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(57) Abstract :
The present invention relates to the synthesis and characterization of a novel heteroaryl acetamide derivative, ((E)-2-(4-(3-(furan-2-yl)-3-oxoprop-1-en-1-yl)-2-methoxyphenoxy)-N-(4-nitrophenyl) acetamide). The compound has been rationally designed by incorporating furan, methoxyphenoxy, and nitrophenyl moieties to enhance structural stability, electron delocalization, and biological activity. In silico analysis, including Lipinski's rule of five and ADME profiling using SwissADME, confirmed its drug-likeness and potential oral bioavailability. The compound further demonstrated antioxidant potential through standard free radical scavenging assays, indicating its suitability for therapeutic use against oxidative stress–related disorders. This invention provides a novel chemical scaffold with promising pharmaceutical applications and potential as a lead candidate for future drug development.

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