Root Knot of Mulberry

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Experiment No. 4: Study of root-knot through sectioning, staining and temporary mounting.

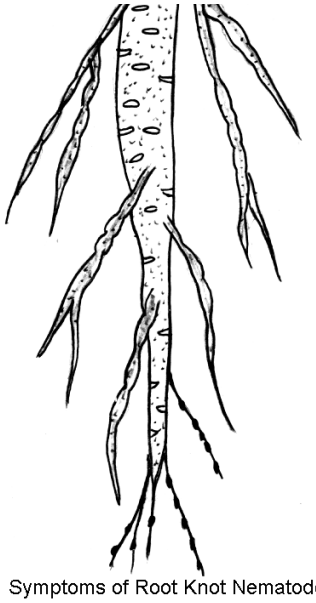
Root knot is caused by *Meloidogyne incognita* belongs order Tylenchida of class Secernentia and phyllum Nematoda.

Symptoms: The affected plants show stunted growth, marginal necrosis and yellowing of leaves. The underground symptoms include the formation of characteristic knots or galls on the roots. Nematode damages the xylem and phloem tissues resulting in the disruption of water and food conduction.

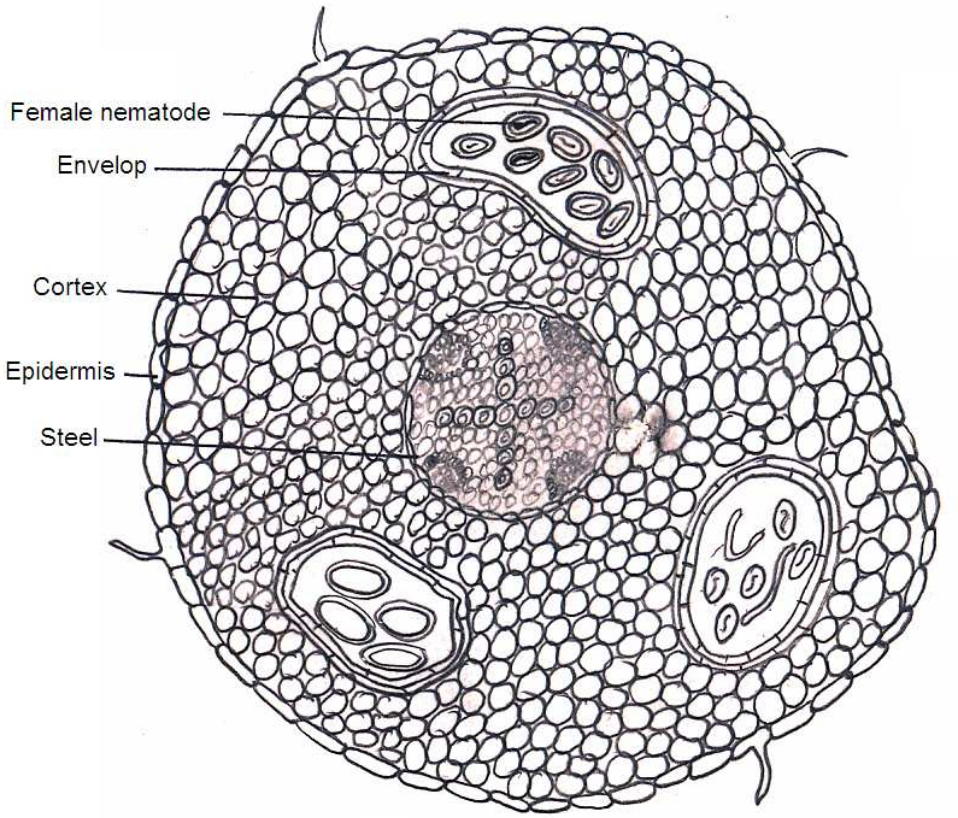
Life cycle: There are three stages in the life-cycle of the nematode *viz*., egg, larva and adult. The second stage female larvae enter the root through the hole made by the stylet and harbour in the sub-epidermal layer. After entry it starts feeding on the parenchymatous cells. Due to the stimulus induced by the nematode, cells undergo repeated division and enlargement. As a result cancerous knots/galls appear on the roots. Female larvae undergo four moults in the roots and develop into a mature oval/spherical egg laying female. Each female lays 200-322 ellipsoid eggs covered with gelatinous substance. In favourable conditions eggs hatch and larvae are liberated into the soil. The nematode takes about 30-40 days to complete the life cycle and it can repeat the life cycle 2-3 times in its life span. Temperature from 15-30°C and soil moisture from 40-60% is most favourable for its multiplication.

The disease is very common in sandy soil under irrigated conditions. This reduces the leaf yield in advanced stages by 10-12%.

Control: The nematodes can be controlled by deep digging or ploughing of infested garden during summer, which exposes the nematode eggs and larvae to direct sunlight. Due to high soil temperature the nematode larvae and eggs are destroyed. Application of neem oil cake at the rate of one tonne per hectare per year in four equal split doses has been found to be effective. Application of nematacides like Aldicarb or Carbofuran at the rate of 30 kgs per hectare per year in four equal split doses along with fertilizer is also recommended with a safe period of 45-50 days.

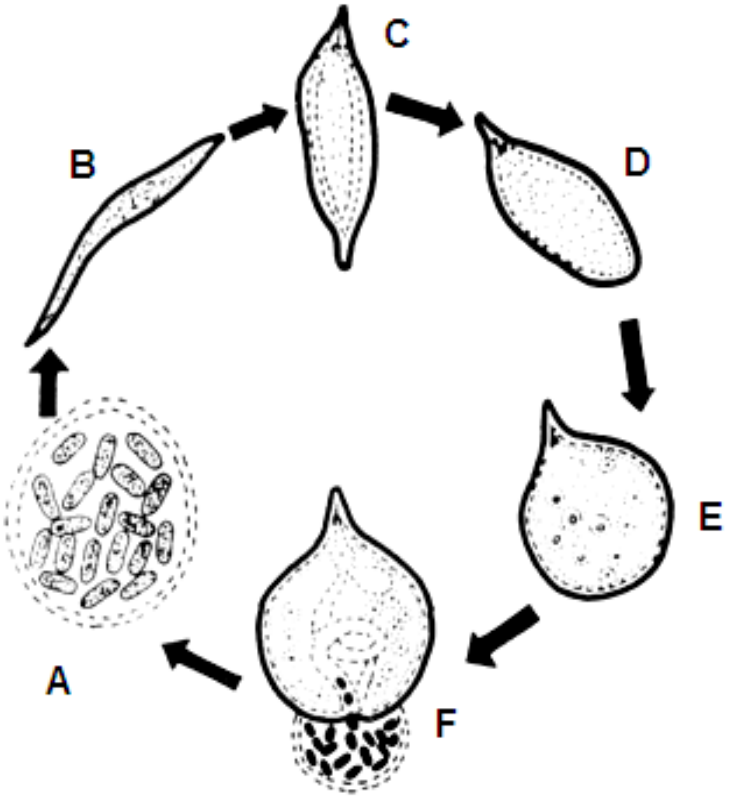


Symptoms of Root Knot Nematode



T S of Root Knot

Disease Cycle of *Meloidogyne incognita*



A. Eggs within gelatinous matrix
B. Second stage infective larva
C. Larva with hemispherical posterior terminated spike
D. Female completed moults
E. Typical female
F. Mature egg laying female

REFERENCES

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2. Anonymous, Diseases and Pests of Mulberry and their Control, Central Silk Board, India.
3. Rangaswamy, G., Narasimhanna, M.N., Kasiviswanathan, K., Sastry, C.R. and Jolly, M.S. 1976, Sericulture Manual, Vol. 1, Mulberry Cultivation, FAO, United Nations, Rome.
