
SYNOPSIS

The dissertation entitled "SYNTHESIS AND STUDIES ON SOME BENZOXAZINE DERIVATIVES" presented to the Faculty of Science, Shivaji University, Kolhapur, in partial fulfillment of the degree of Master of Philosophy in Chemistry, consists of four chapters and embodies accounts of: Chapter I, an introduction to the subject; chapter II, a brief survey of related literature; chapter III, scope of present work and experimental part; chapter IV, spectral discussion and conclusions.

An introduction chapter describes oxazines as fascinating class of heterocyclic compounds having wide-ranging applications. Many important dyes, medicinal, insecticides and biologically active substances constitute the members of this series of heterocyclic compounds. They are mainly classified as 1,2-oxazine, 1,3-oxazine and 1,4-oxazine. Different biological activities such as antibiotic, anti-inflammatory, antibacterial and

antifungal etc. of benzoxazine derivatives have been indicated. In addition to this other importance of these derivatives such as polymerizable monomers, plasticiser for cellulose acetate, tanning agent and corrosion inhibitors are also indicated with due references.

The biological, industrial and commercial importance of these derivatives has stimulated to undertake the present dissertation work.

Chapter II, comprises a brief survey of related literature on different synthetic approaches and other related informations about different benzoxazines such as 1,2-; 2,1-; 1,3,2-; 1,3,4-; 3,1,4-; 1,4,2-; 2,3,1-; 1,3-; and 1,4- benzoxazines. Especially recent references on 1,4-benzoxazine derivatives having different biological activities have been encountered.

Chapter III, includes two parts as 'A' and 'B'. In Part-A scope of present work is indicated. Plan of experimental work and some general remarks are included in Part-B.

Part-I, describes the details of experimental work on synthesis of 6-chloro-4(hydrazido)-3,4-dihydro-2H-1,4-benzoxazin-3-one while Part-II describes synthesis

of two derivatives of this compound, viz., i) 6-chloro-4(nicotinoyl hydrazido)-3,4-dihydro-2H-1,4-benzoxazin-3-one and ii) 6-chloro-4(5'-phenyl-1',3',4'-oxidiazolyl)-3,4-dihydro-2H-1,4-benzoxazin-3-one.

Synthesis of 6-chloro-4(hydrazido)-3,4-dihydro-2H-1,4-benzoxazin-3-one is presented by a novel route, using 2,4-dichloro-phenoxy acetic acid as a starting material. The 'acid' was first converted into corresponding 'amide' by a known method in 80.40% yield which was further converted into 6-chloro-3,4-dihydro-2H-1,4-benzoxazin-3-one in 80% yield. Then this compound was converted into 6-chloro-4(carbethoxy)-3,4-dihydro-2H-1,4-benzoxazin-3-one in 60.60% yield which was further converted into 6-chloro-4-(hydrazido)-3,4-dihydro-2H-1,4-benzoxazin-3-one in 76.27% yield.

Part II, describes the synthesis of two derivatives of the final product synthesised in Part-I. First synthesis of 6-chloro-4(nicotinoyl hydrazido)-3,4-dihydro-2H-1,4-benzoxazin-3-one is described and then the synthesis of 6-chloro-4(5'-phenyl-1',3',4'-oxidiazolyl)-3,4-dihydro-2H-1,4-benzoxazin-3-one is reported. These compounds were obtained in 76.92% and 59% yield respectively.

All the compounds encountered in Part-I and Part-II

are characterised after purification by m.p./b.p., elemental analysis and NMR spectra.

Chapter-IV, briefly explains the nature of different spectra in support of the structures assigned to the compounds synthesised in experimental work. Necessary 'spectra' and 'schemes' for experimental work are reported at the end of the dissertation. The dissertation ends with the conclusions and suggestions about the plan of further work on synthesis of Series of 1,4-benzoxazine derivatives and screening of their different biological activities.