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SYNTHESIS AND SPECTROSCOPIC STUDIES OF SOME FLUORESCENT PYRAZOLINE DERIVATIVES

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Seven fluorescent pyrazolines were synthesized. pyrazoline derivatives 5a-g was obtained by cyclization of chalcones 3a-g with phenylhydrazine using various synthetic methods including traditional method and green methodologies such as microwave heating and ultrasound irradiation. The reaction time, product yields are improved using the green methods. The structures were established based on IR spectra, ¹H-, ¹³C NMR, elemental analysis, X-Ray Crystal Structure Determination, UV visible spectra and fluorescence spectra.). The seven compounds showed an excellent fluorescence in various solvents. The fluorescence properties such as quantum yield were measured. The substitution on both aromatic rings showed a remarkable influence on the fluorescence properties, this was rationalized using theoretical calculations of the charge density of both HOMO and LUMO orbitals. This new pyrazolines are potential fluorescent markers for biological systems.