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Synthesis, Characterization and Pharmacological Activity of Newly Synthesized Thiohydantoin Derivatives from Benzil

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Abstract: *Thiohydantoin derivatives have been recognized as a class of compounds with diverse pharmacological properties, including antimicrobial, anticonvulsant, and antioxidant activities. In this study, we synthesized new thiohydantoin derivatives by substituting phenylthiourea with benzil. The substitution reaction was carried out by a simple and efficient method, and the products were characterized by various spectroscopic techniques such as FT-IR, NMR, and mass spectrometry. The synthesized thiohydantoin derivatives were evaluated for their pharmacological activity, including antioxidant and antimicrobial properties. The antimicrobial activity of the synthesized thiohydantoin derivatives was evaluated against various bacterial strains, including Staphylococcus aureus, Escherichia coli, Pseudomonas aeruginosa, and Salmonella typhimurium. In conclusion, the synthesized compounds exhibited significant antioxidant and antimicrobial properties, suggesting that they may have potential as drug candidates for the treatment of various diseases caused by oxidative stress and bacterial infections. Further studies are needed to elucidate the mechanisms of action and to explore their full therapeutic potential*

Keywords: Thiohydantoin, Benzil, Phenylthiourea, FT-IR, NMR, anti-microbial activity

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