Research Paper :

Effect of bio-agent seed treatments on seed and seedling diseases of groundnut

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International Journal of Plant Protection (April, 2010), Vol. 3 No. 1 : 68-71

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SUMMARY

Experiment was conducted on the effect of bio-agent seed treatments on seed and seedling disease of groundnut variety Amber with three treatments and three doses of each treatment. Observations were recorded on seed germination, seedling length and seed vigour index and appearance of disease in response to application of different treatments and their doses. It was observed that *T. viride* @ 8 g/ kg seed was found most effective in improving the seed germination and reducing disease incidence of groundnut as compared to *Rhizobium* and PSB at their different doses.

Key words : Groundnut, Bio-agent and seed vigour index

Accepted : *February, 2010*

Groundnut (*Arachis hypogaea* L.) being a legume oilseed crop plays a double role in building of the economy of the country. The most valuable product from this oilseed is the oil and that from legume, the protein. It builds up the soil fertility by fixing atmospheric nitrogen through the root nodules and also is an efficient cover crop for land exposed to soil erosion. Being an oilseed crop, it contains 40 to 60 per cent oil. In addition to protein, groundnut is a good source of calcium, phosphorus, iron, zinc and boron. It also contains vitamin E and small amount of vitamin B complex. Like other crops, groundnut also suffers from several fungal, viral, bacterial and nematode diseases. Considering the importance of groundnut and the losses caused by diseases to this crop particularly at seed and seedling stages, several methods have been used to reduce the disease losses but still there is need to find out an effective and eco - friendly method to reduce the disease losses through bio-agent / bio pesticide. Therefore, this experiment was planned for investigation.

MATERIALS AND METHODS

The experiment was conducted on groundnut variety "Amber" collected from seed processing plant of C.S.A. University of Agriculture and Technology, Kanpur. The bio-agents included in the test were *Trichoderma viride*, *Rhizobium* and PSB (Phosphorus solubilizing bacteria) @ 4, 6 and 8 g/ kg seed. The laboratory work was done under controlled conditions in the Seed Testing Laboratory of Seed Science and Technology Department, C.S.A.University of Agriculture and Technology, Kanpur during 2008-09.

Laboratory analysis :

The collected seeds were tested for the following quality parameters:

Germination test :

Four hundred seeds were tested for germination in four replications of 100 each in completely randomized block design. The medium used for germination was between papers (B.P.). The seeds were tested and placed for germination in germination chamber at 25^0 C along with control.

Observations recorded on standard germination test as normal seedlings (%), abnormal seedlings (%), dead seeds (%) and dormant seeds (%). First and final counts on 5^{th} and 10^{th} day of putting of the samples as normal, abnormal seedlings, dead and dormant seeds were noted.

Measurement of seedling length:

Ten seedlings were randomly taken from each replication on final count day. Total seedling lengths (root + shoot length) were immediately measured in cm and averaged.