Abstract

Double perovskite oxides are the most promising materials due to their tunable properties and multifunctionality in various fields. Here we synthesize the Double perovskite oxides M_2FeAlO_6 (M=La, Ho, Dy) through Solid-state Reaction Method using La_2O_3, Ho_2O_3, Dy_2O_3, Fe_2O_3 , Al_2O_3 powders. The materials' structure and surface morphology are examined using X-ray diffraction and Scanning Electron Spectroscopy. Energy dispersive X-ray spectroscopy (EDS) has been used to analyze the material's chemical and phase composition. FTIR is used to study the molecular structure and composition and Dielectric Spectroscopy is performed to study the electrical properties and their responses to varying electric fields or frequencies of M_2FeAlO_6 (M=La, Ho, Dy). Pure M_2FeAlO_6 have been synthesized and have various applications in many fields.