



CODEN [USA]: IAJPS

ISSN: 2349-7750

INDO AMERICAN JOURNAL OF
PHARMACEUTICAL SCIENCES

Available online at: <http://www.iajps.com>

Research Article

PREPARATION OF NOVEL SCHIFF BASE

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Abstract:

A new efficient procedure for the synthesis of a series of salicylaldehyde-based schiff bases is described. This method is compared with the conventional method; present work involves condensation of salicylaldehyde with judicious choice of the solvent and reaction conditions allowed and products to be generated in excellent yields in a one-step procedure.

Keywords: Schiff base, azomethine.

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Please cite this article in press as Dharap S. B and Snehal Kamble., *Preparation of Novel Schiff Base*, Indo Am. J. P. Sci, 2018(Suppl.); 05(01).

INTRODUCTION:

Now days Schiff bases and their metal complexes have become important and useful chemical compounds. They are used as catalysts in various biological systems, polymers and dyes. Metal complexes of these Schiff bases play an essential role in agriculture, pharmaceutical and industrial chemistry.

Schiff bases are versatile ligands which are synthesized from the condensation of an amino compound with carbonyl compounds. Schiff bases derived from an amino and carbonyl compound are an important class of ligands that coordinate to metal ions via azomethine nitrogen and have been studied extensively.

In azomethine derivatives, the C=N linkage is essential for biological activity. Several azomethine were reported to possess remarkable antibacterial, antifungal, anticancer and diuretic activities. Schiff bases have wide applications in food industry, dye industry, analytical chemistry, catalysis, fungicidal, agrochemical and biological activities.

Oximes react with metal ions to give characteristic coloured complexes which can be quantitatively extracted into organic solvents. Generally carbonyl monoximes give coloured complexes with metal ions. A large number of oximes are used as spectrophotometric reagents in analytical chemistry. They are applied to trace determination of metal ions in various materials. Apart from their analytical applications, oximes have recently found commercial applications in hydrometallurgy of transition.

EXPERIMENTAL:

Schiff bases are prepared by condensation of salicylaldehyde (0.004 mol) with aromatic amines (0.004 mol) in (10 mL) absolute alcohol and the mixture was stirred at ambient temperature. The progress of reaction was monitored by TLC. On completion of reaction the product was separated as yellow-orange coloured crystalline product which was filtered, dried, and recrystallized from ethanol. IR spectra was recorded.

RESULTS AND DISCUSSION:

The Schiff base was prepared by refluxing an appropriate amount of 4- amino -n butyl phthalimid and salicylaldehyde in hot ethanol in 1:1 molar ratio respectively. The structures of these Schiff base are established with the help of IR spectra. Infrared spectra IR spectra of the Schiff bases showed the absence of bands at 1735 and 3420 cm⁻¹ due to carbonyl ν (C=O) and ν (NH₂) stretching vibrations and, instead, appearance of a strong new band at

1635 cm⁻¹ assigned to the azomethine, ν (HC=N) linkage. It suggested that amino and aldehyde moieties of the starting reagents are absent and have been converted into the azomethine moiety. The comparison of the IR spectra of the Schiff bases and their metal chelates indicated that the Schiff bases were principally coordinated to the metal atom.

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