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EMERGING TRENDS IN BIOCHEMISTRY VOLUME I

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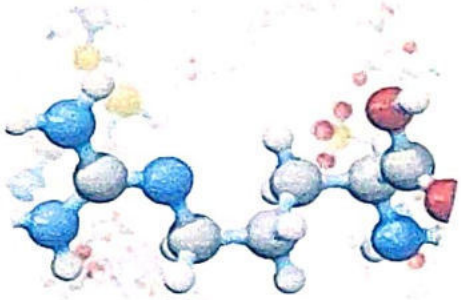

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TABLE OF CONTENT

PRINCIPAL
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Chapter
10

ANTI-DIABETIC ACTIVITY OF SYNTHETIC ARYLTETALIN DERIVATIVES

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ABSTRACT

The aryltetralin derivatives were extracted from plant and also synthesized using tetralone as a starting material. They were synthesized by replacing 1, 3-methylene dioxy ring with dimethoxy, hydroxy, methyl, chlorine, hydrogen and methoxy group. The structure of the final compounds was confirmed by ^{1}H NMR, ^{13}C NMR, mass spectra and elemental analysis data and the analogues were screened for anti-diabetic activity. It is noteworthy all the synthesized derivatives exhibit good anti-diabetic activity with respect to extracted aryltetralin compound.

KEYWORDS: Podophyllotoxin, Bromination, Reduction, Antidiabetic Activity.

INTRODUCTION

Lignans are a very interesting class of natural products due to their pharmacological properties, their great number of structural possibilities, and the chemical approaches to their synthesis [1]. In these lignan family, the cytotoxic podophyllotoxin has been the most studied is a potent tubulin binding antimitotic agent and its derivative etoposide and Teniposideis currently used in cancer chemotherapy [2]. Although the natural podophyllin resin was used in folk medicine, it was not until the1940s that its antitumor activity was confirmed and this triggered intense studies toward synthetic routes led mainly by the late Professor Walter Gensler. Gensler's contributions in the 1950sand 1960s on synthetic, structural, and mechanistic aspects of podophyllotoxin provided much of the basis for the synthetic studies that followed. All the reported synthetic routes to 1produced racemic material or involved classical resolution techniques [3].

In view of the above facts, it was decided to modify the structure of podophyllotoxin (figure 1) They were synthesized by replacing 1, 3-methylene dioxy ring with dimethoxy, hydroxy,