GREEN SYNTHESIS OF NANO SCALE BARIUM STANNATE CERAMIC –
INFLUENCE OF CALCINATION TEMPERATURE ON PHASE
PURITY AND LUMINE SCENCE PROPERTY

SUDHAPARIMALA. S & RAJARAJESHWARI. M
Assistant Professor, Department of Chemistry, Ethiraj College for Women, Chennai, Tamil Nadu, India

ABSTRACT
Stannates of alkaline earth metals in the nano scale are widely explored due to their ceramic, phosphorescent, electronic properties and among them Barium stannate as a composite or single phase ceramic is significant. The present study involved two step synthesis of barium stannate using the green extract of aloe vera as the medium and at two lower calcination temperatures of 850˚C and 1200˚C. The X-ray diffractograms indicated the phase purity of cubic perovskite structure in both the calcined samples with the average crystallite size of 52nm. The complete disappearance of barium carbonate and tin (IV) oxide phases was achieved at a temperature of 1200˚C. The Photoluminescence study confirmed the prospect of using the sample of Barium stannate as an effective phosphor. The anti-bacterial study of the samples was not satisfactory at the given concentration and solvent. Ultimately the study provided a simple and cost effective process of preparing a multi-dimensional nano scale barium stannate ceramic.

KEYWORDS: Stannate Ceramic, Nano Composite, Aloe Vera & Barium Stannate

Received: Jan 22, 2017; Accepted: Mar 03, 2017; Published: Mar 14, 2017; Paper Id.: IJAPCRAPR20171