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The synthesis of pyrroles using enaminone precursors

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1. Introduction

Pyrrole is a 5-membered aromatic nitrogen-containing heterocycle that is present in many natural products, biologically active compounds, and several drugs. Pyrrole derivatives have various applications in pharmaceutically active compounds, and they are used as inhibitors for enzymes like reverse transcriptase and cellular DNA polymerase protein kinases. Therefore, considerable interest has been paid to synthesizing and modifying pyrroles. This study will highlight a newly improved route using synthesized enaminones.¹⁻³

The chemistry of enaminones typically contains the delocalized nucleophilicity of enamines with the delocalized electrophilicity of enones; their versatility as synthetic intermediates provides an excellent scaffold for organic synthesis. Through electrophilic and nucleophilic substitution reactions, enaminones are effective as building blocks in the organic synthesis of acyclic, aromatic, and heterocyclic compounds.⁴

1. Results

Compounds were synthesized from refluxing a mixture of acetophenones and DMF-DMA. The reactivity of enaminone towards primary anilines was investigated under acidic conditions. The compounds were confirmed by Nuclear Magnetic Resonance (NMR) and High Resolution Mass Spectroscopy (HRMS).

1. References

- [1] S. C. Philkhana, F. O. Badmus, I. C. Dos Reis and R. Kartika, *Synthesis*, 2021, 53, 1531-1555.
- [2] I. Siddiqui, D. Kumar and S. Shamim, *Journal of Heterocyclic Chemistry*, 2013, 50, E111-E115.
- [3] D. K. Singh and R. Kumar, *Beilstein Journal of Organic Chemistry*, 2023, 19, 928-955.
- [4] I. J. Amaye, R. D. Haywood, E. M. Mandzo, J. J. Wirick and P. L. Jackson-Ayotunde, *Tetrahedron*, 2021, 83, 131984.

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