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Effects of organics and bioinoculant on growth and yield attributes of chickpea in relation to the management of phytoparasitic nematodes

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A field experiment was conducted at the University Agricultural Research Farm to assess the efficacious nature of some botanicals like *Solanum xanthocarpum*, *Argemone mexicana* and *Calotropis procera* and bioinoculant, *Azospirillum brasilense* singly and in various combinations on the growth and yield attributes of chickpea plant. Growth parameters included fresh as well as dry weights, per cent pollen fertility, number of flowers and pods, root-nodule index, nitrate reductase activity and chlorophyll content of chickpea (*Cicerarietinum* L.). Agronomic parameters were calculated in terms of N, P and K in plants as well as in soil. Although all the parameters were significantly increased in these treatments, however combined application was comparatively more effective than individual application. Among the botanicals, *Calotropisprocera* was found better in promoting plant growth than *A. mexicana* and *S.xanthocarpum*. Root-nodulation was also found more in numbers in combined treatments. A bioinoculant like *A. brasilense* was also found more effective in promoting plant growth and subsequently reducing disease intensity caused by plant-parasitic nematodes. Maximum growth and productivity were observed in combined inoculation of the botanicals as well as the bioinoculatn as compared to other treatments includinguntreated one. The present study tends to enlighten the synergistic effects of botanicals and a bioinoculant in terms of releasing nutrient and antagonistic chemicals for the multiplication of the plant pathogens.

Biography

Safiuddin Ansari has completed his M.Sc. (Botany) at the age of 23 years from CSJM University of Kanpur and MPhil in botany from Aligarh Muslim University, Aligarh. Presently he is pursuing Ph.D. in Plant Pathology from the same University on "Nematodes and fungi association and their management practices on vegetable crops". He has published more than 7 research papers in Journal of high reputes. He has also attended and presented several research papers in various National and International conferences. His main thrust area is the management of plant pathogens by using organics and bio-inoculants.

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Relative efficacy of bio-pesticides against epilachna beetle, *Henosepilachna septima* infesting bitter gourd

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Bitter gourd (*Momordica charantia* L.) crop is ravaged by an array of pests, of which, epilachna beetle, *Henosepilachna septima* alone causes about 80% damage to the crop. Being a vegetable it has its own space in Indian culinary and often consumed raw, as juice mostly by diabetic patients. Hence, a field study was undertaken in the Bhubaneswar, Odisha during *kharif*, 2012 in order to find out the efficacy of bio pesticides and botanicals against the pest as a feasible alternative to chemical insecticides. Pastes of freshly collected (250 gm) leaves of the test botanicals tied in cloth pieces were kept emerged in freshly collected cow urine (one litre) in separate covered earthen pots and allowed to ferment for seven days. These extracts were used at 10% concentration. A total of three sprayings were given, the first coinciding with the appearance of damage symptoms of epilachna beetle in the field. The observation of leaf damage was restricted to the top three leaves of three randomly selected plants per treatment. The results revealed that Cartap hydrochloride (1 kg/ha), taken as standard check, brought about the highest (5.06%) reduction of leaf damage. Among the test fermented botanicals applied at 50 litres/ha, neem (*Azadirachta indica*) was the best followed by Hyptis (*Hyptis suaveolens*) and Karanj (*Pongamia pinnata*) with 4.94, 3.43 and 3.41 percent reduction of leaf damage, respectively. The formulated neem product, multineem at 2.5 litres /ha effected 3.96% reduction in leaf damage. The other two microbial pesticides, *Beauveria bassiana* (2 kg/ha) and *Btk* (1 kg/ha) almost failed to contend the pest with very negligible reduction in percent leaf damage (1.57 and 0.14).

Biography

Swagatika Misra has completed her M.Sc. (Ag) in Entomology from in 2013 and presently pursuing Ph.D. in Entomology at Orissa University of Agriculture and Technology, Bhubaneswar, Odisha. She has published 4 research papers in national journals and 1 paper in international journal.

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