Research Journal of Chemical Sciences ISSN 2231-606X
Vol. **5(4),** 53-56, April **(2015)** *Res. J. Chem. Sci.*

Synthesis of New Sulfa-Nitrone Compounds

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Available online at: www.isca.in, www.isca.me
Received 8th April 2015, revised 14th April 2015, accepted 17th April 2015

Abstract

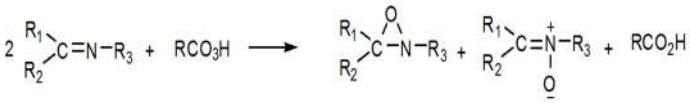
The Schiff bases were synthesized from sulfa drugs with some aldehyde and then converted to nitronesby oxidation of Schiff bases with peracetic acid which synthesized by using of hydrogen peroxide with acetic acid.The resulting products were identified by physical properties like melting point (m.p.), retardation factor (R_f) and color. Also compounds showed the expected data in identification techniques like FTIR, ^{1}HNMR, mass spectroscopy and Elemental analysis (CHN). The results verified the chemical structures of synthesized compounds.

Keywords: Nitrone, sulfa drugs, Schiff base, sulfa-nitrone.

Introduction

Nitrones have taken special interests due to their successful applications as building blocks in the synthesis of various natural and biologically active compounds[1]. They are commonly used precursors[2] in the synthesis of a variety of heterocycles, as spin trapping reagents, in the identification of transient radicals[3,4] and as therapeutic agents[5].

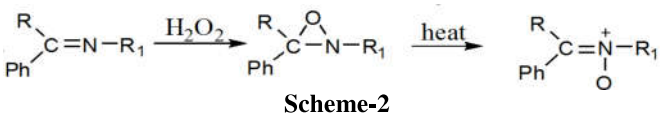
Oxidation of imines by peroxide acids gives a mixture of nitrone and oxaziridine[6], as shown in scheme-1.



Scheme-1

There is a competition between the formation of nitrone and oxaziridine compounds. Many factors affect the formation of the product ratio, such as less bulky substituents on the imino-N-atom and non hydroxylic solvents[7]. Spontaneous rearrangement of oxaziridines into nitrones is observed, either upon heating or treatment with acids[8].

The reaction between imines and hyrdoperoxides was also employed to the synthesis of a variety of 3-aryloxaziridine derivatives, which were rearranged by heating to corresponding nitrones, as shown in scheme-2[9].



Scheme-2

R, R1=Alkyl or aryl group.

Material and Methods

A series of Schiff bases were synthesized in order to study them and to synthesize the nitrone compounds. The general structures of Schiff bases and nitronesare illustrated below in figure-1.

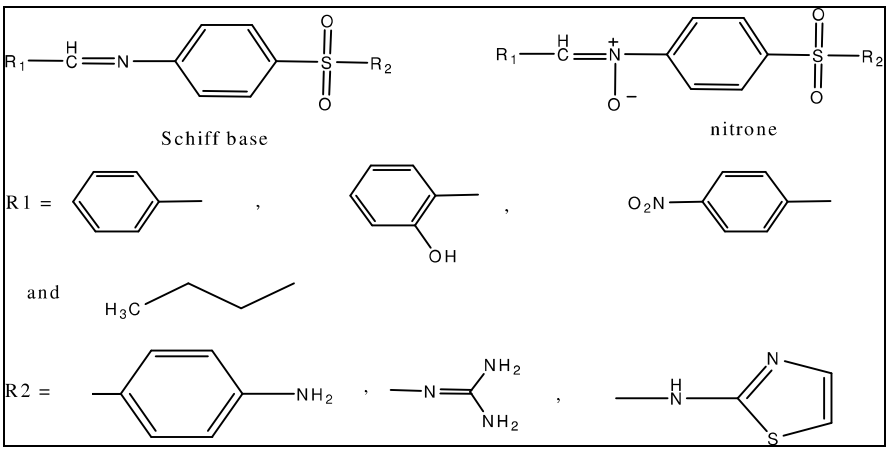


Figure-1
The general structures of Schiff bases and nitrones