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COPPER (I) CATALYZED SYNTHESIS AND BIOLOGICAL EVALUATION OF TETRAKIS-1,2,3-TRIAZOLES BASED ON D-IDITOL

ADNAN IBRAHIM MOHAMMED*, RASHA SAAD JWAD[a] and NABEELA A. Al-RADHA[b]

Department of Chemistry, College of Science, Kerbala University, KERBALA, IRAQ
[a]Department of Chemistry, College of Science, Al-Nahrain University, BAGHDAD, IRAQ
[b]Department of Chemistry, College of Education, Al-Qadisiya University, AL-QADISIYA, IRAQ

ABSTRACT

This work describes the synthesis of D-iditol based tetrakis-1,2,3-triazoles. In the first approach, in which the heterocyclic portions were built from the click 1,3-dipolar cycloaddition of *n*-octyl azide, *n*-nonyl azide and *n*-decyl azide, respectively with propagyl alcohol. Alkynyl triazoles **4 a-c** were readily prepared in very good yields under biphasic conditions from the corresponding triazolyl alcohols **3 a-c** and propargyl bromide in the presence of NaOH pellets in DMF. 3,4-Diazido-3,4-dideoxy1,2 : 5,6-di-O-isopropylidene-D-iditol **7** was prepared in three subsequent steps from D-mannitol. The reaction of **7** with propargyl ethers **4 a-c** under Cu (I)-catalyzed Huisgen-Meldal 1,3-dipolar cycloaddition conditions gave the desired tetrakis-1,2,3-triazole derivatives **8 a-c** in very good yields. Removal of the acetal groups of **8 a-c** using Amberlite IR 120 H^+ in EtOH afforded the deprotected tetrakis triazoles **9 a-c** in excellent yields. The synthesized compounds have characterized by TLC, FTIR, CHN and most of them by NMR. The biological activities of the synthesized compounds **8** and **9** were measured *in vitro* against different types of bacteria, some of the prepared compounds showed activity against the microorganism.

Key words: Tetrakis-1,2,3-triazoles, D-iditol, Click chemistry, 1,3-dipolar cycloaddition, Biological activity.

INTRODUCTION

1,2,3-Triazoles verified to be one of the important heterocyclic compounds because of their wide range of biological uses[1,2]. These heterocycles have displayed various biological activities such as anti-HIV activity[3], antitubercular agents[4], antifungal[5], antibacterial[6], antibiotic[7], and anticancer[8]. Introduction of carbohydrate moiety to the triazole core increasing the hydrophilicity of the whole molecule, which helps in the

*Author for correspondence; E-mail: adnanimchem@yahoo.com