

Synthesis and antimicrobial activities of 1-Naphthylamine based acetophenone semicarbazones

S. N. Pandeya^{*1}, Tanu Srivastava¹, Mayank Gangwar^{2,3}, Bipin Bihari¹, Gopal Nath²

¹Department of Pharmaceutical Sciences, Saroj Institute of Technology and Management Lucknow-226002 UP India.

²Department of Microbiology, Institute of Medical Sciences, Banaras Hindu University, Varanasi 221 005, UP India

³Department of Pharmacology, Institute of Medical Sciences, Banaras Hindu University, Varanasi- 221005 UP India

*Corresponding author: snpande65@yahoo.co.in, Tel:+91-9415845669, Fax: 0542 2367568

Received: 22 July 2012, **Revised:** 27 August 2012, **Accepted:** 29 August 2012

Abstract

A series of novel highly functionalized novel para-amino acetophenone semicarbazones derivative have been synthesized from 1-naphthylamine, sodium cyanate, hydrazine hydrate in good-to-excellent yield. The synthesized compounds were characterized and screened for their *in-vitro* antibacterial and antifungal activities by disc diffusion and twofold serial dilution method. The prepared compounds were tested against the standard strains viz. *Escherichia coli*, *Pseudomonas aeruginosa*, *Staphylococcus aureus*, *E. faecalis* and the yeasts *Candida albicans*, *Candida tropicalis* & *Candida krusei*. The result of antimicrobial assay revealed the presence of excellent activity against gram positive i.e. *S.aureus* compared to gram negative *E.coli* and *P.aeruginosa*. Antifungal test revealed moderate activity against different *candida* strains.

Keywords: Semicarbazones, antimicrobials, Disc diffusion, MIC

Introduction

Resistance towards microbes creates a serious problem since last three decades. So the need of an hour is to search new novel antimicrobial (Cunha, 1998). Semicarbazides have been known to have significant biological activity against important pathogens. Semicarbazones are among the most relevant nitrogen-oxygen donor ligands (Gingrass et al., 1961). A good deal of work has been reported on the preparation and structural investigation of semicarbazones and their complexes. Semicarbazone and their derivatives are of much interest because of wide spectrum of antimicrobial activities (Dogan et al., 1999; Pandeya et al., 1993). In addition thio- and semicarbazones possess a wide range of bioactivities, and their chemistry and pharmacological applications have been extensively investigated. The more significant bioactivities of a variety of semicarbazones (antiprotozoa, and anticonvulsant) and thiosemicarbazones (antibacterial, antifungal, antitumoral, antiviral) and their metal comple-