

Project Summery

“ENVIRONMENT FRIENDLY APPROACH FOR THE SYNTHESIS OF IMPORTANT HETEROCYCLES USING NEWER TECHNIQUES.”

Moreover, heterocycles are of immense importance not only both biologically and industrially but to the functioning of any developed human society as well. Their participation in a wide range of areas cannot be underestimated. The majority of pharmaceutical products that mimic natural products with biological activity are heterocycles. Most of the significant advances against disease have been made by designing and testing new structures, which are often hetero aromatic derivatives. In addition, a number of pesticides, antibiotics, alkaloids, and cardiac glycosides are heterocyclic natural products of significance for human and animal health. Therefore, researchers are on a continuous pursuit to design and produce better pharmaceuticals, pesticides, insecticides, rodenticides, and weed killers by following natural models. A significant part of such biologically active compounds is composed of heterocycles. These compounds play a major part in biochemical processes and the side groups of the most typical and essential constituents of living cells. Organic chemists have been engaged in extensive efforts to produce these heterocyclic compounds by developing new and efficient synthetic transformations. Among the new synthetic transformations, cyclocondensation reactions are among the most attractive methodologies for synthesizing

heterocyclic compounds.^{1,2} In the past, most of the reactions have been heated using traditional heat transfer equipment such as oil baths, sand baths and heating jackets. These heating techniques are however, rather slow and temperature gradient can develop within the sample. In addition overheating can lead to product, substrate and reagent decomposition.

Newer techniques have recently been developed which contributes to green and safer synthesis. Some of the methods, which are used in organic synthesis, are mentioned below:

- ❖ Use of microwaves
- ❖ Grinding reactions
- ❖ Use of ionic liquids
- ❖ Solid state reaction etc.

Present Work:-

The present work entitled **“Environment Friendly Approach For The Synthesis Of Important Heterocycles Using Newer Techniques.”** illustrate the synthesis of libraries of octahydroquinazolinone derivatives, arylbenzothiazoles, amidoalkyl naphthols.

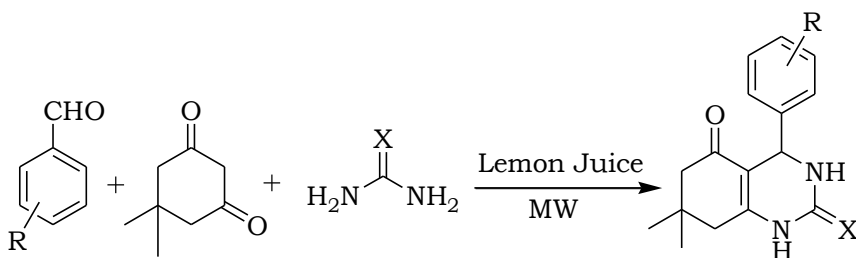
The present work is divided into four parts.

Part-I: General Introduction

The first part describes the general introduction and literature survey.

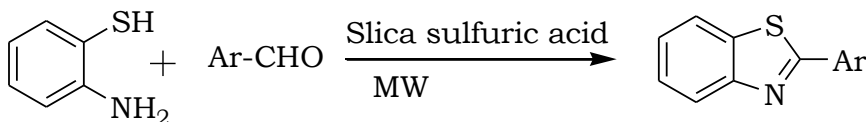
Part-II:- Synthesis of Octahydroquinazolinone derivatives

I have reported one pot three component synthesis of octahydroquinazolinone derivatives catalyzed by lemon juice under microwave-irradiation in excellent yield.



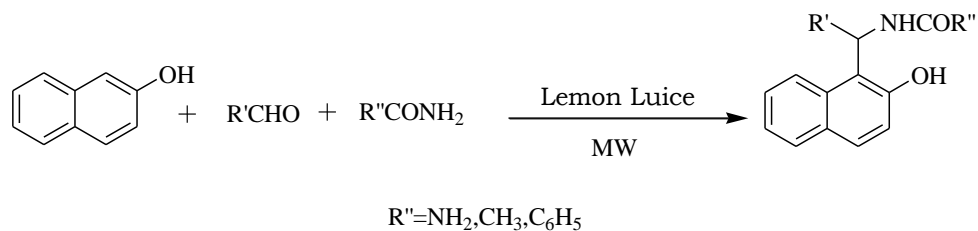
Part-III:- Synthesis of the 2-arylbenzothiazole

I have synthesized the 2-arylbenzothiazole by the condensation of 2-aminothiophenol with aromatic aldehydes using silica sulfuric acid as a catalyst under microwave-irradiation to give the product in excellent yield.



Part IV:- Synthesis of Amidoalkyl Naphthols

The one-pot synthesis of amidoalkyl naphthols lemon juice as a catalyst under microwave-irradiation and solvent-free condition.



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