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Synthesis and Biological Activities of Novel -1,2,3-Triazoles Derivatives

Authors : Zahra Dehghani, Hoda Dehghani, Elham Zarenezhad

Abstract : 1,2,3-Triazole derivatives are important compounds in medicinal chemistry owing to their wide applications in drug discovery. They can readily associate with biologically targets through the hydrogen bonding and dipole interactions. The 1,2,3-triazole core is a key structural motif in many bioactive compounds, exhibiting a broad spectrum of biological activities, such as antiviral, anticancer, anti-HIV, antibiotic, antibacterial, and antimicrobial. Additionally, they have found significant industrial applications as dyes, agrochemicals, corrosion inhibitors, photo stabilizers, and photographic materials. we disclose the synthesis and characterization of 1-azido-3-(aryl-2-yloxy)propan-2-ol drivatives. The chemistry works well with various ß-azido alcohols involving aryloxy, alkoxy and alkyl residues, and also tolerates a wide spectrum of electron-donating and electron-withdrawing functional groups in both alkyne and azide molecules. Most of ß-azidoalcohols used in these experiments were pre-synthesized by the regioselective ring opening reaction of corresponded epoxides with sodium azide, whereas the majority of terminal alkynes were prepared via SN2-type reaction of propargyl bromide and corresponded nucleophiles. To evaluate the bioactivity of title compounds, the in vitro antifungal activity of all compound was investigated against several pathogenic fungi including Candida albicans, Candida krusei, Aspergillus niger, and Trichophyton rubrum , clotrimazole and fluconazole was used as standard antifungal drugs, also To understand the antibacterial activity of synthesized compounds, they were in vitro screened against E. coli and S. aureus as Gram-negative and Gram-positive bacteria, respectively. The in vitro tests have shown the promising antifungal but marginal antibacterial activity against tested fungi and bacteria.

Keywords : biological activities, antibacterial, antifungal, 1,2,3-Triazole
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