

9th Nano Congress for Next Generation

August 01-02, 2016 Manchester, UK

Chitosan a potent nanoparticle for nutritient delivery into plant systems

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Fertilizers are organic compounds applied to plants to enhance growth and are applied either to the soil directly or by foliar spreading. Thus applied fertilizers contribute to provide macro nutrients (NPK) to the plant. NPK helps in leaf growth, enhances root elongation, fruiting & flowering, etc. According to Saigusa. *et al.*, 40-70% of Nitrogen, 80-90% of Phosphorous, 50-70% of Potassium are lost to the environment but not absorbed by the plant, increasing the intrinsic economic loss and heavy environmental pollution. Hence usage of bio fertilizers may be very much helpful in reducing the problem to major extent. Plants easily absorb bio fertilizers and as they are from an organic source they may not harm the environment. But the absorption rate of bio fertilizers by the plants is very low so, to enhance it certain facilitators are used which in conjugation with nutrients may help in easy absorption of the nutrients. Recent studies have revealed that nanoparticles are one of the best mediators for delivering nutrients to the plants. There are several inorganic mediators like silver nanoparticles, nanotubes, nano beads etc., and among them chitosan is found to be a potent mediator for nutrient delivery. Studies have discovered that chitosan nanoparticles have controlled release of NPK fertilizer to the plants. Chitosan is a polysaccharide derived from chitin a skeletal material of crustaceans. Due to its poly cationic nature, chitosan reacts with negatively charged molecules showing a favourable reaction. Thus the ability of its controlling nanoparticle size it is highly favourable for most of nanotechnology applications.

Biography

Surya Anjani Kumar is a Post-doc at JNTU Hyderabad working on an exciting topic "Effect of fresh water crab shell fog on Cucurbitaceae & identifying biological growth promoters". His work is mainly concentrated on applying fog at field level, observing phenotypic changes & identifying the novel volatile compound which is responsible for the effect specifically on Cucurbitaceae. Present paper is a deviation of his research work, while identifying other potential plant growth promoters in a cost effective way he came across the present work & it is going to be presented in the conference.

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