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Synthesis, Biological Evaluation and Docking Studies of Sulfonyl Piperazine Derivatives: Part-A

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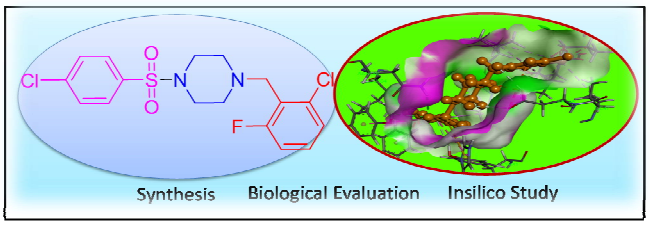
ABSTRACT

Twelve novel N-alkylated sulfonyl piperazine derivatives were prepared by condensation of chloro and bromo substituted 1-(phenylsulfonyl) piperazine with six differently substituted benzyl chlorides. Structures of the compounds were verified by IR, ^{1}HNMR, ^{13}CNMR and LCMS spectroscopic techniques. Compounds were screened for their in vitro antimicrobial activity against two bacterial strains S. aureus and E. coli and against two fungi C. albicans, A. flavus. Anthelmintic activity of compounds was also studied against Pheretima posthuma. Some of the sulfonyl piperazine derivatives showed comparatively good antimicrobial properties and anthelmintic activities compared to standard drug. The biological activity was supported by virtual screening using molecular docking study.

Graphical Abstract



Keywords: Piperazine, Antibacterial activity, Anthelmintic activity, Molecular docking.