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(57) Abstract :

The present invention relates to a process for combustion synthesis of red phosphor for plant cultivation. The object is to synthesize Sm<sup>3+</sup> activated Ba<sub>3</sub>Y(BO<sub>3</sub>)<sub>3</sub> phosphors via combustion route. The concentration of Sm<sup>3+</sup> ions is varied from 0.5 to 5 mol% in host lattice. The synthesized phosphors are characterized by X-ray diffraction, scanning electron microscopy, Fourier transform infrared spectroscopy and photoluminescent techniques. The excitation spectra consisted of strong peaks in near UV and blue region. The phosphors on excitation at 449 nm exhibited a strong emission peak in the region 644 nm in far red region of spectrum, which corresponds to absorption spectra of PR phytochrome. In this invention obtained photometric novel results reveal that these can be used for fabrication of light emitting diodes for indoor plant applications by using Sm<sup>3+</sup> ion emission. Following invention is described in detail with the help of Figure 1 of sheet 1 showing the XRD patterns.

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