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Istituto di Nematologia Agraria, C.N.R.
and
Istituto di Patologia Vegetale, Università
70126 Bari, Italy

PARATRICHODORUS TUNISIENSIS (NEMATODA, TRICHODORIDAE) A NEW VECTOR OF TOBACCO RATTLE VIRUS IN ITALY

by
F. Roca and G. L. Rana

Leaves were collected from apparently healthy *Lepidium draba* L. (Cruciferae) and from *Parietaria officinalis* L. (Urticaceae) with chlorotic spots growing in artichoke (*Cynara cardunculus* v. *scolymus* L.) fields in Sicily. Samples were comminuted in neutral 0.1 M phosphate buffer, and the expressed sap inoculated onto *Nicotiana glutinosa* L. and *N. rustica* L. plants. After an incubation period of 6-15 days chlorotic to necrotic concentric rings (Fig. 1) appeared on inoculated and non-inoculated leaves of both indicator species suggesting possible infection with tobacco rattle virus (TRV) as a result of the inoculation (Harrison, 1970).

Immuno-electron microscopy tests, carried out according to Milne and Luisoni (1977) confirmed that TRV was the causal agent of the symptoms obtained on the two *Nicotiana* species. In foliar dip preparations rigid, rod-shaped particles of two predominant lengths were found which were specifically identified by attachment of antiserum to TRV (Fig. 2).

High populations (300-400 individuals per kg of soil) of the trichodorid nematode *Paratrichodorus tunisiensis* (Siddiqi, 1963) Siddiqi, 1974 were found present in soil samples collected in the same fields.

Nematode transmission tests therefore, were carried out to check the ability of *P. tunisiensis* to vector TRV.

Groups of 20-30 hand picked nematodes obtained from an infected field were placed around the roots of each of 10 seedlings of either *N. glutinosa* or *Petunia hybrida* Vilm., growing in small poly-pots

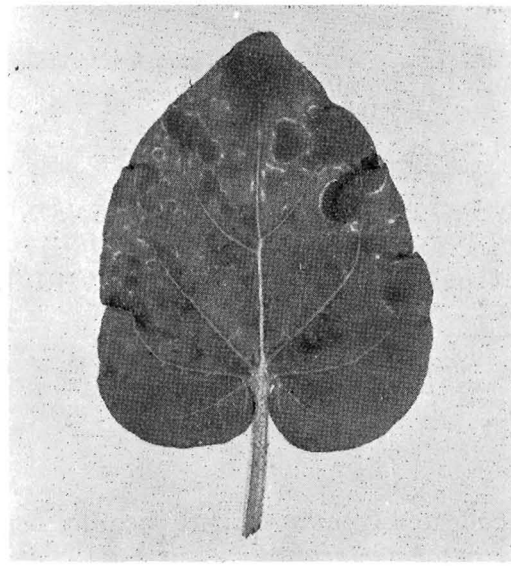

Fig. 1 - Systemically infected *Nicotiana glutinosa* L. leaf showing chlorotic rings ten days after inoculation.

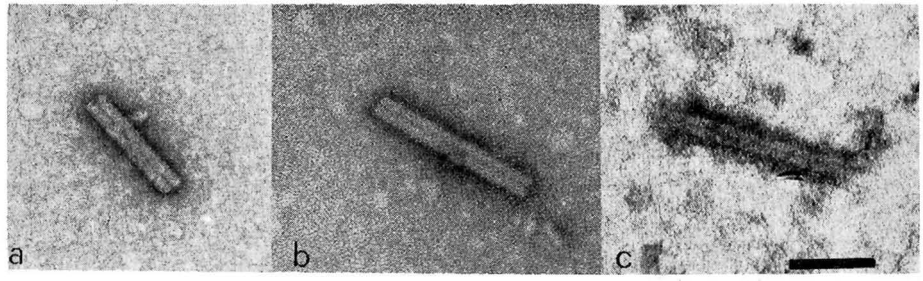

Fig. 2 - Negatively stained short (a), and long (b) particles of TRV from artificially inoculated hosts. In (c) a long particle with attached TRV antibodies. Bars = 50 nm.

4.5 cm in diameter, containing a sterilizerd: 1:1 mixtuter of sand and soil. The pots were kept for 3-4 weeks in a glasshouse in an air-conditioned cabinet at 16-18 °C. Sap from the roots of each plant was then extracted by grinding them in a mortar and pestle in one volume of phosphate buffer and inoculated to the indicator plants *Chenopodium quinoa* Willd. and *C. amaranticolor* Coste *et* Reyn.

Gray-coloured local lesions appeared 15 to 20 days after inoculation on the leaves of five *C. quinoa* plants inoculated respectively with sap from the roots of two *P. hybrida* and three *N. glutinosa* plants.

Virus isolates so obtained, multiplied in *C. quinoa* and subjected to electron microscopy observation in dip preparations, revealed the presence of TRV particles.

TRV is known to be transmitted in nature by several nematode species belonging to the genera *Trichodorus* and *Paratrichodorus* (Taylor and Robertson, 1975). This is the first record of transmission by *P. tunisiensis*.

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