

MORPHOLOGY OF A LOCAL POPULATION OF *HELICOTYLENCHUS MULTICINCTUS*
FROM SOUTHERN ITALY

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Populations of a bisexual *Helicotylenchus* species have been found in sandy soil fields along the Italian southern Adriatic coast associated with carrots (*Daucus carota* L.), onions (*Allium cepa* L.), peas (*Pisum sativum* L.), and in uncultivated areas, in sand-dunes, associated with lentisc (*Pistacia lentiscus* L.) and other halophytes. Specimens from dunes at Torre Canne (Apulia) was compared with topotypes of *H. multicinctus* obtained from California and other specimens from Cyprus and India. The Italian specimens proved to be very close to *H. multicinctus* except for the spiculum length of the male which averaged between 22-26 μm whereas the measurement reported in literature ranged from 17-22 μm .

Since several morphometric criteria used in the taxonomy of *Helicotylenchus* species are highly variable (Fortuner, 1979), it seems best to consider the Italian specimens as a local population of *H. multicinctus*.

The morphology of the specimens observed by light and scanning electron microscopy (SEM) are illustrated in this note. The specimens used for this study were extracted from soil by the Cobb decanting and sieving method, killed and fixed in hot aqueous solution of 4 % formaldehyde + 1 % propionic acid, and mounted in dehydrated glycerin (see Southey, 1970 for general techniques). Several specimens were transferred to 1 % osmium tetroxide for twelve hours after fixation and then infiltrated with Spurr's resin by the De Grisse's 1973 method.

Helicotylenchus multicinctus(Cobb, 1893) Golden, 1956
(Specimens from Southern Italy)

MEASUREMENTS

Females ($n = 20$): $L = 655 (594-710 \pm 7.12) \mu\text{m}$; $a = 30 (27-32 \pm 0.32)$; $b = 5.7 (5.4-6.0 \pm 0.05)$; $b' = 4.8 (4.5-5.0 \pm 0.02)$; $c = 60 (42-70 \pm 2.04)$; $c' = 0.8 (0.7-1.0 \pm 0.02)$; $V = 65 (62-67 \pm 0.37)$;

stylet = 25 ($23-26 \pm 0.25$) μm ; distance DGO to stylet knobs = 6.9 ($6-8 \pm 0.16$) μm ; excretory pore = 108 ($97-117 \pm 1.34$) μm from the anterior end; tail annules = 9 ($6-11 \pm 0.29$).

Males ($n = 15$): $L = 659 (578-736 \pm 14.21) \mu\text{m}$; $a = 35$; $S = 0.73 (32-40)$; $b = 5.8 (5.4-6.3 \pm 0.12)$; $b' = 4.9 (4.4-5.2 \pm 0.08)$; $c = 39 (34-40 \pm 1.49)$; $c' = 1.5 (1.4-1.7 \pm 0.03)$; stylet = 23 ($22-24 \pm 0.17$) μm ; spicules = 23 ($22-26 \pm 0.42$) μm ; gubernaculum = 6 μm ; distance DGO to stylet knobs = 4 ($3-5 \pm 0.20$) μm ; $T = 33 (26-38 \pm 0.81)$; excretory pore = 112 ($100-114 \pm 1.36$) μm .

MORPHOLOGY

Female: Lip region hemispherical in profile with four distinct post-labial annules. Anterior and posterior cephalids distinct, respectively at 1 to 2 and 6 to 8 annules posterior to the lip constriction, 5-6 μm and 14-16 μm from anterior end. Oral disc circular and slightly raised from the first head annule. The lateral sectors of the first head annule are smaller than the subdorsal and subventral sectors. Amphidial apertures ovoid located between the oral disc and the lateral sectors of the first head annule. Hemizonid distinct, 2-3 annules anterior to excretory pore. Body annules distinct, 1.5-1.7 μm wide at mid-body. Lateral fields with four equidistant incisures approximately 1/4 as wide as the body width, forming three non-areolated bands. Vulval opening oval, surrounded by unsculptured lips which are one annule thick. Epiptygma not observed. Tail slightly tapering, with greater curvature dorsally and hemispherical annulated terminus with characteristic smooth ventral area (Figs 1E, F and 2D). Anal opening pore-like, half an annule wide (Fig. 1F). Phasmids at level of or up to five annules anterior to anus.

Male: Similar to the female except for sexual dimorphism. Spicules arcuate and cephalated, gubernaculum simple and sperms small and rounded. Phasmids at level of cloaca.

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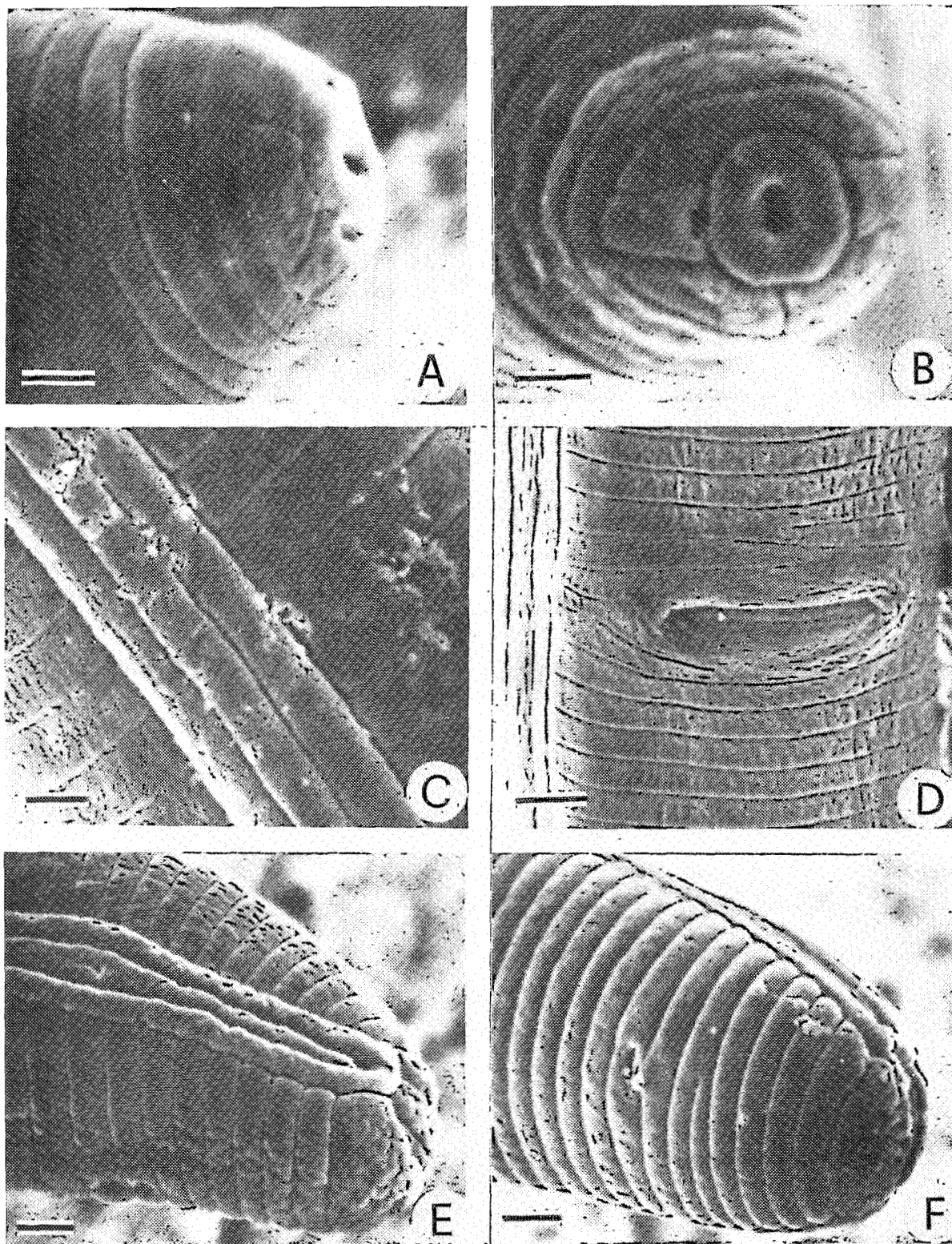


Fig. 1. *Helicoitylenchus multincinctus*, female SEM micrographs. A : Head region in profile. B : Head region in face view. C : Lateral field at mid-body. D : Vulva. E : Tail, lateral view. F : Tail, ventral view (Scale bar = 2 μ m).

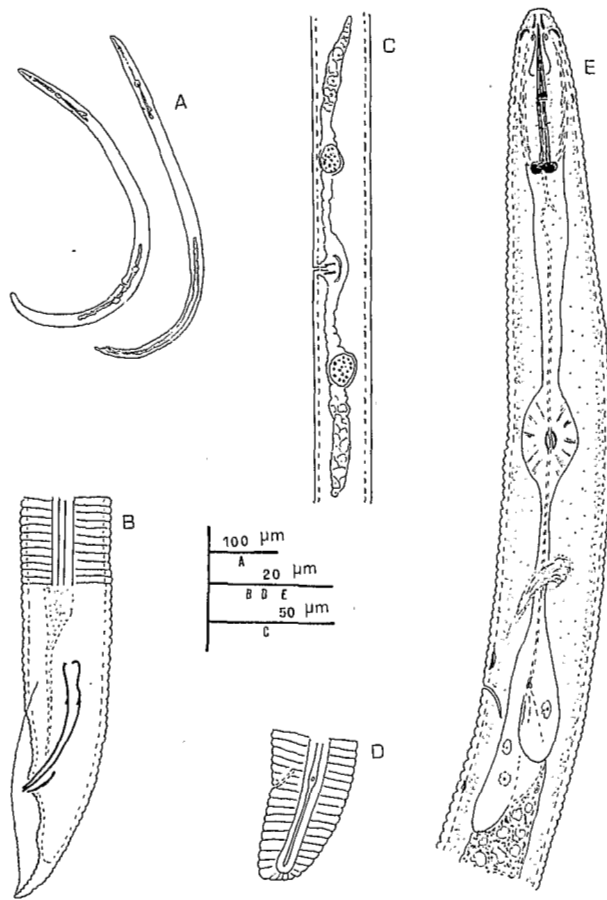


Fig. 2. *H. multicinctus*. A : Female and male heat-fixation habitus. B : Male tail. C : Female reproductive tract. D : Female tail. E : Female oesophageal region.

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REMARK

Helicotylenchus multicinctus, which is a severe parasite of several crops and particularly of banana (*Musa* sp.), worldwide (Siddiqi, 1973), is reported for the first time in Italy, but its pathological effects have not been assessed in this country.

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