

Synthesis and antioxidant activity of some new 1-(aroyl)-4-([2-hydroxyphenyl] methylidene)pyrazolidine-3,5-diones

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ABSTRACT The synthesis of some new 1-(aroyl)-4-([2-hydroxyphenyl] methylidene) pyrazolidine-3,5-diones (**5A-O**) was accomplished by the reaction of 1-(aroyl) pyrazolidine-3,5-diones (**4A-O**) with *o*-hydroxybenzaldehyde by Knoevenagel condensation reaction. An investigation of antioxidant activity was performed using the 2,2-diphenyl-1-picrylhydrazyl assay, with ascorbic acid as the standard. Several compounds exhibited significant free radical-scavenging activity, which may be attributed to the presence of electron-donating substituents and a phenolic hydroxyl group in the molecular framework. The derivatives **5O** (half-maximal inhibitory concentration [IC_{50}] = 3.047 ± 0.05 $\mu\text{g/mL}$), **5E** (IC_{50} = 3.376 ± 0.02 $\mu\text{g/mL}$), **5H** (IC_{50} = 3.647 ± 0.07 $\mu\text{g/mL}$), **5L** (IC_{50} = 3.985 ± 0.04 $\mu\text{g/mL}$), and **5C** (IC_{50} = 4.487 ± 0.04 $\mu\text{g/mL}$), showed maximum potency among all the synthesised derivatives compared to standard ascorbic acid (IC_{50} = 10.221 ± 0.02 $\mu\text{g/mL}$).

KEY WORDS Pyrazolidine-3,5-diones, Knoevenagel condensation, Antioxidant activity, 2,2-diphenyl-1-picrylhydrazyl assay.

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