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**LONGIDORUS FASCIATUS ROCA ET LAMBERTI
VECTOR OF A SEROLOGICALLY DISTINCT STRAIN OF
ARTICHOKE ITALIAN LATENT VIRUS IN GREECE**

by

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A strain of artichoke Italian latent virus (AILV) was recently found infecting artichoke (*Cynara cardunculus* v. *scolymus* L.) plants in the Argos area of Peloponnesus, in Greece (Rana and Kyriakopoulou, 1982). Infected plants were patchily distributed in the field and appeared yellowish and stunted (Fig. 1). Soil samples from the rhizosphere of these plants contained large numbers (500-600 individuals per 1/2 kg soil) of a dorylaimoid nematode described as a new species, *Longidorus fasciatus*, by Roca and Lamberti (1981). The ability of this nematode to transmit AILV was tested and the results of the transmission trials are reported in this paper.

Materials and methods

Transmission tests. Groups of 15 hand-picked nematodes (females and larvae) from the rhizosphere of AILV infected plants, extracted by a modification of Cobb's sieving method, were added to two series of 25 ml clay containers (10 for each series) filled with steam-sterilized sandy loam in each of which one 'White Burley' tobacco (*Nicotiana tabacum* L.) seedling at the four leaf stage was growing. A series of 8 comparable containers without *L. fasciatus* were controls.

Nematode-inoculated and control pots were placed in a temperature controlled cabinet at 15-18 °C. All 'White Burley' tobacco plants, exposed to nematodes or controls, were checked for AILV infection 4-5 weeks after the beginning of each test. The sap, separate-



Fig. 1 - A patch of yellowish and stunted artichoke plants in an artichoke field in the Argos area, Greece.

ly expressed from roots and leaves, in presence of 1 vol of cold, neutral phosphate buffer, was rubbed onto celite-dusted leaves of *Chenopodium quinoa* Willd., *Cucumis sativus* L., *N. tabacum* cv. 'White Burley' and *Phaseolus vulgaris* L. cv. 'La Victoire' seedlings. Nematodes were recovered from each pot at the end of the experiment. The roots of the bait plants were checked for the presence of galls.

Serology. An antiserum to the *L. fasciatus*-transmitted AILV isolate (AILV-Lf) was prepared by giving a rabbit one intramuscular and two intravenous injections a week apart from each other, with purified virus (about 0.5 mg nucleoprotein with each injection). Virus preparations contained the faster-sedimenting fractions (middle and bottom component) as obtained after centrifugation in sucrose density gradients. The rabbit was bled 15 and 30 days after the last injection. The titre of the antiserum was determined in agar double diffusion tests against partially purified preparations of the homologous antigen (0.3 mg/ml). The heterologous titre was determined using an AILV

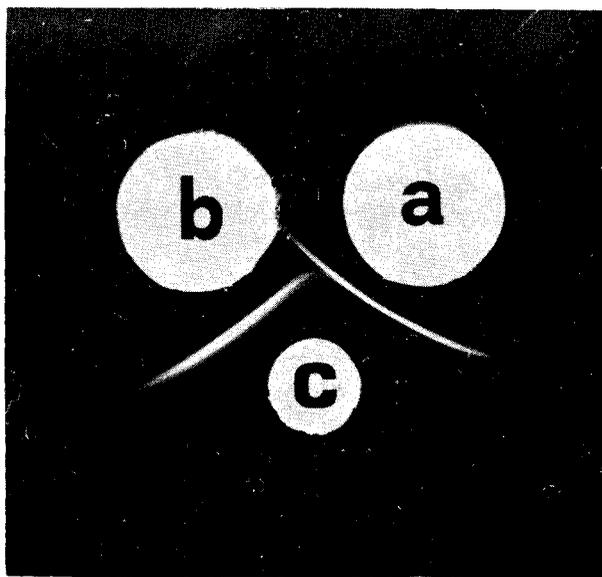


Fig. 2 - Serological demonstration that AILV-Lf (a) is closely related but not the same as AILV-S (b); (c) well contains anti-AILV-Lf serum.

isolate from *Sonchus* (AILV-S) identical with the type strain (Savino *et al.*, 1977). The serological relationship between AILV-Lf and AILV-S was determined by letting partially purified preparations of both isolates (0.5 mg virus per ml) react against an antiserum to AILV-Lf.

Results and Discussion

Nematode transmission tests. About a month after the addition of nematodes to the test pots, light chlorotic rings began to appear on 3 out of the 20 'White Burley' bait plants. From roots and leaves of the seedlings with symptoms a virus indistinguishable from AILV was recovered by sap inoculation. No galls were found on the roots of plants exposed to nematodes. The percentage of *L. fasciatus* recovered from the pots ranged from 60 to 70%.

Serology. The titre of the antiserum to AILV-Lf was 1:512 (first bleeding) and 1:256 (second bleeding). In gel diffusion tests AILV-Lf proved closely related but not identical to AILV-S as shown by the spur formed at the junction of the precipitating lines of homologous

and heterologous antigens (Fig. 2). The serological differentiation index was usually not less than 2.

It is known that AILV is transmitted by *Longidorus apulus* Lamberti *et* Bleve-Zacheo (Rana and Roca, 1976; Roca *et al.*, 1975). The results of the present investigation provide evidence that another nematode species, *L. fasciatus*, is able to transmit a serological variant of AILV naturally occurring in Greece.

This finding is in agreement with the notion that serologically distinct strains of nepoviruses are specifically transmitted by different nematode species (Harrison, 1964; Murant, 1981). However, the efficiency of transmission remains to be ascertained, as well as whether cross transmission of Italian and Greek strains of AILV by *L. fasciatus* and *L. apulus* respectively, is possible.

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SUMMARY

A new *Longidorus* species, *Longidorus fasciatus* Roca *et* Lamberti, found in artichoke fields of North Eastern Peloponnesus, Greece, was positively tested as vector of a Greek isolate of artichoke Italian latent virus (AILV). The *L. fasciatus*-transmitted AILV isolate was serologically closely related but not identical with AILV type strains.

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