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(57) Abstract :

The present invention involves the synthesis and characterization of a novel compound, 2-(4-(((4-chlorophenyl)amino)methyl)piperazin-1-yl)-1-(10H-phenothiazin-10-yl)ethanone, with potential antibacterial activity. The compound was synthesized by reacting 1-(10H-phenothiazin-10-yl)-2-(piperazin-1-yl)ethanone with 4-chloroaniline and formaldehyde under reflux at 80°C. Reaction progress was monitored by TLC using iodine vapors as a detecting agent. The product was purified by recrystallization from ethanol, and its melting point was determined by the open capillary method. Structural confirmation was performed using FTIR (KBr pellet method), ¹H-NMR, and ¹³C-NMR spectroscopy. In silico drug-likeness was evaluated using SwissADME, showing favorable pharmacokinetic properties based on Lipinski's Rule of Five. The synthesized compound exhibited significant antibacterial activity against selected bacterial strains, suggesting its potential as a novel antibacterial agent.

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