Synthesis and Identification of Chiral open-chain sugar-derived nitrones and their 1,3-Dipolar Cycloaddition with maleimide and maleic acid

Usama S.Altimari*, Arwa Al.Adroay

College of Health and Medical Technology, Baghdad, IRAQ

ABSTRACT

The chiral open-chain sugar-derived nitrones (a,b) were prepared in a pure form. N-Sugar-derived isoxazolidines (2a,b-3a,b)) were synthesized regiospecifically by 1,3-dipolar cycloaddition reaction of a nitrone (a,b) with maleimide and maleic acid. N-sugar-derived isoxazolidine (3a) showed high activity against staphylococcus aurous, and Escherichia coli and complete inhibition of growth against pathogenic fungi candida albicans and microsporum gypseum

Keywords: sugar-derived nitrones, 1,3-dipolar cycloaddition , N-sugar-derived isoxazolidines .

Introduction

Many natural and synthetic products containing heterocyclic rings were reported to possess varied pharmacological activities . [(1-4)] Many of these biological activities were attributed to the presence of N-bridge heterocyclic nuclei of some pyrazoles and isoxazoles which are described to have antiviral and antimicrobial activities . [(5)] In this context , synthetic nucleoside analogues have been emerged as major therapeutic agents and several reports have appeared concerning their synthesis , therapeutic applications and mechanism of action [(6)] A very extensive and exhaustive research program by Tronchet and Co-workers [(7)] and by others [(8-10)] has been devoted to synthesis the analogues of natural glycosides containing an isoxazole or isoxazolidine ring directly linked to the sugar residue by 1,3-