

TITLE: ANTAGONIC POTENTIAL OF *Bacillus* sp. IN THE CONTROL OF *Meloidogyne incognita* IN THE PEPPER CROP

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ABSTRACT:

The root-knot nematode, *Meloidogyne incognita*, is one of the most commonly reported species causing damage in pepper. Prevention is the best way to control soil pathogens, especially nematodes. Prevention keeps the growing area free of these pathogens, once introduced into the property, the farmer will have to live with the problem, since its eradication is quite complex. Biological control has as main objective to reduce or maintain nematode population densities at low levels that do not cause economic losses. The aim of this study was to evaluate the effect of *Bacillus* sp. in the control of *M. incognita* in the pepper crop (*Capsicum chinense* Jacq.) under greenhouse conditions. The soil used in the test was autoclaved and then inoculated with 5.000 eggs of *M. incognita* per pot. The seedlings were transplanted and the treatments were sprayed on the soil around the seedling. Seven treatments were used: (1) control; (2) commercial product Fluensulfone 1.000 mL.ha⁻¹; (3) commercial product mixture of *B. subtilis* + *B. licheniformis* 200 g.ha⁻¹; (4) *Bacillus* sp. (I307) 200 mL.ha⁻¹; (5) I307 400 mL.ha⁻¹; (6) I307 800 mL.ha⁻¹; and (7) I307 1.600 mL.ha⁻¹. The isolate *Bacillus* sp. (I307) was applied in a concentration of 1 x 10⁹ CFU.mL⁻¹. After 45 days of transplanting, plant height, root dry weight (RDW), dry weight of aerial part (DWAP), number of juveniles (J2), number of eggs and total number of nematodes (J2 + eggs) per plant were evaluated. The experimental design was a randomized block design with ten replications. The data were submitted to analysis of variance and the means were compared by the LSD test at 5% probability. For the variables height, RDW and DWAP, which are related to plant growth, no treatment caused a significant increase, however, the Fluensulfone treatment significantly decreased the three variables in 20.8, 57.6 and 46.1%, respectively, compared to the control. In relation to the number of nematodes per plant, Fluensulfone stood out, being significantly different from all treatments for number of J2, eggs and J2 + eggs. The I307 isolate was able to reduce the numbers in the tested doses of 400, 800 and 1.600 mL.ha⁻¹, by up to 51%, however, no effect was observed on eggs. The commercial product mixture of *B. subtilis* + *B. licheniformis* had no effect on the variables evaluated. The isolate I307 has an antagonistic potential to *M. incognita* without diminishing plant growth.

Keywords: root-knot nematode, rhizobacteria, biological control