Zootaxa 3452: 1–46 (2012)
www.mapress.com/zootaxa/
Copyright © 2012 · Magnolia Press

ISSN 1175-5326 (print edition)
ZOOTAXA
ISSN 1175-5334 (online edition)

Article

urn:lsid:zoobank.org:pub:14DEF8CA-ABBA-456D-89FD-68064ABB636A

Taxonomy and morphology of plant-parasitic nematodes associated with turfgrasses in North and South Carolina, USA

YONGSAN ZENG[1, 5], WEIMIN YE[2*], LANE TREDWAY[1], SAMUEL MARTIN[3] & MATT MARTIN[4]

[1] *Department of Plant Pathology, North Carolina State University, Raleigh, NC 27695-7613, USA. E-mail: zys65@163.com, lane.tredway@syngenta.com*
[2] *Nematode Assay Section, Agronomic Division, North Carolina Department of Agriculture & Consumer Services, Raleigh, NC 27607, USA. E-mail: weimin.ye@ncagr.gov*
[3] *Plant Pathology and Physiology, School of Agricultural, Forest and Environmental Sciences, Clemson University, 2200 Pocket Road, Florence, SC 29506, USA. E-mail: sbmrtn@clemson.edu*
[4] *Crop Science Department, North Carolina State University, 3800 Castle Hayne Road, Castle Hayne, NC 28429-6519, USA. E-mail: mcmartin@ncsu.edu*
[5] *Department of Plant Protection, Zhongkai University of Agriculture and Engineering, Guangzhou, 510225, People's Republic of China*
**Corresponding author*

Abstract

Twenty-nine species of plant-parasitic nematodes were recovered from 282 soil samples collected from turfgrasses in 19 counties in North Carolina (NC) and 20 counties in South Carolina (SC) during 2011 and from previous collections. These nematodes belong to 22 genera in 15 families, including *Belonolaimus longicaudatus, Dolichodorus heterocephalus, Filenchus cylindricus, Helicotylenchus dihystera, Scutellonema brachyurum, Hoplolaimus galeatus, Mesocriconema xenoplax, M. curvatum, M. sphaerocephala, Ogma floridense, Paratrichodorus minor, P. allius, Tylenchorhynchus claytoni, Pratylenchus penetrans, Meloidogyne graminis, M. naasi, Heterodera* sp., *Cactodera* sp., *Hemicycliophora conida, Loofia thienemanni, Hemicaloosia graminis, Hemicriconemoides wessoni, H. chitwoodi, Paratylenchus goldeni, Xiphinema americanum sensu lato, X. bakeri, X. chambersi, Longidorus paralongicaudatus,* and *Aphelenchoides myceliophagus*. Eleven species (*Meloidogyne graminis, M. naasi, Cactodera* sp., *Pratylenchus penetrans, Hemicycliophora conida, Hemicaloosia graminis, Mesocriconema xenoplax, M. sphaerocephala, Ogma floridense, Paratrichodorus allius, Dolichodorus heterocephalus*) were new records from turfgrass in both states; five (*Heterodera* sp., *Loofia thienemanni, M. curvatum, Longidorus paralongicaudatus, Filenchus cylindricus*) were new in SC; and three (*Hemicriconemoides wessoni, Xiphinema bakeri, Aphelenchoides myceliophagus*) were new in NC. The morphological and morphometric characteristics of these species are presented.

Keywords: distribution, identification, plant-parasitic nematode, turfgrass, Carolina

Introduction

Turfgrasses and associated businesses contribute billions of dollars to the economy in the USA and other countries. Plant-parasitic nematodes can be limiting factors in their growth and maintenance, especially in the sandy soils of the southeastern USA (Crow 2005a). Recent restrictions on the application of nematicides to turfgrasses highlight the need for a greater understanding of nematodes infecting turfgrasses so that more sustainable management strategies can be developed.

Over the past 40 years, several research papers on plant-parasitic nematodes associated with turfgrasses have been published in the USA (Smolik & Malek 1972; Lucas *et al*. 1974; Lucas 1982; Chastagner & McElroy 1984; Todd & Tisserat 1990; Giblin-Davis *et al*. 1992; Martin 1997; Sikora *et al*. 2001; Crow & Walker 2003; Hixson *et al*. 2004; Crow 2005b; Mitkowski 2007). Lucas *et al*. (1974) showed that *Mesocriconema ornatus, Helicotylenchus dihystera, Trichodorus christiei, Meloidogyne* sp., *Tylenchorhynchus claytoni, Hoplolaimus galeatus* and *Belonolaimus longicaudatus* were common plant-parasitic nematodes on golf course putting greens in NC, but *Pratylenchus zeae, Xiphinema americanum* and *Paratylenchus* sp. were found infrequently. No extensive survey of plant-parasitic nematodes associated with turfgrasses in North Carolina (NC) has been undertaken since this work

Accepted by K. Davies: 26 Jul. 2012; published: 4 Sept. 2012