

# Pratylenchus brachyurus (Nematoda: Pratylenchidae) on macadamia in Brazil

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**Abstract** *Pratylenchus brachyurus* was identified morphologically from root samples collected from a macadamia field in the municipality of Charqueada, located in south-eastern São Paulo, Brazil. Low numbers of the nematode were recovered from samples collected from asymptomatic macadamia trees. To our knowledge, this is the first record of *P. brachyurus* on macadamia in Brazil and worldwide.

**Keywords** Root lesion nematode · Macadamia · Forest nematology · Identification

The macadamia nut (*Macadamia integrifolia* Maiden and Betche), native to south-eastern Queensland, Australia, is commercially produced mainly in Hawaii. Some countries in Latin America, Africa, Asia and in the United States of America (in California and Florida) also grow macadamia. São Paulo is the main macadamia producer in Brazil. Despite increasing acreage of macadamia, worldwide, virtually no information on nematode damage is available on this crop (El-Borai and Duncan 2005).

In April 2010, root samples were collected in a macadamia field in Charqueada, south-eastern São Paulo, Brazil (22°30'35"S, 47°46'41"W). Roots were washed,

dried, cut in pieces and processed for nematode extraction by blender centrifugal flotation (Coolen and D'Herde 1972). Nematode populations were counted under a compound microscope (x 100) using a Peters slide counting chamber.

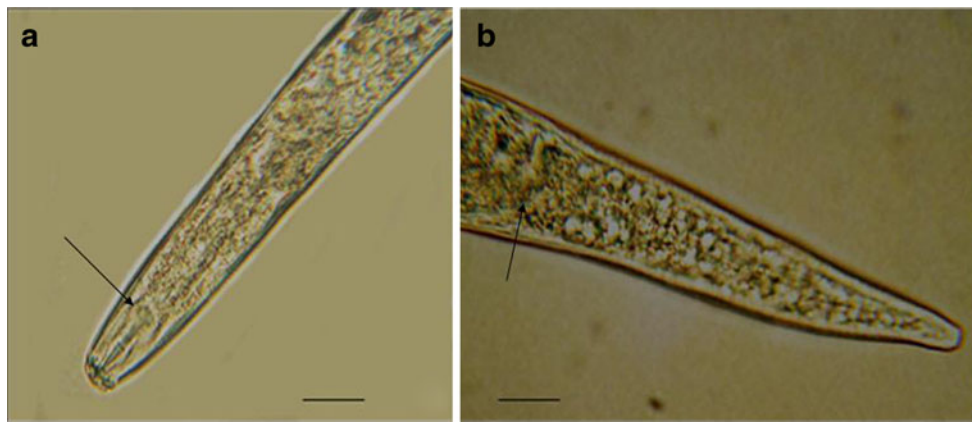
Morphological identifications were conducted on specimens killed in a water bath (55°C) and fixed in formaldehyde 2% (Cobb 1918). Morphometrical characteristics and the De Man ratios (V%, a, b, b', c, and c') were obtained from six adult females.

Characters measured were consistent with *Pratylenchus brachyurus* (Castillo and Vovlas 2007); the labial region showed two annuli, stylet was 16.8 (±1.2) µm long, with stout, rounded basal knobs (Fig. 1a). Vulva position was 85.5% (±3.1) of the body length; spermatheca were inconspicuous (Fig. 1b). Males were not found. The postvulval uterine sac was less than one body diameter (20.2±1.6 µm) long and tail was (26.5±3.4 µm) broadly conoid, smooth, with a broadly rounded, truncate tip (Fig. 1b). Pharyngeal overlapping length was 112.3 (±17.2) µm; pharynges were 158.8 (±17.8) µm in length. The De Man ratios obtained were:  $a = 26.0 \pm 4.2$ ;  $b = 5.0 \pm 1.0$ ;  $b' = 3.5 \pm 0.7$ ;  $c = 20.8 \pm 2.5$ ; and  $c' = 2.2 \pm 3.1$ . Two permanent microscope slides of *P. brachyurus* were deposited in the IAPAR Nematode Collection (INC), Londrina, Paraná, Brazil, as accession numbers IPR-MAC-79 and IPR-MAC-80.

To our knowledge, *P. brachyurus* is recorded for the first time on macadamia in Brazil. Since it is common to find maize, a good host for *P. brachyurus*, between the rows of macadamia, the present report is important for the growers to avoid crop losses. Macadamia does not seem to be affected by *P. brachyurus*, but further pathogenicity tests are necessary to confirm the percentage crop damage.

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**Fig. 1** *Pratylenchus brachyurus* extracted from macadamia roots. **a** Anterior region showing rounded basal knobs of stylet (*arrow*). **b** Truncate caudal terminus (*arrow*: terminal vulva). Bars=18  $\mu$ m

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