

Synthesis, Characterisation and Photoxidation study of some new Ketonitrone compounds

**A thesis Submitted to
The College of Science University of Basrah**

**In Partial Fulfilment of the Requirement for
the Degree of Master of Science
in Chemistry**

By

Leaqa'a Abdul Redha Al-Rubaie

March 1999

Hijri 1419

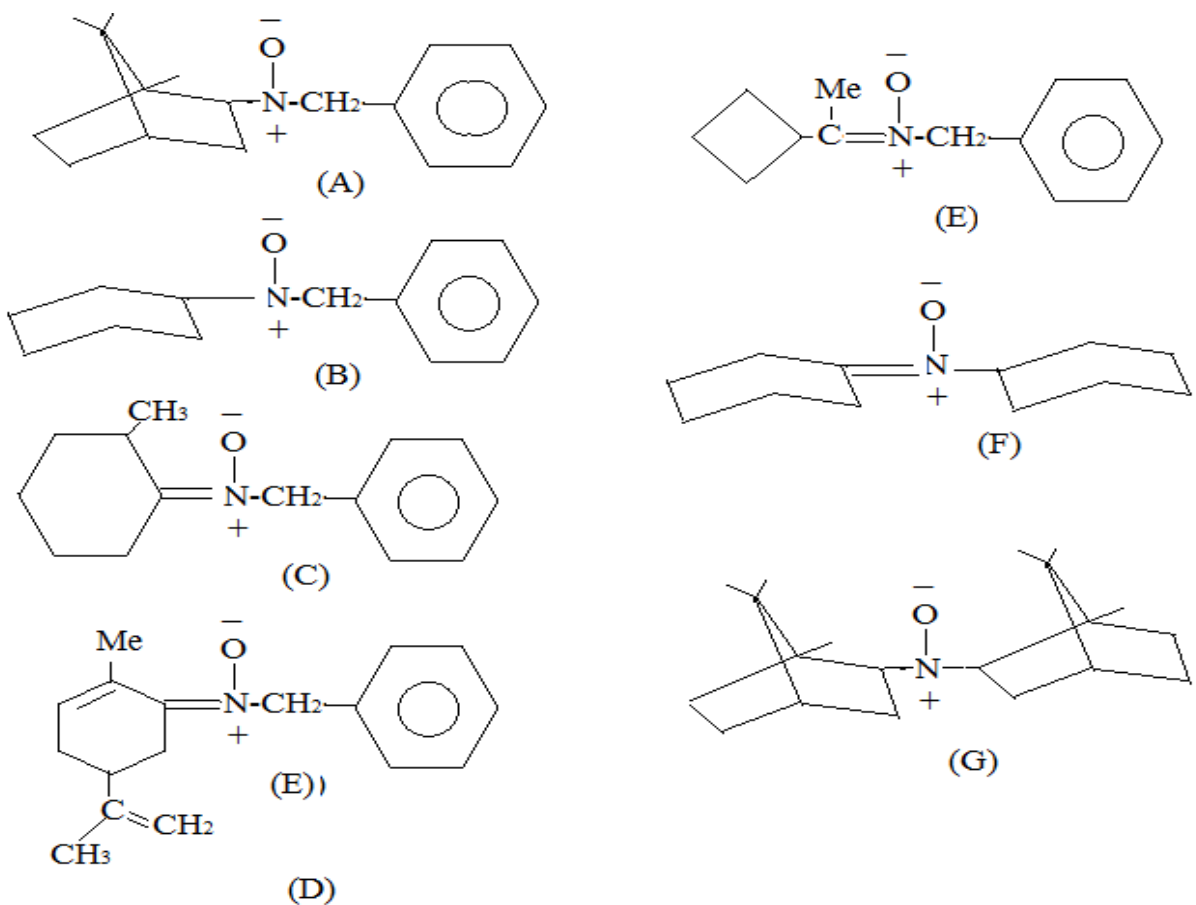
Second University Degree: MSC 1999

Thesis title: Synthesis, characterization and photoxidation study of some new ketonitrone compounds.

Summary:

The thesis consist of three chapters. The first chapter describes the general characters, preparation methods and the reactions of nitrone compounds.

The second chapter describes the purification of materials, instruments used in characterization of introne compounds and synthesis of seven new ketonitrone compounds.



The third chapter describes the characterization of the prepared compounds by used the elemental analysis technique and the following spectroscopic methods:

1-Infrared spectra.

2-Ultraviolet spectra.

3- Nuclear magnetic resonance spectra.

Furthermore,the photoxidation of some of these compounds was also studied by electron spin resonance technique.

The analysis of paramagnetic products provides information concerning the mechanism of photoxidation reactions for these compounds.

Third University Degree: Ph.D Date awarded: 31-12-2007

College: pharmacy

Name and place of University: Baghdad-Iraq

Thesis title: Synthesis,characterization and evaluation of carbamazepine and valproic acid polymeric adducts as controlled release prodrugs.

Summary:

The present study represents the conjugation of carbamazepine and valproic acid with polymers to prepare polymeric prodrugs as controlled release drug systems. This approach may lead to minimizing their side effects and / or adjusting their physical chemical properties.

Most of the current research work in this field of study is concerned with the physical methods for preparation of the controlled release drugs. A limited number of chemical methods have considered the use of prodrugs as controlled release systems.

The present study involves the chemical attachment of carbamazepine and valproic acid with several polymers:

Poly(vinyl alcohol)(PVA), chitosan,poly(ethylene glycol)(PEG), dimethylolurea and poly(methylolacrylamide)has been used. The chemical attachment of drugs to polymers was performed by either esterfication methods and / or using MDI as spacer arm between the drug and the polymeric chain . The chemical bonding involved the formation of urea and / or urethane interlinkage groups between the polymeric chains and the drug molecules.

In all the methods, the drug is attached to a preformed polymer backbone via biodegradable chemical bonds like ester, amide, urea, and urethane .

All the prepared polymers and polymer carrying drugs were characterized by Infra red spectroscopy, chemical methods that include determination of functional group and by differential scanning calorimetry.