Indian Journal of Heterocyclic Chemistry
Vol. 35 - Number 03 (Jul-Sep 2025) 667-672
https://connectjournals.com/01951.2025.35.667
https://doi.org/10.59467/IJHC.2025.35.667

ISSN (Print) : 0971-1627
ISSN (Online) : 2456-4311

Design, Synthesis, and antimicrobial evaluation of imidazo[1,2-a]pyridine-triazole hybrids through click chemistry and Suzuki-Miyaura cross-coupling

Shital Patel[1], Maharshi Shukla[2], Jyotindra Mahyavanshi[3]*, Jigar Patel[4], and Ganpat Patel[1]

[1]Department of Chemistry, M. N. Science College, Patan, Gujarat, India
[2]Department of Chemistry, Gokul Global University, Siddhpur, Gujarat, India
[3]Department of Chemistry, R. R Mehta Science and C. L Parikh Commerce College (Affiliated with Hemchandracharya North Gujarat University, Patan), Palanpur, Gujarat, India
[4]Department of Chemistry, P. J. Patel Nilkanth Science College, Maktupur, Gujarat, India

ABSTRACT A novel series of 2-(4-((4-(6-nitroimidazo[1,2-a]pyridine-2-yl)phenoxy)methyl)-1*H*-1,2,3-triazol-1-yl)-*N*-substituted phenyl acetamide (**7a-e**) derivatives were synthesized and evaluated for their antimicrobial activities. The synthetic approach involved a multi-step reaction sequence, including the preparation of key intermediates and final triazole-linked Imidazopyridine derivatives. The structural elucidation of synthesized compounds was carried out using spectroscopic techniques such as infrared, proton nuclear magnetic resonance, carbon-13 nuclear magnetic resonance, and mass spectrometry. The antimicrobial potential of the synthesized derivatives was assessed against a panel of Gram-positive and Gram-negative bacterial strains as well as fungal pathogens. Among the synthesized compounds, **7c** (Minimum inhibitory concentration [MIC]:6.25 µg/mL) and **7e** (MIC:18.75 µg/mL) exhibited significant antibacterial activity. The results suggest that electronic effects of substituents and fluorine incorporation play a crucial role in enhancing biological activity. These findings indicate that imidazopyridine-triazole hybrids can serve as potential candidates for the development of new antimicrobial agents.

KEYWORDS Click chemistry, Palladium-catalyzed cross-coupling, Biological activity

How to cite this article: Patel, S., Shukla, M., Mahyavanshi, J., Patel, J. and Patel, G. Design, Synthesis, and antimicrobial evaluation of imidazo[1,2-a]pyridine-triazole hybrids via click chemistry and suzuki-miyaura cross-coupling. *Indian J. Heterocycl. Chem.*, **2025**, *35*, 667–672. *https://doi.org/10.59467/IJHC.2025.35.667*