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Synthesis, Characterization and Biological studies of Thiazolidinone analogues

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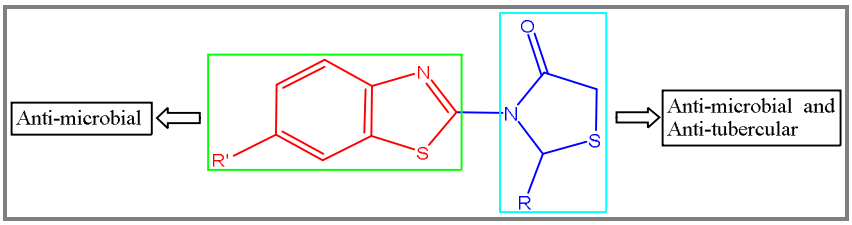
ABSTRACT

A new series of 2-(4-substituted phenyl)-3-(6-substituted benzo [d]thiazol-2-yl)thiazolidin-4-one derivatives have been prepared by hybridization of two different biologically active moieties benzothiazole and thiazolidinone. The structures of the newly synthesized compounds were established on the basis of spectral data (IR, ^{1}H and ^{13}C NMR) and elemental analysis. All the synthesized compounds were tested for antibacterial activity against Gram-positive bacteria (S. aureus, S. pyogenes) and Gram-negative bacteria (C. albicans, A. niger, A. clavatus), antifungal activity against three fungi (C. albicans, A. niger, A. clavatus) using the MIC (Minimal Inhibitory Concentration) method, anti-tubercular activity H37Rv using L. J. Slope Method. Results of biological screening reveals that compounds $\boldsymbol{D_1}$, $\boldsymbol{D_3}$, $\boldsymbol{D_6}$, $\boldsymbol{D_7}$, $\boldsymbol{D_8}$ *and* $\boldsymbol{D_{10}}$ *showed good antibacterial activity where as* $\boldsymbol{D_1}$, $\boldsymbol{D_5}$ *and showed good antifungal activity and compound* $\boldsymbol{D_2}$ *showed good antitubercular activity.*

Graphical Abstract



General structure of 2-(4-substituted phenyl)-3-(6-substituted benzo [d]thiazol-2-yl)thiazolidin-4-one($D_{1\text{-}10}$):

Keywords: Benzothiazole, Thiazolidinone, Anti-microbial, Anti-tubercular, *M. tuberculosis H37Rv*.