

**MORTALITY AND BEHAVIOURAL CHANGES OF ROOT LESION
NEMATODE (*Pratylenchus loosi*) AT DIFFERENT TEMPERATURE
REGIMES**

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Root lesion nematode, *Pratylenchus loosi* is the most serious nematode pest in tea, widely distributed through all altitudes. The nematode is favored by soil temperatures in the range of 18-24 °C. With the climate change scenario, a remarkable shift in different nematode populations in different agro-ecological regions is being experienced. The objective of this study was to investigate the effect of temperature on mortality and behavior of *P. loosi* at different temperature regimes. *P. loosi* sources from, Talawakelle (SL 1), Passara (SL 2), Deniyaya (SL 3), Hantana (SL 4) and Cecilton (SL 5) were exposed to 16, 20, 24 and 28 °C and their mortality in aqueous and soil media was studied under laboratory conditions. All nematode populations

were sensitive to 28 °C. SL 2 showed highest mortalities of 66.66% and 82.67% at 28 °C in aqueous ($p=0.0467$) and soil ($p=0.0088$) media, respectively. In contrast, SL 1 exhibited the lowest mortality at 16°C (13.33%), 20°C (20%) and 24°C (20%) though no significant differences were observed. Anhydrobiotic survival mechanisms as coiling of nematodes, vacuole formation in inner body cavity, forming a net like structure around the body and heat stupor, *etc.* were expressed under extreme temperatures. The outcome of this study corroborates with the changes observed in the climatological data from 1980 to 2010, in arriving at possible causes for the expanded distribution pattern of *P. loosi*. This study suggests the significance of introducing, location-specific and isolate-specific management strategies in the control of *P. loosi*.

Key words: Climate change, Mortality, Nematode isolates, *Pratylenchus loosi*, Temperature