



Research Highlight

Meloidogyne incognita: A Devastating Plant Parasitic Nematode

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Agriculture sector depends heavily on its major crops that play a very pivotal role in the economy of the country and its development. Many pests and pathogens attack the crops and cause serious infections and diseases which deteriorate the quality of crops and lead towards the poor yield.

Root-knot nematode scientifically known as *Meloidogyne incognita* is a plant-parasitic nematode which is a potential threat for more than 2000 plant species¹. *M. incognita* invades plants and infects the roots of many cultivated crops which lead to a significant yield loss². It causes various metabolic alterations in the host. These alterations may occur at the cellular, physiological as well as the biochemical level that ultimately affect proper growth and development of the plant.

Moreover, *Meloidogyne* infection can induce changes in the concentration of chlorophyll pigment, protein, and oil contents³. This pathogen is also reported to lessen the photosynthetic rates in tomato and bean leaves⁴.

In addition, scientists found that protein contents and quantity of free amino

acids get reduced while on the other hand, amides show amplification after inoculation of this pathogen into susceptible as well as resistant cultivars⁵.

Considering this situation, scientists decided to design new research in order to evaluate the consequence of different initial population densities of *Meloidogyne incognita* on growth as well as biochemical parameters of leguminous plant mung bean (*Vigna radiate*) under greenhouse conditions. For this purpose, research team inoculated the root-knot nematode in the tested plant at different inoculum levels i.e., 0 (control), 200, 400, 800 and 1,600 at the rate of 1.5 kg of soil/pot⁶.

At the end of this experiment, scientists noticed a significant reduction in plant length, leaf area, fresh and dry weight, seed protein, chlorophyll, nitrogenase as well as leghaemoglobin contents in the root nodules, whereas at elevated inoculum levels the reduction was more obvious and significant. Moreover, the protein content also exhibited a major decline in the seeds of mung bean after inoculation with the nematode.

Key words:

Agriculture sector, biochemical parameters, leghaemoglobin contents, *Meloidogyne incognita*, green house conditions, *Vigna radiate*

Conclusively, amplification in inoculums level of *M. incognita* leads towards a progressive decrease in growth as well as biochemical parameters of the crop. This research will help other researchers to assess the nature of damage due to this nematode and to plan a valid strategy for its integrated management.

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