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Hybrid Molecules: A Promising Approach to Design Potent Antimicrobial and Anticancer Drugs

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Abstract : A series of amine/ester-linked hybrid compounds containing pharmacophores, such as ursolic acid, oleanolic acid, ferrocene and bisphosphonates, were synthesized in an attempt to develop potent antibacterial and anticancer agents. Their structures were analyzed and confirmed using Nuclear Magnetic Resonance, Fourier Transform Infrared Spectroscopy, and mass spectroscopy. All the synthesized hybrid compounds were evaluated for their antibacterial activities against eleven selected bacterial strains using a serial dilution method. Some of the compounds displayed significant antibacterial activity against most of the bacterial and fungal strains. In addition, the in vitro cytotoxicity of these compounds was also performed against selected cancer cell lines. Some of the compounds were also found to be more active than their parent compounds, revealing the efficacy of designing hybrid molecules using plant-based bioactive agents.

Keywords : ursolic acid, hybrid drugs, oleanolic acid, bisphosphonates
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