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Research paper

Quinolidene-rhodanine conjugates: Facile synthesis and biological evaluation

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ABSTRACT

A series of rhodanine incorporated quinoline derivatives were efficiently synthesized using reusable DBU acetate as ionic liquid and evaluated for their *in vitro* antitubercular activity against *Mycobacterium tuberculosis* H37Ra (MTB) (ATCC 25177) and *Mycobacterium bovis* BCG (ATCC 35743) both in active and dormant state. Compounds **3e**, **3f**, **3g**, **3h** and **3i** exhibited very good antitubercular activity. The active compounds were studied for cytotoxicity against HUVEC, THP-1, macrophages, A549, PANC-1 and HeLa cell lines using modified MTT assay and were found to be noncytotoxic. Inactivity of all these compounds against Gram positive and Gram negative bacteria indicates their specificity towards the MTB. Further, the synthesized compounds have been screened for their *in vitro* antifungal activity. In addition, the molecular docking studies revealed the binding modes of these compounds in active site of Zmp1 enzyme, which in turn helped to establish a structural basis of inhibition of mycobacteria. The results of present study clearly indicate the identification of some novel, selective and specific inhibitors against MTB that can be explored further for potential antitubercular drug.