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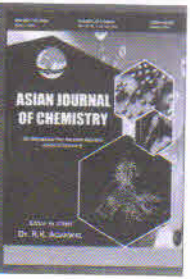

One-Pot Synthesis of Pyrazine-2-carbaldehyde Containing 1,2,3-Triazoles: *In vitro* Antibacterial Activity

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In pursuit of enhanced antibacterial agents, a series of 3-(4-(aryl)-1*H*-1,2,3-triazol-1-yl)pyrazine-2-carbaldehydes was synthesised (**4a-k**) through the utilisation of 3-aminopyrazine-2-carbaldehyde, alkyne and triflyl azide *via* an *in situ* synthesised 3-azidopyrazine-2-carbaldehyde, followed by an assessment of their *in vitro* antibacterial activity. The investigation of antibacterial efficacy was conducted against three Gram-positive bacterial strains *viz*. *Bacillus subtilis*, *Staphylococcus aureus* and *Staphylococcus epidermidis*, employing the standard broth microdilution methodology. Among the compounds evaluated, compounds **4f** and **4k** demonstrated significant antibacterial efficacy, with minimum inhibitory concentration (MIC) values ranging from 3.12 ± 0.39 to 12.5 ± 0.87 µg/mL against the examined Gram-positive bacterial strains. Ultimately, further structural optimization of these potent compounds may lead to their development as promising candidates for future therapeutic applications.

Keywords: Pyrazine-2-carbaldehyde, 1,2,3-Triazoles, Synthesis, Antibacterial activity.