R Mala, Agrotechnol 2014, 2:4
http://dx.doi.org/10.4172/2168-9881.S1.011

OMICS Group Conferences
Accelerating Scientific Discovery

3rd International Conference on
Agriculture & Horticulture
October 27-29, 2014 Hyderabad International Convention Centre, India

# Fabrication of nano structured PGPR mediated slow release fertilizer system and its influence on germination of *Arachis hypogea*

**R Mala**
Mepco Schlenk Engineering College, India

Post green revolution era is marked by the loss of sustainable agricultural productivity. Excessive use of fertilizers has polluted the environment. So the use of Slow Release Fertilizer (SRFS) is a technologically advanced alternative to the efficient use of fertilizers. But existing SRFS has many limitations like the use of toxic chemicals or the burst release of plant nutrients from polymer coatings. So the present work is aimed to fabricate slow release fertilizers using neem cake, insoluble form of nano fertilizer and Plant Growth Promoting Rhizobacteria to aid in sustainable productivity through improving soil fertility. Shelf life of slow release fertilizer in its carrying capacity of PGPR, water absorbing property of slow release fertilizer, water holding capacity of soil fortified with SRFS was assessed. SEM analysis recorded particle size of nano fertilizer to be 64 to 73 nm. Multiplication of PGPR in SRS was proficient in six months. It increased from 5 x 102 cfu/g of SRFS on to 94 x 102 for phosphate solubilising bacteria, 32 x 103 cfu/g for *Pseudomonas fluorescence* and 94 x 103 cfu/g for potash activa. The ability of SRF to stimulate germination of Arachis hypogea was assessed after six months of SRFS fabrication. It was found to be 88 % in control and 100 % in SRFS. Seed vigor index was significantly high in SRF treated seeds. Water holding capacity of soil near rhizosphere was found to be comparatively good than soil without any SRF application. Thus the study proved that SRFS fabricated by neem cake as carrier played a multiple role and stimulated germination.

**Keywords:** Slow release fertilizer, nano fertilizer, seed vigour index and *Arachis hypogea*.

## Biography

R Mala, Associate Professor, Department of Biotechnology, Mepco Schlenk Engineering College, Sivakasi, Tamil Nadu completed her PhD in Biochemistry. She had published 14 papers in International journals and 3 in National journals. She had 32 International conference publications and is teaching since 1994.

maalsindia@gmail.com