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(57) Abstract :
The present invention relates to the synthesis and characterization of a novel pyrazoline derivative, 4-(5-(4-chlorophenyl)-1H-pyrazol-3-yl)-N-(1-(p-tolyl) ethylidene) aniline. The compound was synthesized by condensation of substituted p-benzaldehyde with p-aminoacetophenone in ethanolic alkali solution to form a chalcone intermediate, which was subsequently treated with hydrazine hydrate and condensed with 4-methylacetophenone in ethanolic acetic acid. The obtained product was purified by crystallization in ethanol. Structural characterization was confirmed by thin layer chromatography (Rf 0.64 in ethyl acetate:n-hexane 1:1), melting point (110–150 °C), infrared spectroscopy (NH, C–H, C=O, C=C, and C–N stretches), and ^{1}H NMR analysis, which revealed distinctive signals for NH, aromatic, aliphatic, and olefinic protons. The novel compound, having molecular weight 385.89, was obtained in 50.5% yield. The invention provides a reproducible process and structural confirmation of the compound for potential pharmaceutical applications.

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