


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4H-Pyran-4-one derivatives:; leading molecule for preparation of compounds with antimycobacterial potential

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Abstract: A series of 3-hydroxy-6-methyl-2-((4-substitutedpiperazin-1-yl)methyl)-4H-pyran-4-one structured compounds were synthesized by reacting 5-hydroxy-2-methyl-4H-pyran-4-one with suitable piperazine derivatives using Mannich reaction conditions. Antibacterial activities of the compounds for *E. coli*, *S. paratyphi*, *S. flexneri*, *E. gergoviae*, and *M. smegmatis* were assessed in vitro by using broth dilution for determination of the minimum inhibitory concentration (MIC). In addition, their inhibitory effects over DNA gyrase enzyme were evaluated using a DNA gyrase supercoiling assay. Among the synthesized compounds; compound 7 showed a 4 μ g/mL MIC value for *M. smegmatis*, whereas the other compounds demonstrated moderate to high activity. Those tested in the supercoiling assay had at best a very mild inhibition of the enzyme. This series deserves further attention for testing over *Mycobacterium* species and topoisomerase II inhibition to develop new lead drugs.

Key Words: Antimycobacterial activity; DNA gyrase activity; hydroxy-4H-pyran-4-one.

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