

Abstract

This work is devoted to the synthesis and structural characterization of new compounds based on glutaric acid with alkaline earth metals with the incorporation of amines in the synthesis.

Four new coordination polymers were found by aqueous and hydrothermal route, three between them with strontium metal and the fourth with barium, as well as the imidazolium was co-crystallized in two compounds.

Single crystal X-ray diffraction was used for the structural determination of the compounds, DRX on powder to confirm the purity of the compounds, used the IR as a preliminary analysis, the ATG for the study of thermal stability, then we will end with the study of hydrogen bonds networks and the analysis of Hirshfeld surfaces.

An electrochemical study was carried out on a single compound to see the growth of its inhibitory power on the corrosion of aluminum, which reached a very good value, on the other hand the rest of the compounds did not show any inhibitory effectiveness against the corrosion of aluminum.

Key words: Glutaric acid, alkaline earth metals, single crystal XRD, Hirshfeld surface analysis, corrosion inhibition.