



## Study of mononchids from Iran, with description of *Mylonchulus kermaniensis* sp. n. (Nematoda: Mononchida)

EBRAHIM SHOKOOHI<sup>1</sup>, ABDOLRAHMAN MEHRABI-NASAB<sup>1</sup>, MAHDIEH MIRZAEI<sup>1</sup>  
& VLADA PENEVA<sup>2</sup>

<sup>1</sup>Department of Plant Protection, College of Agriculture, Shahid Bahonar University of Kerman, Kerman, Iran;  
E-mail: [eshokoohi@mail.uk.ac.ir](mailto:eshokoohi@mail.uk.ac.ir)

<sup>2</sup>Institute of Biodiversity and Ecosystem Research, Bulgarian Academy of Sciences, 2 Gagarin Street, 1113 Sofia, Bulgaria

### Abstract

During a survey of soil nematodes in Iran, three species of predatory nematodes, including a new species of the genus *Mylonchulus* Cobb, 1916 were recovered. *Mylonchulus kermaniensis* sp. n. is characterised by its body length (1.2–1.4 mm), six rows of rasp-like denticles, the sixth line consisting of four denticles, female tail slightly sigmoid, sharply bent ventrad with digitate posterior portion slightly but clearly bent dorsad, (37–49 µm long,  $c=27.9-38.9$ ,  $c'=1.2-1.7$ ) with a terminal opening of spinneret. Two advulval papillae present, one is pre-vulval and the other one is located posterior to vulva. Furthermore, two other mononchid species namely *M. cf. hawaiiensis* (Cassidy, 1931) Goodey, 1951 and *Mononchus truncatus* Bastian, 1865 were also recovered from soil in the province of Kerman, Iran, the former representing a new geographical record for Iran. Measurements and illustration are provided for these three species.

Molecular study of 18S rDNA region of *M. cf. hawaiiensis* demonstrated that the Iranian population compared with the nearest populations identified as *M. hawaiiensis* from Japan, shows 5 to 8 nucleotide differences. In addition, phylogeny of *Mylonchulus* is discussed and a checklist of the species of Mononchida from Iran is provided.

**Key words:** *Mononchus*, morphometric, new record, 18S rDNA, phylogeny

### Introduction

Data on the order Mononchida Jairajpuri, 1969 in Iran are insufficient despite the fact that several scientists have contributed to the knowledge of that group in the country (Loof *et al.*, 1990; Barooti, 1997; Nowruzi & Barooti, 1997; Nowruzi & Barooti, 2001; Olia *et al.*, 2004; Farahmand *et al.*, 2009a; Farahmand *et al.*, 2009b). Hitherto, five species of *Mylonchulus* Cobb, 1916 have been reported from Iran (Farahmand *et al.*, 2009a) including *M. nainitalensis* Jairajpuri, 1970, *M. brachyuris* (Bütschli, 1873) Cobb, 1917, *M. paitensis* Yeates, 1992, *M. sigmaturus* Cobb, 1917 and *M. minor* (Cobb, 1893) Cobb, 1916.

Currently, molecular approach was proved to be helpful for nematode identification. Some conserved areas such as 18S region of the rDNA are used for the identification and study of phylogenetic relationship of the genera/species. Olia *et al.*, (2008) used 18S rDNA to study the phylogenetic position of a species of *Actus* Baqri and Jairajpuri, 1974 from Japan.

In this paper, a new species belonging to the genus *Mylonchulus* is described and data about two other mononchid species are provided. Molecular data (based on 18S rDNA) of Iranian population of *M. cf. hawaiiensis* (Cassidy, 1931) Goodey, 1951 are given.

Additionally, a checklist of nematodes belonging to the order Mononchida reported from Iran is included.

### Materials and Methods

#### Studies on morphology

Nematodes were extracted from soil samples by Baermann's (1917) funnel technique. They were fixed with hot 4% formaldehyde solution and processed to anhydrous glycerin by the method of De Grisse (1969). Measurements