



# 38<sup>th</sup> Global Nanotechnology Congress

Environmental, Industrial and Medicinal Applications of Fungi Chitosan-Ttania Nanocomposites

## Dr.Saikumari N

R.M.K.College of Enginnering and Technology, India

Nano structured titania composites have been expansively studied under heterogeneous photo catalysis, self cleaning, antimicrobial and antitumor applications. In this work a series of titania-Chitosan nano composites were prepared by in-situ sol-gel technique and widely characterized using conventional techniques. Chitosan used was derived from mushroom, fungi to manipulate the resultant nano materials to mixed anatase-rutile phased with irregular morphology and particle size ranging from 10-11 nm. The visible light bioactive nano catalysts with unique bathochromic shift (421 nm) and low band gap energy (2.64 eV) comprehensively enabled photo degradation of Congo red, a model pollutant to show 100 % discoloration and 82 % demineralization. The catalysts were subjected to further investigations for in-vitro anti bacterial, anti fungal and cyto toxicity against human pathogens. The results has shown that synthetic method has no influence on the physico-chemical characteristics as well as applications of nano materials produced and Chitosan as an efficient biotemplate in enhanced biocompatibility. Thus visible active TiO<sub>2</sub>-chitosan composites produced by sol-gel technique can act as best sustainable green catalyst and recommended further in bio-medical and tissue engineering.

**Keywords:-** Mesoporous, nanomaterials, anti-microbial, absorption edge, contaminant, red shift.

## Biography

Saikumari N has completed her Ph.D degree in the field of Photocatalysis using templated Nanomaterials applied to demineralize toxic pollutants in the various water sources. She has more than 25 years of teaching and 8 years of research experience.