



Past and present distribution and hosts of *Longidorus* (Nematoda: Dorylaimida) in mainland China

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Abstract

The geographical distribution and host associations of *Longidorus* in mainland China were determined from a comprehensive survey. Among 2,103 soil samples collected from 12 provinces of China during 2008–2010, nine *Longidorus* species were identified based on morphological characters: *L. henanus* Xu & Cheng 1992; *L. litchii* Xu & Cheng 1992; *L. hangzhouensis* Zheng *et al.* 2001; *L. pisi* Edward, Misra & Singh 1964; *L. macromucronatus* Siddiqi 1962; *L. fangi* Xu & Cheng 1991; *L. camelliae* Zheng *et al.* 2000; *L. jonesi* Siddiqi 1962; and *L. fursti* Heyns *et al.* 1987. In this study, we compile new data on the distribution and hosts of *Longidorus* in China and the available historical records reported from China. *Longidorus henanus* has the most widespread distribution in China, while *L. litchii* is found only in Fujian province, and *L. pisi* is recorded for the first time in China. The hosts of the genus *Longidorus* in mainland China included 39 known and 3 unknown plant genera, all of which are perennial woody plants. No records were from cultivated annual crops.

Key words: distribution, host, morphological identification, *L. henanus*, *L. pisi*, perennial woody plants

Introduction

The genus *Longidorus* was established by Micoletzky (1922) with *L. elongatus* de Man 1876 as the type species. This genus contains migratory ectoparasitic nematodes that attack a wide variety of agricultural crops or trees. Some of the species in the genus are vectors of economically important plant viruses (Taylor & Brown 1997). Some longidorid species are widely distributed throughout the world, while others have limited distributions (Decraemer & Robbins 2007). As a result of the increasing numbers of described species, and their geographical distribution being more precisely determined, it is now possible to recognize intraspecies or interspecies relationships from geological influences and geographic distributions (Taylor & Brown 1997).

Given its possible virus vector role, the genus *Longidorus* has gradually received increased taxonomic attention in China. Several studies on the occurrence of *Longidorus* in China have been published. Wang *et al.* (1996) discussed the occurrence and geographic distribution of longidorid and trichodorid nematodes including *Longidorus* associated with vineyards and orchards in China. Zheng *et al.* (2001) listed 12 *Longidorus* species reported from China and provided a dichotomous key for identification. Decraemer & Robbins (2007) stated that 13 *Longidorus* species had been found in China, but the specific names were not given. However, despite the potential agricultural importance of *Longidorus* species, there is no information available on the horticultural and agricultural crops damaged by *Longidorus* in China.

The objectives of the present study were i) from a morphological and morphometric study, to identify Chinese *Longidorus* specimens collected in a survey, and ii) to determine the occurrence, geographic distribution and host associations of the genus *Longidorus* in China, especially the potential virus–vector species. Further information about new geographic records and new hosts of *Longidorus* in China is reported here.