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Sulpha drugs based heterochelates: Synthesis, spectroscopic, thermal and *in vitro* biological studies

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In the current study, dapsone and different 4-acyl pyrazolone derivatives have been used to synthesise various Cu(II) and Ni(II) based heterochelates. Elemental analysis, ^{1}H NMR, IR, and mass spectroscopy have been utilized to check the structure of the tetra dentate DPL1 to DPL5 ligands, and FAB mass spectroscopy as well as temperature investigations (TGA/DTG and DSC) have been utilized to approve the structure of the Cu(II) and Ni(II) heterochelates. All the synthesized compounds have been examined for their *in vitro* biological study against two Gram +ve (*Bacillus cereus*, *Bacillus megaterium*) and two Gram –ve (*Escherichia coli*, *Enterobacter aerogene*) microorganisms as well as their MIC against two Gram +ve (*Bacillus subtilis*, *Staphylococcus aureus*) and two Gram –ve (*Escherichia coli*, *Serratia marcescens*) microorganisms. The outcomes demonstrate the tremendous promise and importance of novel bis-pyrazolone heterochelates based on dapsone for further study.

Keywords: Sulpha drugs, Bis pyrazolone, *In vitro* biological activity, Thermal study, Transition metal heterochelates