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Synthesis and anti-tuberculosis activity of 2-[(2-Hydroxy-4-trifluoromethyl-phenylamino)-methylene]-cyclohexane-1, 3-dione

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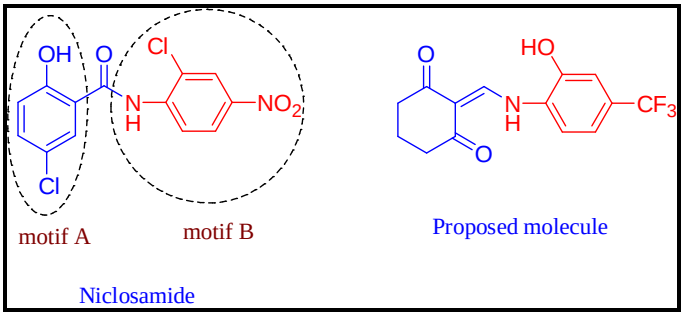
ABSTRACT

In the present study 2-[(2-Hydroxy-4-trifluoromethyl-phenylamino)-methylene]-cyclohexane-1,3-dione was synthesized and screened for anti-tuberculosis activity against Mycobacterium tuberculosis (H37Rv). The condensation reaction of cyclohexan-1,3-dione with 2-hydroxy-4- trifloromethyl aniline and triethylorthformate led to the formation of 2-[(2-Hydroxy-4- trifluoromethyl-phenylamino)-methylene]-cyclohexane-1,3-dione in descent yield. The compound significantly inhibited the growth of Mycobacterium tuberculosis H37Ra in dose-dependent manner. The minimum inhibitory concentration of 2-[(2-Hydroxy-4-trifluoromethyl-phenylamino)-methylene]-cyclohexane-1,3-dione against Mycobacterium tuberculosis H37Ra was found to be 1.25 µg/ml. In summary, the present study demonstrates a simple method for the synthesis of 2-[(2-Hydroxy-4-trifluoromethyl-phenylamino)-methylene]-cyclohexane-1,3-dione. The compound effectively inhibits the growth of Mycobacterium tuberculosis H37Ra and therefore can be developed for the treatment of tuberculosis.

Graphical Abstract:



Structure of niclosamide and schematic theme of our proposed library.

Keywords: Tuberculosis treatment, Condensation, Diones, Minimum inhibitory concentration.