

Preparation and Optical Properties of Porphyrin Nanoparticles using Microwave Method

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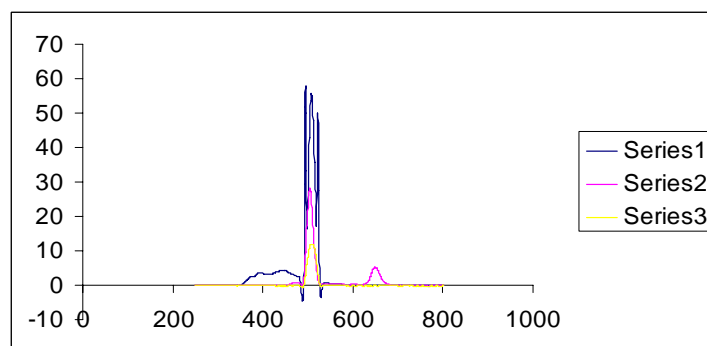
Fabrication techniques of organic molecular nanoparticles have been one of topics in nanoscience and nanotechnology. Kasai et al. have been established a strategy to control the size of organic particles in nano level by reprecipitation method. They have succeeded in making organic nanoparticles such as aromatic compounds, organic dyes and polydiacetylene derivatives[1]. Alternatively Tamaki et al. proposed a laser processing technique to generate organic nanoparticles by laser ablation of organic dyes in microcrystal dispersion[2]. It is possible to downsize the porphyrin crystal to nano level by these techniques and some groups have succeeded in preparing porphyrin nanoparticles[3-5].

We report a method for the fabrication of porphyrin nanoparticles. nanoparticles were produced by a combination of the reprecipitation method and microwave irradiation, termed the "microwave method". The absorption spectra of nanoparticles were investigated. The porphyrin molecule solutions and nanoparticle dispersions were also used for emission spectroscopy Using a luminescence spectrometer.

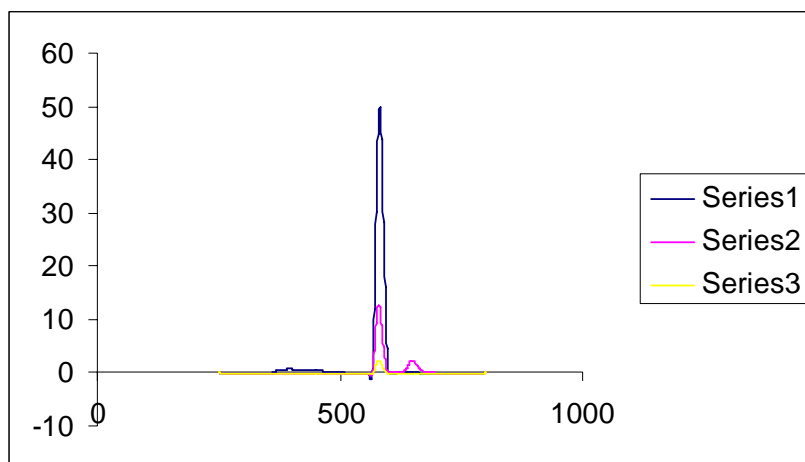
References:

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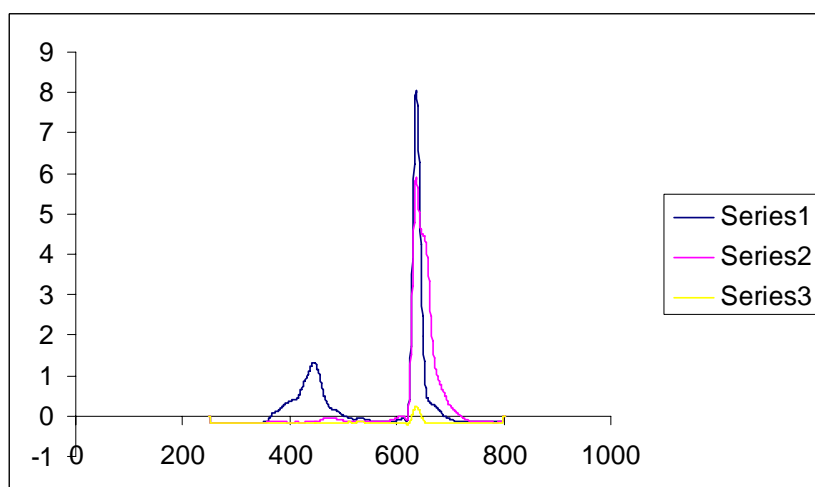
Figures:



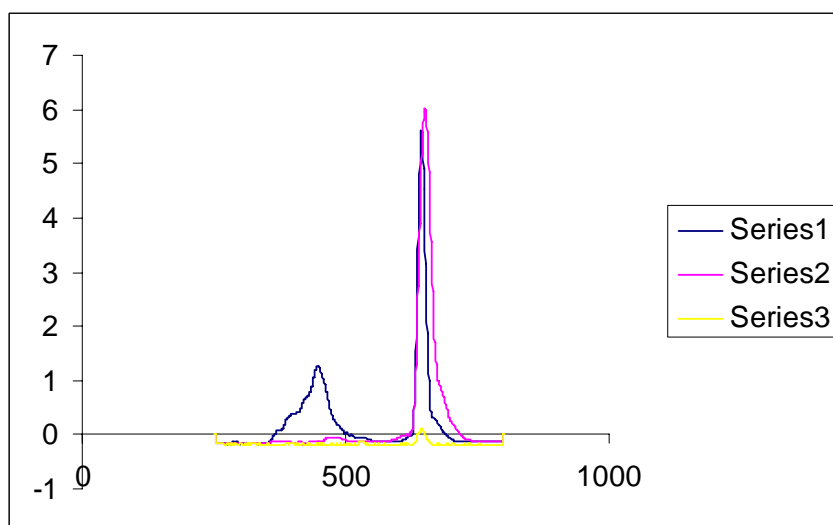
fluorescence of porphyrin nanoparticles and solutions excited at 515nm



fluorescence of porphyrin nanoparticles and solutions excited at 590nm



fluorescence of porphyrin nanoparticles and solutions excited at 646nm



fluorescence of porphyrin nanoparticles and solutions excited at 653nm