



# Ectoparasitic nematodes of family Longidoridae (Nematoda, Dorylaimida) from oil-bearing rose and lavender plantations in the Rose Valley



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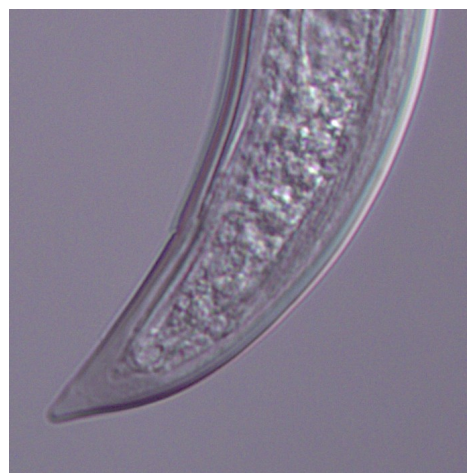
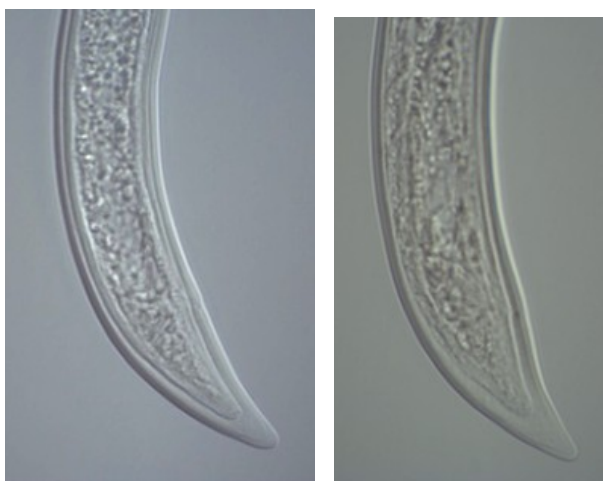
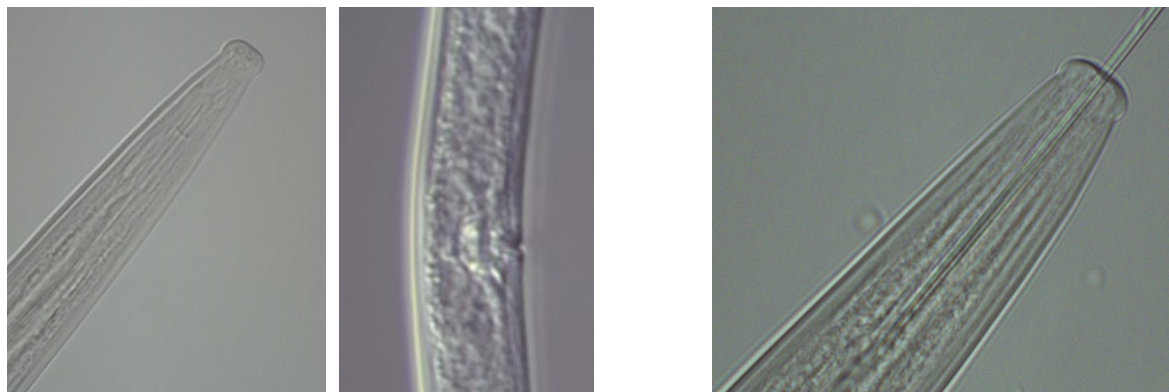
Records on longidorids associated with rose plants are very few. So far three species of *Longidorus* and three of *Xiphinema* are reported in association with different species and varieties of ornamental roses in several European countries, Florida, India, *X. diversicaudatum* and *L. elongatus* being the most common. Choleva et al. (1980) reported three *Longidorus* species (*L. euonymus*, *L. profundorum*, *L. distinctus*) and two *Xiphinema* species (*X. diversicaudatum* and *X. pachtaicum*) associated with oil-bearing roses in different locations in Bulgaria. Practically, no data on longidorids associated with lavender.



In the course of the study on biodiversity of oil-bearing roses and lavender with conventional and organic farming (National Research Program "*Healthy Foods for a Strong Bio-Economy and Quality of Life*"), twenty soil samples have been collected for nematological analyses in 2019 and 2020 from Kazanlak region. Nematodes were isolated by Baermann funnel method (5 x 25 g of soil), fixed in formaldehyde solution (4%) after killing, dehydrated and mounted on permanent slides.



**Results:** Three species of family Longidoridae have been found from lavender fields with organic production – *L. distinctus*, *X. pachtaicum* and *Xiphinema* sp. and characterised morphologically.



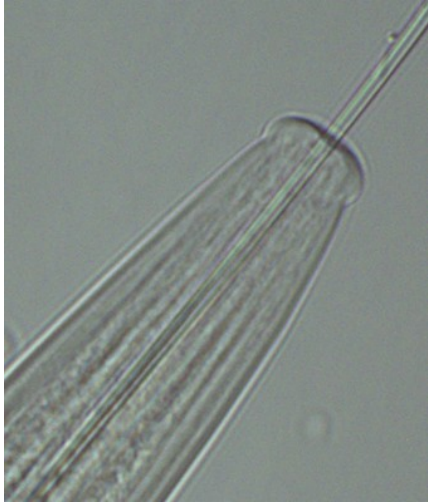
The population of *L. distinctus* recovered, agreed with the original description except for the slightly longer odontostyle and a shorter tail.

*Xiphinema pachtaicum* was the only longidorid species recovered from a rose plantation with conventional farming so far.

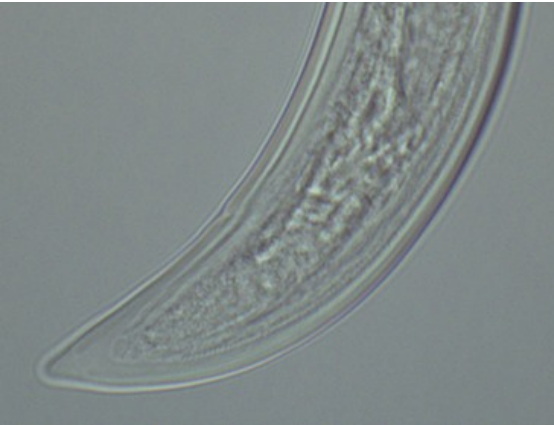
**Table: Measurements of longidorid species (in  $\mu\text{m}$ )**

Characters	<i>Longidorus distinctus</i> 4 females	<i>Xiphinema pachtaicum</i> 3 females	<i>Xiphinema</i> sp. 1 female
Body length	3945-4560	1845-2052.5	1803
a	87-96.0	56-60	56
b		6.4-6.5	5.9
c	82-103	55-64	56
c'	1.45-1.63	1.5-1.8	1.7
V	45- 49	54.5-57	54
Odontostyle	81-90	81-86	77,5
Anterior to guide ring	30-32	72-75	69
Lips width	11.5-13	9-10	9.5
Tail length	42-49	29-36	32





Regarding main morphological characters *Xiphinema* sp. is most similar to *X. pachtaicum* but differs from it by a shorter odontostyle, pharyngeal bulb, glandularium and uteri; different vagina and tail shape. It can be differentiated from the closely related *X. penevi* by its very short uteri and position of the nucleus of the dorsal gland (DN) which is slightly before the dorsal opening (DO). From the species within *X. simile* sub-group (*X. browni*, *X. simile* and *X. parasimile*) it can be easily distinguished by the position of the DN and DO – in those species DN lies below the level of DO and vagina shape. Further studies incl. DNA sequencing of specimens from this population are needed in order to decide if this specimen is an aberrant form of *X. pachtaicum* or a new species.



*Longidorus distinctus* and *X. pachtaicum* associated with lavender represent a new record. No decline in lavender plants have been observed.

**Future work:** Obtaining more material from the target species and molecular characterisation of the population recovered.