

## ABSTRACT

### LETHAL TEMPERATURE-TIME DOSAGES FOR THE COTTON ROOT KNOT NEMATODE (*MELOIDOGYNE INCOGNITA*), STUNT NEMATODE (*TYLENCHORHYNCHUS* SPP.) AND NON-PLANT PARASITIC NEMATODES

Constant temperature-time dosages were applied to soil infested with cotton root knot (*Meloidogyne incognita*) (Mi), stunt (*Tylenchorhynchus* spp.), and a mixture of non-plant parasitic nematodes (NPPN). Nematodes in soil were extracted after heat treatment (E1). Experimental soil was then bioassayed using grape cuttings, and further extractions from soil (E2), and roots (E3), and a root galling (RG) assessment were done to confirm nematode mortality. Values for lethal dosages were determined for Mi and NPPN using data from E1. LD<sub>95</sub> values for Mi were 813, 281, 32.4, and 30.9 min at 39, 42, 46, and 50°C, respectively. For the NPPN, LD<sub>95</sub> values were 2323, 729, 42, and 26 min, for 39, 42, 46, and 50°C, respectively. The observed LD<sub>100</sub> values for the *Tylenchorhynchus* spp. were >10080, >2820, 120, 30, 10, and 10 min for the temperatures of 39, 42, 46, 50, 60, and 70°C, respectively. Tolerance to heat was NPPN>stunt>Mi. The E2, E3, and RG ratings showed longer time requirements to achieve LD<sub>100</sub> than E1. Observed LD<sub>100</sub> values for Mi in RG were 5040, 1440, 60, 22, 15, and <5 min at 39, 42, 46, 50, 60, and 70°C, respectively.

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