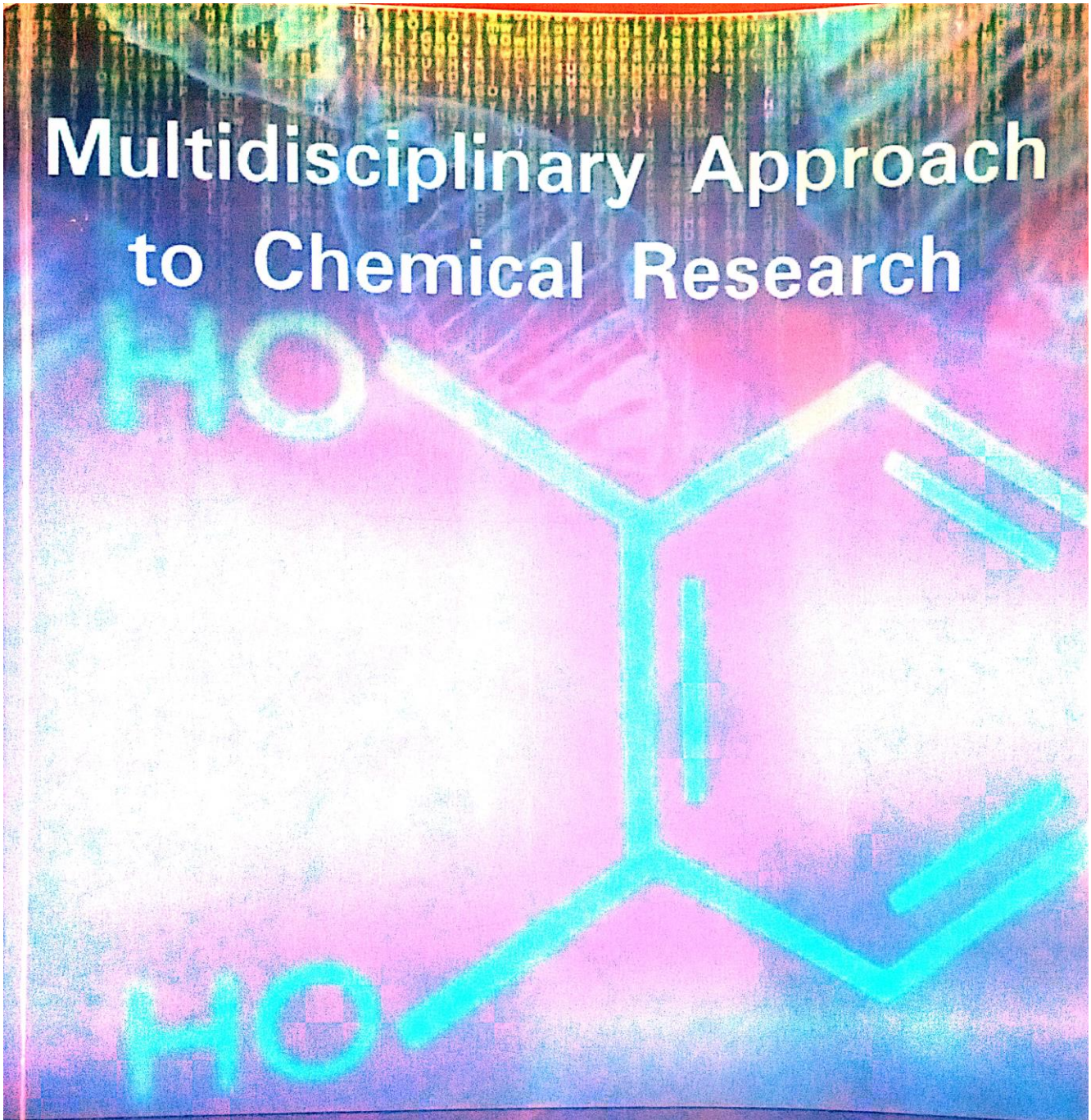
Multidisciplinary Approach to Chemical Research



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SYNTHESIS, CHARACTERIZATION AND ANTIBACTERIAL ACTIVITY OF 8-HYDROXYQUINOLIN-1-IUM 2,2,2-TRICHLOROACETATE CRYSTAL

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Abstract

A charge transfer (CT) crystal between Trichloroacetic acid acid and 8-Hydroxyquinoline has been synthesized at room temperature. Single crystal 8-Hydroxyquinolin-1-ium 2,2,2-Trichloroacetate (8HQTCA) were grown and recrystallized by slow solvent evaporation solution growth method. The CT crystal has been characterized by elemental analysis, UV-visible, IR and ^{1}H and ^{13}C NMR spectral analysis. The thermal behavior of the CT crystal has been studied by TG- DTA analyses. The crystal show the antibacterial activity with *Staphylococcus aureus and E.Coli.*

1. INTRODUCTION

Crystal lattice plays a vital role in the formation of organic crystals by the formation of proton or charge transfer crystals. CT crystal acts as an intermediate in wide varieties of reactions involving electron rich and electron deficient molecules [1-4]. They play a central role in bioelectrical and biological systems such as bactericides, fungicides and insecticides [5-9]. 8-Hydroxyquinoline possesses electron acceptor and electron donor groups containing nitrogen will lone pair of electron. It is commonly present in synthetic and natural products [10]. They form repeated moiety in many large molecules with interesting photo physical, electrochemical and catalytic applications [11-12]. The Trichloroacetic acid an electron acceptor to induce high NLO character [13]. Hence combination 8-Hydroxyquinoline and Trichloroacetic acid can play important role in the drug-receptor binding mechanisms.

The interactions between bio-macromolecules and drugs have attracted special interest in both chemistry and biology researchers during the past few decades [14–16]. Since, DNA is one of the main molecular targets in the design of anticancer compounds, interaction between nucleic acids and other molecules is a fundamental issue in life science that relates the replication, transcription, mutation of genes, variations of species in character, origin of some