

Morphology and systematics of *Bursaphelenchus gerberae* n. sp. (Nematoda: Parasitaphelenchidae), a rare associate of the palm weevil, *Rhynchophorus palmarum* in Trinidad

ROBIN M. GIBLIN-DAVIS¹, NATSUMI KANZAKI^{1,2}, WEIMIN YE^{1,3,4}, BARBARA J. CENTER¹ & W. KELLEY THOMAS⁴

¹Fort Lauderdale Research and Education Center, University of Florida-IFAS, 3205 College Ave., Fort Lauderdale, FL 33314-7719, USA. E-mail: giblin@ufl.edu

²Present address: Forest Pathology Laboratory, Forestry and Forest Product Research Institute, 1 Matsunosato, Tsukuba, Ibaraki, 305-8687, Japan. E-mail: nkanzaki@affrc.go.jp

³Present address: Nematode Assay Section, Agronomic Division, North Carolina Department of Agriculture & Consumer Services, 1040 Mail Service Center, Raleigh, NC 27699-1040. E-mail: weimin.ye@ncmail.net

⁴Hubbard Center for Genome Studies, University of New Hampshire, 35 Colovos Rd., Durham, NH, 03824, USA. E-mail: kelley.thomas@unh.edu

Abstract

Bursaphelenchus gerberae n. sp., a rare associate of the American palm weevil, *Rhynchophorus palmarum* in Trinidad, is described and illustrated. Adults of *B. gerberae* n. sp. were examined with scanning electron microscopy (SEM) for ultrastructural comparisons with other members of the genus. *Bursaphelenchus paracorneolus*, *B. hofmanni* and *B. hylobianum* appear to be the closest related taxa to *B. gerberae* n. sp. based upon shared morphological features of male caudal papillae arrangement, general spicule morphology, female tail shape, and molecular analysis of the near-full length small subunit (SSU) rDNA, D2D3 expansion segments of the large subunit (LSU) rDNA and partial mitochondrial DNA COI. In addition to significant molecular sequence differences in SSU, LSU and mtCOI consistent with separate species status, *B. gerberae* n. sp. can be differentiated from *B. paracorneolus* by differences in bursa and condylus shape of males, and c' in females, from *B. hofmanni* by differences in rostrum and condylus shape and spicule curvature in males, and c' in females, and from *B. hylobianum* by differences in the number of lateral incisures, and rostrum shape, tapering and curvature of the spicule lamina, and cucullus shape in males. *Bursaphelenchus gerberae* n. sp. is also close to *B. corneolus*. Unfortunately, this isolate was not available for sequencing attempts, but differs from *B. gerberae* n. sp. in lack of stylet knobs in both sexes and relative postuterine sac length in females. Population growth of *B. gerberae* n. sp. was measured in a time-course experiment at 23° C in the laboratory on cultures of the fungus, *Monilinia fructicola* grown on lactic acid treated, 5% glycerol-supplemented potato dextrose agar (LGPDA). Nematode counts rapidly increased from 500 to about 600,000 per plate within 14 days and then dropped to and plateaued at about 300,000 for up to 28 days.