

Synthesis, Characterization and Biological Activities of Azomethine Derivatives

Authors : Lynda Golea, Rachid Chebaki

Abstract : Schiff bases contain heterocyclic structural units with N and O donor atoms which play an important role in coordination chemistry. Azomethine groups are a broad class of widely used compounds with applications in many fields, including analytical, inorganic chemistry and biological. Schiff's base is of promising research interest due to the widespread antibacterial resistance in medical science. In addition, the research is essential to generate Schiff base metal complexes with various applications. Schiff complexes have been used as drugs and have antibacterial, antifungal, antiviral, and anti-inflammatory properties. The various donor atoms they contain offer a special ability for metal binding. In this research on the physicochemical properties of azomethine groups, we synthesized and studied the Schiff base compounds by a condensation reaction of tryptamines and acetophenone in ethanol. The structure of the prepared compound was interpreted using ¹H NMR, ¹³C NMR, UV-vis and FT-IR. A computational analysis at the level of DFT with functional B3LYP in conjunction with the base 6-311+G (d, p) was conducted to study its electronic and molecular structure. The biological study was performed on three bacterial strains usually causing infection, including Gram-positive and Gram-negative, for antibacterial activity. Results showed moderate biological activity and proportional activity with increasing concentration.

Keywords : azomethine, HOMO, LUMO, RMN, molecular docking

Conference Title : ICCABHS 2023 : International Conference on Chemical, Agricultural, Biological and Health Sciences

Conference Location : Jeddah, Saudi Arabia

Conference Dates : November 20-21, 2023