

Pathogenicity of *Meloidogyne Incognita* on *Sesamum Indicum* and the Efficacy of Yield-Based Scheme in Resistance Designation

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Abstract

Two screenhouse experiments were conducted in 2004 and 2005 rainy season to investigate the reaction of three selected *Sesamum indicum* cultivars against three population densities of a root knot nematode, *Meloidogyne incognita*. Seedlings of *S. indicum* were raised in pots arranged in completely randomised design and inoculated with 0, 5 000, and 10 000 eggs of *M. incognita*, replicated six times. Root knot disease was evaluated at mid-season and harvest. A new method for evaluating and reporting resistance to *Meloidogyne* spp. that divides the screening procedure into two phases in the same experiment was adapted. The first phase investigated the host response through the traditional standard method that utilises only gall and nematode reproduction indices, while the second considered the effect of root knot disease on grain production of the crop. There was consistency in host designation of E8 and NICRIBEN-01M (syn: 530-1-6) which were classified under the traditional and improved rating schemes as tolerant and resistant, respectively. However, *S. indicum* breeding line Pbt11 (No. 1) which was considered susceptible under the old system was found to be tolerant using the integrated and improved system. Root galls incited by the nematode degenerated significantly from mid-season to harvest time. Utilising yield as additional parameter for assessing resistance to root knot nematode provides a complete picture of *Sesamum-Meloidogyne* interaction, and therefore a more meaningful system for determining host response.

Keywords

Galls, grain yield, resistance, root knot nematodes, sesame