

Research Note

Comments on the occurrence of *Leptonchus granulosus* Cobb, 1920 in the Slovak Republic

M. LIŠKOVÁ

Parasitological Institute, Slovak Academy of Sciences, Hlinkova 3, 040 01 Košice, Slovak Republic,
E-mail: liskova@saske.sk

Summary

A rare nematode species *Leptonchus granulosus* Cobb, 1920 was recovered from soil samples collected from pine forest from the locality of Mužla, in south-western part of the country and from fruit (apricot and peach) orchards from the locality of Svätá Mária, in south-eastern region of Slovakia. In spite of geographical distance of the localities, both are characterised by warm and dry conditions and by specific very light sandy soils derived from dune sand. Only females were recovered from both localities.

Keywords: *Leptonchus granulosus*; morphology; ecology; Slovakia

Introduction

Out of seven *Leptonchus* spp. presented by Jairajpuri and Ahmad (1992), only a single species - *L. granulosus* is reported from Europe. This species has been so far reported from Hungary (Andrássy, 1958), Netherlands (Loof, 1963 as Syn. *L. scintillans*) and Spain (Peralta and Pena Santiago, 1996). Besides Europe, it is known from the U.S.A (Cobb, 1920 - original description, Thorne, 1939, 1961), Brazil (Lordello, 1953), Venezuela (Loof, 1963) and most recent report is from India (Bohra and Baqri, 2006). As referred to in various faunistic studies of numerous ecosystems from thousands localities throughout the Slovak Republic, conducted during the last 40 years, the species *Leptonchus granulosus* was observed in two localities only. A short description and some ecological notes to the species observed in Slovakia are reported here.

Material and Methods

In soil samples collected from various ecosystems throughout Slovakia the species *Leptonchus granulosus* was observed in two geographically distant localities (Fig. 1). The first locality of Mužla with pine forest (*Pinus* sp.) is

situated near the Danube River in an orographic unit of the Podunajská rovina plane in the south - western region of country: The second one, Svätá Mária, with fruit orchard (apricots *Armeniaca vulgaris* Lam.) and peaches (*Persica vulgaris* Mill.) is located in an orographic unit of the Východoslovenská rovina plane in the most south - eastern part of Slovakia. Both these localities, in spite of their geographical distance, are characterised by an altitude of about 100 m, having a warm and dry climate, 500 – 550 mm of annual average rainfall and by very light sandy soils with Regosol soil type. This soil type is derived from dune sands of drift sand landscape, the pH of soils is 5.8 in the locality of Svätá Mária and 6.9 in the locality of Mužla, the humus content in humus horizon is about 1.2 %, under humus horizon 0.4 %, parental dune sand is already at the depth of 60 cm. The soil samples were taken from the depth of 30 – 60 cm. The nematodes were isolated from 500 g of soil by the sieving and decanting method (Brown & Boag, 1988), fixed in FAA and processed and mounted in anhydrous glycerine on microscope slides for examination.



Fig. 1. Occurrence of *Leptonchus granulosus* in the Slovak Republic

Results and Discussion

Description

Leptonchus granulosus Cobb, 1920 (Fig. 2)

The morphometric parameters of *L. granulosus* specimens from both localities were nearly identical (4 females were recovered from Mužla and 3 females from Svätá Mária), hence only morphometrics of the females from Mužla are presented here. No males were observed.

Measurements

4 females: L = 1.10 mm (1.03 – 1.14), a = 26.5 (20.1 – 31.4), b = 5.1 (4.3 – 5.8), c = 56.3 (55.5 – 57.0), c' = 0.86 (0.83 – 0.90), V = 56.6 % (51.8 – 62.2).

Measurements and morphology of Slovak specimens match well with descriptions of those given from Europe - by Loof (1963) at *L. scintillans* from the Netherlands (the species was synonymized with *L. granulosus* by Goseco *et al.* (1974) and detailed description given by Peralta and

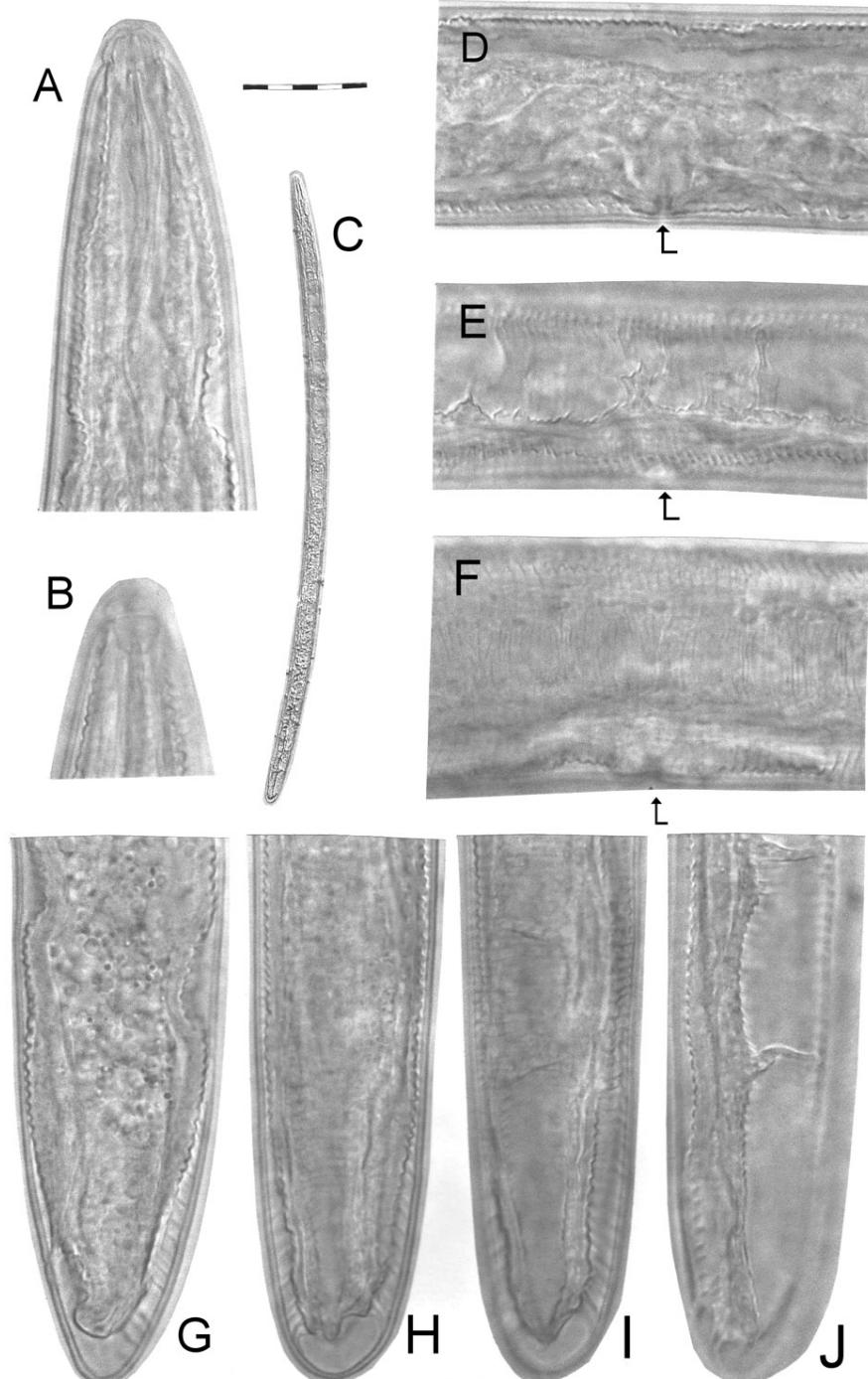


Fig. 2. *Leptonchus granulosus*: A – Anterior region; B – Amphids; C – Entire nematode; D, E – Vulval region from different focus; F – Annulation at vulval region; G – Posterior region; H, I - Posterior region from different focus. Scale bar: A,B, D-J: 20 μm ; C. 200 μm

Santiago (1996) from Spain. Both reports refer to a lack of males, similar to observations from Slovakia.

A short description

Body of females straight, or very slightly in C shape curved (shape of body similar to *Trichodorus* spp.) after killing in gentle heat, body in anterior part slightly narrowed. Outer cuticule smooth, inner with coarse transverse striation, with its distinctive irregular retraction from outer cuticle layer. The lateral fields are characteristic by different striations. Head drop like, lip region 5 µm high and 11 µm wide on the base, set of. Amphids distinct, as wide as lip region. Odontostyle 9.0 µm long, narrow, odontophore not distinct, about 17 µm long, guiding ring distinct, with distance of 7 – 8 µm from anterior end. Excretory pore about 47 % from anterior part of oesophagus. Terminal bulb pyriform, 40 x 16 µm, occupying 19.5 % of the total length of oesophagus. Vulva transverse, vulva slit on ventral site of the body with gentle, but distinct sclerotisation. Ovaries paired, reflexed. Tail broadly rounded, sometimes a little conoid, with visible latero-sub-terminal papillae.

In Slovakia the species *Leptonchus granulosus* was observed exclusively in drift sand landscape with fruit orchard (apricots and peaches) and in forest with *Pinus* spp. Similarly, in the Netherlands, the species (Syn *L. scintillans*) was observed in light sandy soils as well – in dune sand with *Erodium cicutarium* L'Hér and *Echium vulgare* L. and meadow behind the sand dunes (Loof, 1963). The species is reported from different vegetation types. E.g., in Spain from rhizosphere of *Persea gratissima* G. and *Anona reticulata* L. (Peralta & Santiago, 1996), in the U.S.A. is widely distributed in forest soil and forest nurseries with pine seedlings, but it was observed in date gardens and cultivated fields as well (Thorne, 1961).

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