



Aphelenchoides paradalianensis n. sp. (Nematoda: Aphelenchoididae) isolated at Guangzhou, China, in packaging wood from South Korea

RUQIANG CUI^{1,2,3}, KAN ZHUO^{1,3}, HONGHONG WANG¹ & JINLING LIAO^{1,4}

¹Laboratory of Plant Nematology, South China Agricultural University, Guangzhou 510642, China

²College of Agronomy, JiangXi Agricultural University, Nanchang 330045, China

³These authors contributed equally to this work

⁴Corresponding author. E-mail: jlliao@scau.edu.cn

Abstract

Aphelenchoides paradalianensis n. sp. collected in Guangzhou, China from packaging wood exported from South Korea, is described and illustrated based on morphology and molecular analyses of the ITS regions, the near-full-length small subunit rDNA gene and partial cytochrome oxidase subunit I of mitochondrial DNA. This new species has a distinctive tail terminus, possessing a short trunk with two finely rounded and smooth processes of unequal length in the female and a small ventral papilla-like mucronate structure or a short trunk with two fine processes in the male, slightly offset lip region with 6 annules, four incisures in the lateral field, short postuterine sac (extending ca. 13–20% of vulva-anus distance), medium-sized spicules (14.1–18.6 µm), three pairs of caudal papillae. It is closest to *A. dalianensis*, but these two species can be distinguished from each other by spicule size and shape, male tail tip shape, postuterine sac length, *c* ratio and ITS sequence. Molecular analysis reveals that this species has unique ITS, 18S and mt-DNA sequences.

Key words: Aphelenchoididae, *Aphelenchoides paradalianensis* n. sp., morphology, molecular, packaging wood, South Korea

Introduction

In order to prevent the spread of pests comprising *Bursaphelenchus xylophilus* (Steiner & Buhner, 1934) Nickle, 1970, wooden packaging materials imported into China must be sampled and inspected. In recent years, many nematodes belonging to Aphelenchoididae Skarbilovich, 1947, especially some species in the genus *Bursaphelenchus* Fuchs, 1937 and *Aphelenchoides* Fischer, 1894, have been detected from packaging wood by the Entry-exit Inspection and Quarantine Bureau of China (Chen *et al.* 2005; Gu *et al.* 2006; Cui *et al.* 2009). In 2009, one species of *Aphelenchoides* was isolated from packaging wood materials in Guangzhou, China, which were exported from South Korea. Detailed studies of the nematode revealed that it differed from all other nominal species in the genus *Aphelenchoides* and it is herein described as *Aphelenchoides paradalianensis* n. sp. The rDNA-ITS region, the near-full-length small subunit rDNA gene and partial cytochrome oxidase subunit I of mitochondrial DNA were sequenced for this new species.

Material and methods

Specimens of *Aphelenchoides* were extracted by the Baermann funnel method from wood fragments cut from solid wooden packaging materials of unknown provenance, which were exported from South Korea. The *Aphelenchoides* species was cultured on *Pestalotia* sp. growing on potato dextrose agar.

For morphological observation, adults of *A. paradalianensis* n. sp. from a 2-week-old culture were relaxed by gentle heat, fixed in TAF and processed by the glycerin-ethanol method (Feng 2001). Nematodes were observed, illustrated, measured and photographed with the aid of a Nikon ECLIPSE 90i microscope equipped with a Nikon