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Novel isoniazid embedded triazole derivatives: Synthesis, antitubercular and antimicrobial activity evaluation

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Highlights

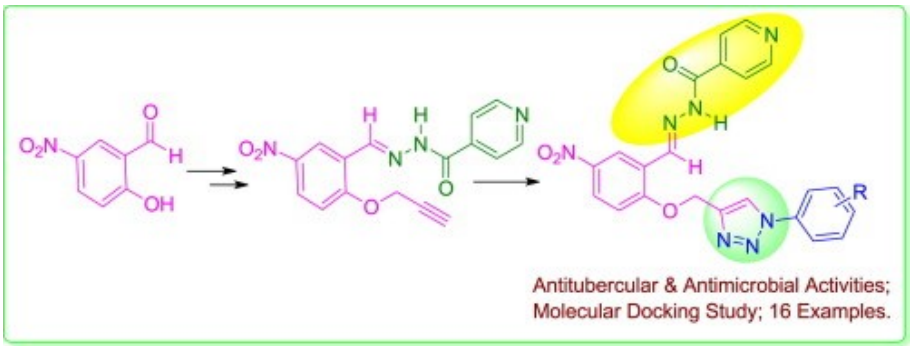
- Novel isoniazid embedded triazole derivatives have been synthesized.
- Exhibited potent antitubercular and antimicrobial activities.
- Nontoxic against RAW 264.7 cell line.

Abstract

In the present study, a series of new isoniazid embedded triazole derivatives have been synthesized. These compounds were evaluated for their *in vitro* antitubercular and antimicrobial activities. Among the screened compounds, six have exhibited potent antitubercular activity against *Mycobacterium tuberculosis* H37Rv strain with MIC value 0.78 μg/mL, whereas, three compounds have displayed activity with MIC value ranging from 1.56 to 3.125 μg/mL. The cytotoxicity of the active compounds was studied against RAW 264.7 cell line by MTT assay and no

toxicity was observed even at 25μg/mL concentration. The five compounds have displayed good antimicrobial activities. Molecular docking have been performed against mycobacterial InhA enzyme to gain an insight into the plausible mechanism of action which could pave the way for our endeavor to identify potent antitubercular candidates. We believe that further optimization of these molecules may lead to potent antitubercular agents.

Graphical abstract



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Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.…

Acknowledgments

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