

Lead-based perovskites are the most promising materials in field of optoelectronics, but their harmful environmental effect and instable structure is a main hurdle of its performance. Here we synthesis the lead free halide pervoskite Cs_2SiX_6 ($X = Cl, Br, I$) tthrough Hydrothermal Synthesis, using the Cesium Acetate, Silicon Acetate and Hydro-chloric Acid, Hydro-bromic Acid and Hydro-iodic Acid as a starting material. For the synthesis of working electrode we mix the prepared sample with Nafion, Iso-propyl alcohol and distilled water. The structure and surface morphology of the the samples are analyzed by X-ray diffraction and Scanning Electron Spectroscopy. For chemical and phase composition analysis of the material Energy dispersive X-ray spectroscopy (EDS) has be performed. UV-Visible spectroscopy and Photoluminescence Spectroscopy has been used to calculate its band of prepared samples. Cyclic Voltammetry (CV) has also been performed to monitor its electrochemical property. Pure phase Cs_2SiX_6 have been synthesized and have many potential applications in different fields.