

Synthesis, characterization, and biological applications of Adamantane Ferrocenyl Derivatives

Cancer is the second leading cause of death in the United States, following heart diseases. Conventional therapy to treat this disease includes invasive procedures like chemotherapy. Instead, combinatory therapy has caught the attention of organic and medicinal chemists as a promising pathway to synthesize anticancer drugs. Adamantyl derivatives has proved to be a very effective agent against diseases of the Central Nervous System (CNS), anticancer, antiviral, antibacterial, antidiabetic and antimalarial. These properties have attracted the attention of the medical industry. Furthermore, chalcones, urea and thiourea are scaffolds that have demonstrated excellent bioavailability and maximum tolerance in the human body as well as an extensive biological activity, including cancer. Ferrocene, an organometal from the metallocene family, has proven bioactivity, such as anticancer, antimalarial, antioxidant, antimicrobial, cytotoxicity, and lipophilicity. Moreover, it is documented that incorporating different bioactive groups to organic cores could enhance their properties. Therefore, our hypothesis states that incorporating all these functionalities with their independent bioactivities into a novel scaffold, will lead candidates with significant biological potential.