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Synthesis, Anti-inflammatory, Analgesic and Antipyretic activity of novel 1,3,5-Trisubstituted Pyrazole derivatives

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Abstract

A novel series of 1,3,5-trisubstituted pyrazole derivatives were synthesized by the cycloaddition reaction between the electron rich N-substituted aryl hydrazones and nitro-olefins. Different N-substituted aryl hydrazones **(1a-j)** on reacting with 4-methyl-β-nitrostyrene **(2)** in ethylene glycol or trifluoroethanol-trifluoro acetic acid mixture (for acid stable hydrazones) at 120^0C, yielded various 1,3,5-trisubstituted pyrazoles **(3a-j)**. The final products were characterized by detailed spectral analysis using Mass, NMR and IR spectroscopy. The title products were assessed for their anti-inflammatory, analgesic and antipyretic activities on Swiss albino rats. All the compounds **(3a-j)** exhibited noteworthy defence against inflammation, nociception and hyperthermia. Compounds (**3e** and **3h**) disclosed better anti-inflammatory, analgesic and antipyretic activities while compound **3c** had highest anti-inflammatory activity compared to the standard Nimesulide.

***Keywords**:* Cycloaddition, Nitro olefins, Hydrazones, Anti-inflammatory, Analgesic, Antipyretic.