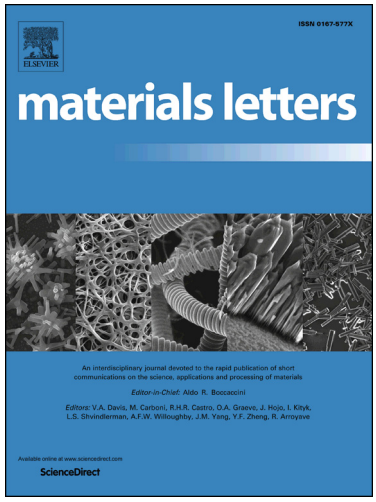

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Structural investigation, spectral characterization, thermal and antibacterial activity on a organic crystal: 2-aminopyrazin-1-ium3-carbaoxypicolinate

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Abstract

A new 2-aminopyrazin-1-ium3-carbaoxypicolinate complex (2AP3CP) has been synthesized and crystallized by (SEST) slow evaporation solution growth technique. The molecular complex, 2AP3CP is crystallized in orthorhombic system with Pbca space group. The molecular aggregations contain two parallel $C_2^2(10)$ chain motif, S(7) and $R_2^2(8)$ ring motifs. The crystal packing is dominated by N-H…O and O-H…O interactions. The functional groups involved in 2AP3CP crystal are identified by FTIR and Raman spectroscopic techniques. The grown crystal exhibited the n→π^* and $\pi\rightarrow\pi^*$ electronic transitions which are obtained using UV-Vis spectroscopy. The crystal is thermally stable upto 184°C as found by TGA/DTA analyses. The grown crystal shows the antibacterial activity against human pathogens.

Keywords: Crystal growth, X-ray technique, Structural

Introduction

The proton transfer between donor and acceptor is crucial reaction in chemistry and biochemistry. These interactions are stabilizing the molecular structures, controlling the speed of the enzymatic reactions and constructing supramolecular structures. Inter and intra molecular hydrogen bonds are important in the area of crystal engineering and supramolecular synthesis [1]. Heterocyclic compounds include pyridine ring and pyridine derivatives has a specific aspect in pharmaceutical [2,3]. Substituted pyridines are good candidates for supramolecular synthons