IJPS INTERNATIONAL JOURNAL OF PLANT SCIENCES
Volume 7 | Issue 2 | July, 2012 | 316-321

RESEARCH ARTICLE

Low cost technology for storage of microbial inoculants

■ G. ROOPA DEVI, S. SHANKAR AND G. P. BRAHMAPRAKASH

SUMMARY

The experiment was conducted to store the microbial inoculants such as *Azotobacter chroococcum, Trichoderma viride* and *Pseudomonas fluorescens* in the pitcher technology by using lignite and talc as carrier material. Survivability of these microbial inoculants were monitored upto 120 days. More survival at the end of the 120 days observed in inoculants stored in earthen pot covered with wet sand and least in earthen pot stored at 38°C. Per cent decline survival of *Azotobacter chroococcum* from 0th to 120th day was maximum in inoculants placed in earthen pot maintained at 38°C. Least decline was observed in case of inoculants stored in earthen pot covered with wet sand. Maximum viable cells of *Pseudomonas fluorescens* in lignite at end of storage period was found in earthen pot covered with wet sand. Least number of cells was observed in treatment earthen pot maintained in 38°C. Highest per cent decline was observed in earthen pot maintained in 38°C about 8.8 per cent and lowest of 0.21 per cent in treatment wet sand. Per cent population decreases from 0th day to 120th days of storage of *Trichoderma viride* was more in talc inoculant stored in earthen pot maintained at 38°C followed by carriers at room temperature and inoculants at earthen pot alone. Least per cent population decrease was noticed in inoculants stored in earthen pot covered with wet sand .

Key Words : *Azotobacter chroococcum, Pseudomonas fluorescens*, Storage of microbial inoculant, Pitcher technology

How to cite this article : Devi, G. Roopa, Shankar, S. and Brahmaprakash, G.P. (2012). Low cost technology for storage of microbial inoculants. *Internat. J. Plant Sci.,* **7** (2) : 316-321.

Article chronicle : Received : 15.03.2012; **Revised :** 14.05.2012; **Accepted :** 27.05.2012

One of the major constraints in the biofertilizers is lack of consistent field response. There are many reasons for this lack of response in the field. One of the factors contributing to inconsistent field response could be improper storage of these microbial inoculants. Normally the microbial inoculants are stored at ambient conditions until use. Low temperature storage under refrigeration is ideal to enhance / maintain effectiveness and viability. It is not possible for all farmers to store biofertilizer under refrigeration. There is a need to explore possibilities of storing these live microbial inoculants under low temperatures other than refrigeration.

MEMBERS OF THE RESEARCH FORUM

Author to be contacted :
S. SHANKAR, Department of Agriculture Microbiology, College of Horticulture, BIDAR (KARNATAKA) INDIA
Email: microshankar@gmail.com

Address of the Co-authors:
G. ROOPA DEVI AND G.P. BRAHMAPRAKASH, Department of Agriculture Microbiology, University of Agricultural Sciences, G.K.V.K., BENGALURU (KARNATAKA) INDIA

MATERIALS AND METHODS

Experiment was taken up to test the survival of different microbial inoculants in earthen pots (pitcher) up to 120 days and to assess feasibility of locally available materials in enhancing the shelf life of selected microbial inoculants**.** Lignite and talc based *Azotobacter chroococcum*, *Trichoderma viride* and *Pseudomonas fluorescens* microbial inoculants were prepared and placed in the pitcher technology.

Establishment of pitcher (earthen pot) technology :

Pitcher technology is an indigenous method to store microbial inoculants. Pitcher technology is nothing but "use of earthen pots for storage of microbial inoculants". Microbial inoculants in two carrier materials were placed in these pots. These pots were placed individually in wooden boxes filled with different locally available materials such as pot kept in wooden box without any filler material served as control, thermocol treatment wooden box was lined inside with thermocol to serve as an insulation material, moist sand, wet paddy straw and saw dust around earthen pot and carrier