

Synthesis and Characterization of Nanomaterials obtained by Sol-Gel Synthesis

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Sol-Gel synthesis is one of the best chemical process to make nanocrystalline powders of various complex solids of uniform composition and size. Various lanthanide based metal oxides are synthesized by employing citrate route. Scanning Electron Microscopy and EDX analysis is employed to study the morphology, particles size and distribution of particle size and chemical composition. Variable pressure SEM equipment is used for this purpose and the results are presenting here. The compounds synthesized and characterized are, LaMnO_3 , $\text{La}_{0.5}\text{Ca}_{0.5}\text{MnO}_3$, $\text{Nd}_{0.5}\text{Ca}_{0.5}\text{MnO}_3$ and LaFeO_3 . The particle size of all the samples prepared is around 25 nm and chemical compositions from EDX analysis are found to be stoichiometric with in experimental errors.