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Efficacy of Nemafric-BL Phytonematicide on Suppression of Root-Knot Nematodes and Growth of Tomato Plants

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Abstract : Cucurbitacin-containing phytonematicides had been consistent in suppressing root-knot (Meloidogyne species) when used in dried crude form, with limited evidence whether the efficacy could be affected when fresh fruits were used during fermentation. The objective of this study was to determine the influence of Nemafric-BL phytonematicide prepared using fermented crude extracts of fresh fruit from wild watermelon (Cucumis africanus) on the growth of tomato (Solanum lycopersicum) plants and suppression of Meloidogyne species. Seedlings of tomato cultivar 'Floradade' were inoculated with 3 000 eggs and second-stage juveniles (J2) of M. incognita race 2 in pot trials, with treatments comprising 0, 2, 4, 8, 16, 32 and 64 % Nemafric-BL phytonematicide. At 56 days after inoculation, the phytonematicide reduced eggs and J2 in roots by 84-97%, J2 in soil by 49-96% and total nematodes by 70-97%. Plant variables and concentrations of Nemafric-BL phytonematicide exhibited positive quadratic relations, with 74-98% associations. In conclusion, fresh fruit of C. africanus could be used for the preparation of Nemafric-BL phytonematicide, particularly in cases where the dry infrastructure is not available.

Keywords : Cucurbitacin B, density-dependent growth, effective microorganisms, quadratic relations
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