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Synthesis, characterization and antimicrobial activity of pyrazole derivatives

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This study synthesized pyrazole derivatives from pyrazoline and evaluated them for antibacterial activity. From benzofuran-5-carbaldehyde and 1-(1,2,3,4-thiaziazol-5-yl)hydrazine, compound **1** is formed under reflux. Then DMF and POCl₃ is added at 70°C for 5 h to the compound **1** to get compound **2**. To a mixture of compound **2**, acetophenone in ethanol and KOH is added and stirred under reflux for 6 h to get compound **3**. From the compound **3**, different pyrazole derivatives have been synthesized. All the desired compounds have been successfully synthesized and characterized by ¹H and ¹³C NMR and LCMS. The antimicrobial activity has been tested using a serial dilution approach against several Gram-positive and Gram-negative bacteria. Compounds **1**, **3**, **5**, **6**, **8** and **9** show greater antimicrobial activity against several Gram-positive and Gram-negative bacteria.

Keywords: Benzofuran, Pyrazole, Thiaziazole, Antimicrobial activity