SYNTHESIS OF 3,7-DIBROMO-10-N,N-DIMETHYL PROPANAMINE-10H PHENOTHIAZINE AND TO SCREEN THEIR BIOLOGICAL ACTIVITIES

PhD Research Proposal
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Abstract

Active research is always in progress in drug discovery for various human ailments. In the current pandemic situation, I wish to pursue my Ph.D in Medicinal Organic Chemistry, predominantly on heterocyclic compounds that have plenty of applications as drugs in pharmaceutical field. I plan to work on novel drugs taking phenothiazine as the starting material since its derivatives are highly bioactive. For example, **Methylene blue** a derivative of phenothiazine was one of the first **Antimalarial** drugs. Derivatives of heterocyclic compounds and their applications in pharmacy is an interesting research in Organic Chemistry. I aim to synthesize derivatives of phenothiazine particularly 3,7-dibromo-10-N,N-dimethylpropanamine-10-H-phenothiazine and study its medicinal values.

Introduction

Heterocyclic Compounds :

Heterocyclic chemistry is a branch of chemistry dealing with synthesis, properties, and applications of heterocycles. They occur naturally and also synthesized on commercial scale by dye and drug industries.

Synthesis of nitrogen and sulphur bearing heterocyclic derivatives has been the great interest of researchers for the past few decades, due to their potential use in the pharmaceutical and medicinal applications.

Aim

To do research on derivatives of heterocyclic compounds and their medicinal properties.

Objective

To prepare a novel phenothiazine derivative, 3,7-dibromo-10-N,N-dimethylpropanamine-10-H-phenothiazine from phenothiazine using different reagents and study its biological activities.

Methodology

The compound will be synthesized by using organic synthesis method. The starting material will be phenothiazine and the suitable reagents will be taken further. The reaction will be carried out in a reaction chamber. The synthesis of the compound may take up to 12 to 24 hours or more time according to the reagents taken. Then the resulted compound will be purified by chromatography. The structure of the synthesized derivatives will be confirmed by UV, IR, NMR, ^{13}CMR and MASS spectroscopic techniques.

Results

In the results, spectral analysis confirming the structure of the synthesized derivatives and their percentage of antibacterial and antioxidant activity will be presented.

Time line

The time line will be 3-4 years.

References

1. Design, Synthesis and Biological Profiling of Novel Phenothiazine Derivatives as Potent Antitubercular Agents. Anti-Infective Agents, 2019, vol 17, 50-65
2. Recent progress in synthesis ,structure and biological activities of phenothiazine derivatives Chandravadivelu gopi et al., Review journal of chemistry,2019,vol.9,No.2,pp 95-126
3. The Design and Synthesis of Novel Phenothiazine Derivatives as Potential Cytotoxic Agents . Letters in Drug Design & Discovery, 2020, 17, 57-67