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# Effect of organic amendment, N-fertilization and biofertilizers on growth and productivity parameters of tomato in relation to the management of pathogenic fungi and phytoparasitic nematodes

**Sartaj A Tiyagi, Rose Rizvi, Safiuddin, Aisha Sumbul and Irshad Mahmood**
Aligarh Muslim University, India

A field experiment was carried out during 2009-2012 at Agricultural Research Farm of Aligarh Muslim University to study the effect of soil amendment with linseed cake, biofertilizers such as *Azospirillum brasilense* and *Azotobacter chroococcum* singly and in various combinations along with different recommended doses of inorganic nitrogen fertilizer on growth, yield and agronomic parameters of tomato (*Solanum esculentum*) in relation to the management of pathogenic fungi and phytoparasitic nematodes. Significantly reduction was observed in the population of pathogenic fungi and nematode multiplication due to soil application of linseed cake, biofertilizers along with different recommended doses of inorganic fertilizer in inoculated plants compared to untreated control. The highest enhancement was recorded in the yield and growth parameters such as plant height, fresh as well as dry weights, fruit weight/plant, and number of total fruits/plant, number of branches, ascorbic acid content and chlorophyll content when these biofertilizers were added concomitantly in various combinations. *Azospirillum* was found to be more effective than *Azotobacter*. The incorporation of linseed cake at a rate of 110kg N/ha with biofertilizers and recommended doses of nitrogenous fertilizer significantly reduced the multiplication of phytonematodes such as *Meloidogyne incognita, Rotylenchulus reniformis, Tylenchorhynchus brassicae* etc. The frequency of occurrence of soil-borne plant pathogenic fungi Macrophomina phaseolina, Fusarium oxysporum, Rhizoctonia solani etc. decreased significantly in the beds treated with linseed cake and biofertilizers along with recommended doses of nitrogen fertilizer. However, the frequency of saprophytic fungi such as Aspergillus niger, *Trichoderma viridae* and *Paecilomyces lilacinus* was increased. Agronomic parameters like NPK contents in plants as well as in soil increased considerably in almost all the combinations irrespective of biofertilizers and linseed cake.

**Keywords:** Linseed cake, Azospirillum brasilense, Azotobacter chroococcum, pathogenic fungi, phytoparasitic nematodes, Tomato.

## Biography

Sartaj A Tiyagi has completed his PhD at the age of 28 years from Aligarh Muslim University, Aligarh and postdoctoral fellowship from CSIR New Delhi on the subject of organic farming. He has published more than 75 research papers in journals of high reputes. He is a fellow of Nematological Society of India and member of several scientific organizations.

sartajtiyagi@gmail.com