation reaction in the presence of 4,4,4-trifluoro-1-(p-tolyl) butan-1,3-dione and benzohydrazine. The reaction conditions have been optimized and the product yield has been increased.

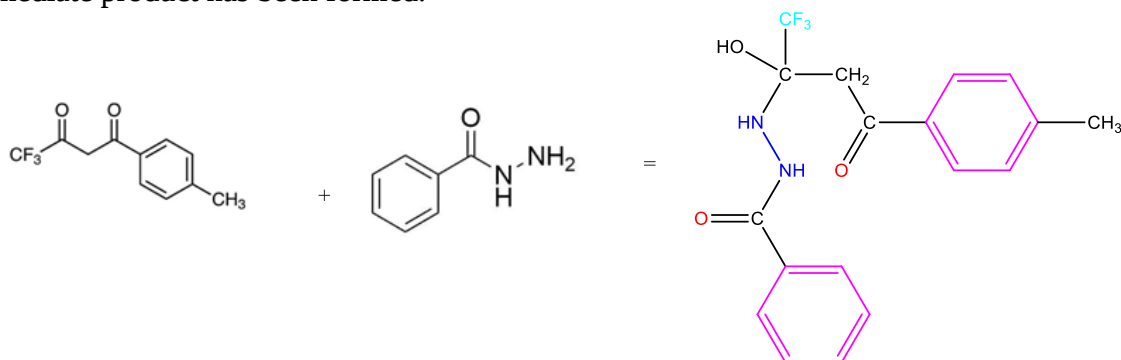
Keywords: 4,4,4-Trifluoro-1-(p-tolyl) butan-1,3-dione, condensation, diketone, benzohydrazide.

Introduction

Diketones and hydrazones are widely used in the synthesis of ligands of biological and industrial importance. The presence of an electron-withdrawing trifluoromethyl group in the structure of diketones increases their reactivity and makes them suitable for ligand synthesis. In this work, 4,4,4-Trifluoro-1-(p-tolyl) butane-1,3-dione and benzohydrazide have been reacted to form a hydrazone derivative, which has been expected to produce a water molecule. However, the synthesis has not produced water and an intermediate product has been formed.

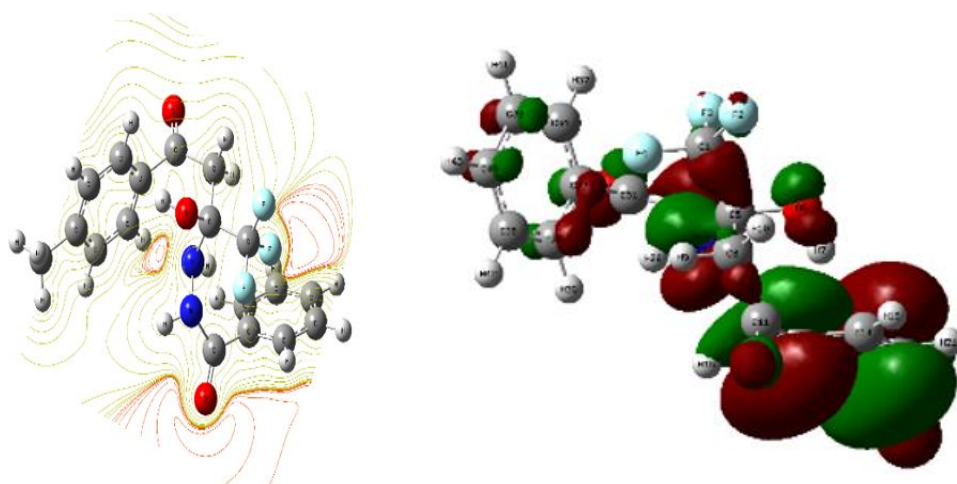
Result and discussion

All reagents have been of analytical grade and used without further purification. 4,4,4-Trifluoro-1-(p-tolyl) butane-1,3-dione and benzohydrazide have been purchased from commercial sources. Benzohydrazide (0.01 mol) has been dissolved in ethanol (50 ml) and slowly added to a solution of 4,4,4-Trifluoro-1-(p-tolyl) butane-1,3-dione (0.01 mol) with constant stirring. The reaction mixture has been refluxed for 1 hour. The expected condensation reaction should have resulted in the elimination of a water molecule and the formation of a hydrazone similar to the Schiff base. However, the FTIR spectrum of the obtained solid showed that the -OH and -C=O functional groups have been retained, confirming that no water has been eliminated and an intermediate product has been formed.



Scheme 1. Synthesis of N'-(1,1,1-trifluoro-2-hydroxy-4-oxo-4-(p-tolyl) butan-2-yl) benzohydrazide

The development of a theoretical model of the synthesized substance, optimization and calculation of physicochemical parameters, processing and visualization of the obtained results are carried out using quantum-chemical studies. We carried out these studies using the Gaussian16W and Avogadro programs. The values of the quantum-chemically calculated parameters of H2L1 are presented in Scheme 1.



Scheme 2. HOMO and LUMO representation of N'-(1,1,1-trifluoro-2-hydroxy-4-oxo-4-(p-tolyl) butan-2-yl) benzohydrazide.

Conclusion. The reaction between diketone and benzohydrazide has been expected to produce a hydrazone by a condensation mechanism, with the release of water. However, the presence of a hydroxyl functional group in the final product indicated that this process has not proceeded completely. The stability of the intermediate may be due to the electron-withdrawing effect of the trifluoromethyl group and intramolecular hydrogen bonding. N'-(1,1,1-trifluoro-2-hydroxy-4-oxo-4-(p-tolyl) butan-2-yl) benzohydrazide has been synthesized and characterized as a new ligand.

The results showed that the expected condensation reaction have not gone to completion, and a water molecule has been not eliminated, and a stable intermediate has been formed. In the future, the coordination behavior of this ligand with transition metal ions and its potential applications in catalysis and bioinorganic chemistry will be studied.

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ATSETILATSETOANILID HOSILASINING NIKEL BILAN HOSIL QILGAN KOMPLEKS BIRIKMASI SINTEZI, TUZILISHI VA XOSSALARI

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Annotatsiya: Ushbuda atsetilatsetoanilid benzoilgidrazonining Ni(II) tuzlari bilan hosil qilgan kompleks birikmasi sintezi, uning tuzilishi va xossalari hamda qo'llanilish istiqbollari haqida ma'lumotlar keltirilgan.

Kalit so'zlar: Atsetilatsetoanilid benzoilgidrazon, YaMR spektroskopiyasi, tridentat ligand.

Atsetilatsetoanilid benzoilgidrazoning nikel bilan hosil qilgan kompleks birikmasi sintezi: Tarozida oldindan aniq o'lchangan 0.1 gr miqdorda olingan Atsetilatsetoanilid benzoilgidrazon moddasini tubi yassi kolbaga solib etil spirtida xona haroratidan 60 ° C gacha eritiladi. So'ng

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