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Synthesis and antimicrobial activity of some 2-phenyl-benzoxazole derivatives

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ABSTRACT

In the present study, a new series of Schiff's bases derived from (4-Benzoxazol-2-yl-phenyl)-isopropylidene-amine (2a-j) have been synthesized by reacting the amino group of the 4-Benzoxazol-2-yl-phenylamine (1) with different aromatic/ hetero aromatic aldehydes in presence of glacial acetic acid. The starting material 4-Benzoxazol-2-yl-phenylamine was synthesized by condensation of o-aminophenol and p-amino benzoic acid, catalyzed by polyphosphoric acid. The structural assessment of the compounds (2a-j) was made on the basis of spectral data. The synthesized compounds were screened for their in vitro growth inhibiting activity against different strains of bacteria and fungi viz., Bacillus subtilis, Pseudomonas aeruginosa, Escherichia coli, Staphylococcus aureus, Streptococcus pneumoniae, Klebsiella pneumoniae, Aspergillus niger, Rhizopus oryzae, Candida albicans and Penicillium chrysogenum were compared with standard agents such as Ciprofloxacin (10µg/ml) and Fluconazole (10µg/ml) using agar diffusion technique. Compounds 2b, 2c, and 2d exhibit highest antibacterial activity and compounds 2b, 2c, 2d and 2h showed good antifungal activity.

Keywords: Benzoxazole, Amines, Antibacterial Activity, Antifungal Activity

INTRODUCTION

Benzoxazoles possess most remarkable and a wide range of biological activities [1]. The 2-substituted benzoxazoles have been shown to exhibit antimicrobial [2-6], fungicidal [7], analgesic [8-9], insecticidal, antiviral [10-11], anticonvulsant [12] and anticancer [13-15] activities and serve as topoisomerase I poisons. In the last few years, it has been reported that 2, 5-disubstituted benzoxazoles, benzimidazoles, thiocarbazides and thiocarbamides and oxazoles have potent antimicrobial activities against some Gram-positive, Gram-negative bacteria and the yeast *Candida albicans*, providing a wide variety of *in-vitro* antimicrobial effects, especially indicating significant activity against the enterobacter *Pseudomonas aeruginosa*. These examples