

The Synthesis and Characterization of New Quinolone-Phenylhydrazone Hybrid Compounds

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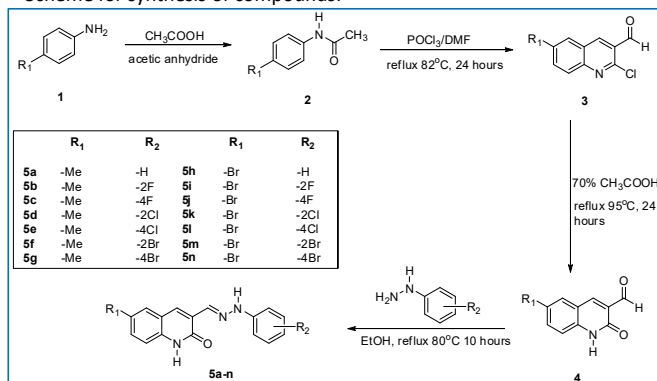
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INTRODUCTION

Quinolone is a derivative of quinoline which is characterized by the presence of a carbonyl group in its structure. It is well known for its antibacterial, antimalarial, anticancer, and even antitubercular activity. Examples of the quinoline scaffold in medicine include drugs such as ciprofloxacin [1], norfloxacin, and topotecan [2]. Phenylhydrazone is a Schiff base compound which contains an imine functional group. It is mostly known for its antifungal activity but it also has antibacterial and even anticancer properties. Studies have been conducted briefly on the antitumor and antioxidant activity of some hybrids of these moieties, however there has been no reported studies on the antibacterial activity of these compounds.

EXPERIMENTAL

• Scheme for synthesis of compounds:



• Characterization was done using NMR, IR, and UV spectroscopy and HRMS and CHN analysis

RESULTS AND DISCUSSION

NMR spectroscopy

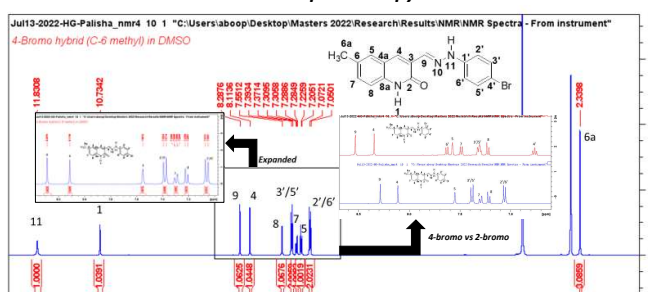


Figure 1: ¹H NMR spectrum of 4-bromo hybrid bearing methyl group on C-6 position of quinolone (5g) and comparison with 2-bromo hybrid (5f)

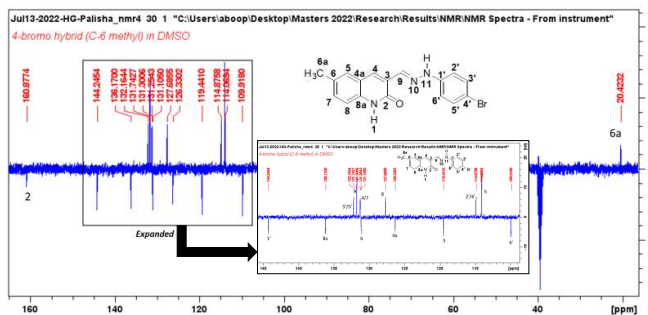


Figure 2: ¹³C NMR spectrum of 4-bromo hybrid bearing methyl group on C-6 position of quinolone (5g)

IR and UV spectroscopy

Table 1: FT-IR and UV data for selected hybrid compounds

Compound Number (wavelength/ nm)	Stretching Frequency/ cm ⁻¹			
	N-H (PHYD)	N-H (Quinolone)	C=O	C=N
4 (231 nm)	-	2841,31	1666,82	-
5g (413 nm)	3150,44	2964,65	1620,85	1563,67
5f (402 nm)	3310,06	2826,86	1657,66	1577,57

CHN analysis

Table 2: CHN analysis data for selected hybrid compounds

Compound No.	Calculated			Found		
	%C	%H	%N	%C	%H	%N
5g	57,32	3,96	11,80	56,19	3,58	11,25
5f	57,32	3,96	11,80	56,25	3,81	11,47

CONCLUSION

- The hybrid compounds were successfully synthesized.
- This was confirmed by structural elucidation of the compounds.

FUTURE WORK

- Investigation of the biological activity of the hybrid compounds will include antibacterial and anticancer activity.

REFERENCES

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- [2] A. L. Zakharenko, O. A. Luzina, D. N. Sokolov, V. I. Kaledin, V. P. Nikolin, N. A. Popova, J. Patel, O. D. Zakharova, A. A. Chepanova, A. Zafar, J. Reynisson, E. Leung, I. K. H. Leung, K. P. Volcho, N. F. Salakhutdinov and O. I. Lavrik, *European Journal of Medicinal Chemistry*, 2019, **161**, 581-593.