## Effect of different bioinoculants on seed germination, seedling emergence and seedling mortality of Rangpur lime

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(Accepted :September, 2006)

## SUMMARY

Effect of different bioinoculants on seed germination of Rangpur lime was studied using Rolled Towel method. At 20<sup>th</sup> day of observation, seed treatment with *Acetobacter diazotrophicus* recorded maximum seed germination (64.66%). In field experiment conducted at Horticulture Research Farm, M.A.U., Parbhani, highest seedling emergence (93.75%) and lowest seedling mortality (6.25%) was observed in the plots inoculated with Biomix followed by the mortality reduction in the plots inoculated with *Trichoderma viride* (10.00%) and *T. harzianum* (10.75%).

Key words : Seed germination, Seedling emergence, Seedling mortality, Trichoderma spp.

During last several years some notable successes of disease control were achieved through biological control. Amongst the different biocontrol agents, *Trichoderma* spp. were reported to be a leading agent. In addition to this, different bacterial strains, viz. *Azatobacter, Acetobacter, Azospirrillum,* PSB, *Pseudomonas* etc. proved their efficiency in enhancing the growth and productivity of crop. Considering these observations, the beneficial influence of these different bioinoculants on seed germination, seedling emergence and seedling mortality of Rangpur lime were studied in laboratory and field trial conducted at Department of Plant Pathology and Horticulture Research Farm, M.A.U., Parbhani.

## MATERIALS AND METHODS

Seeds of Rangpur lime obtained from Agriculture School and Central Nursery, M.A.U., Parbhani were treated with different bioinoculants. Treatment was done by soaking the seeds overnight in the culture filtrate of different bioinoculants. Then these seeds were placed on rolled towel and the paper was rolled and covered with polythene paper before this paper was made sufficient wet. As and when required, water was sprinkled on the paper to maintain sufficient quantity of moisture. Observation regarding number of seeds germinate was recorded at 20<sup>th</sup> day after placement of seeds.

The germination percentage was calculated as follows :

No. of seeds germinated Germination (%) =  $\_$  x 100 Total no. of seeds placed for germination

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The field experiment on the effect of different bioinoculants on seedling of Rangpur lime was conducted at Horticulture Research Farm, M.A.U., Parbhani. The raised beds were prepared by ploughing and harrowing. Raised beds of  $10 \times 5$  feet size were prepared. Each bed had 10 lines and in each line 40 treated seeds were sown. Soil inoculation was carried out by mixing the inoculum of bioinoculants in the soil while sowing the seeds of Rangpur lime. The experiment was considered in Randomized Block Design. The details of treatment were as follows.

 $\begin{array}{rcl} T_{1} & = & Trichoderma \ harzianum \\ T_{2} & = & T. \ hamatum \\ T_{3} & = & T. \ viride \\ T_{4} & = & T. \ viride \\ T_{5} & = & T. \ lignorum \\ T_{6} & = & Gliocladium \ virens \\ T_{7} & = & Biomix \\ T_{8} & = & Control \end{array}$ 

The observations on seedling emergence and seedling mortality of Rangpur lime were recorded 60 days after sowing. Physical count of healthy seedlings per plot was recorded as seedling emergence and physical count of wilted seedlings per plot was recorded as seedling mortality.

Per cent seedling emergence and per cent seedling mortality was calculated by using following formulae.

No. of seedlings emerged Per cent seedling emergence = - x 100 Total no. of seeds sown