



Morphological Identification, Taxonomy and Systematics

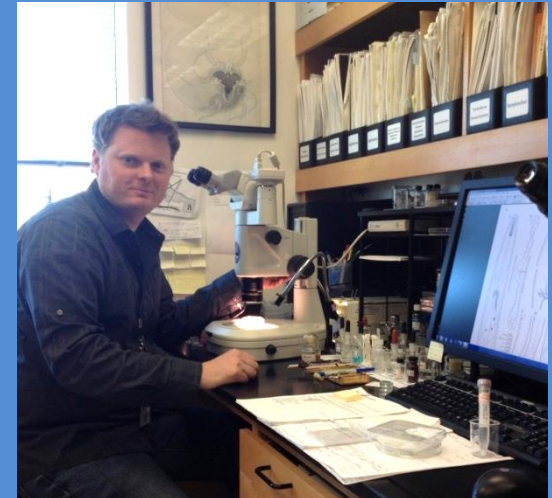


Zafar A. Handoo

Research focused on plant-parasitic nematodes of the order Tylenchida and some forms of the Dorylaimida group, especially nematodes of agricultural and economic importance.

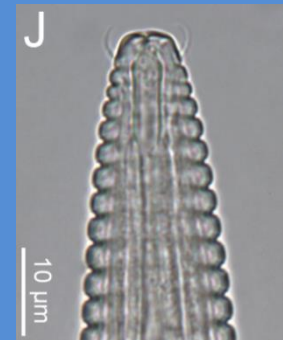
- Current ARS projects

1. Molecular and morphological systematics and identification of important plant-parasitic nematodes
2. Identification of plant-parasitic nematodes and providing related expertise to APHIS



Taxonomic Research

- Recently completed projects
 - Description of new cyst nematode, *Globodera ellingtonae*, from Oregon
 - Description of a new genus, *Rugoster*, with 6 new species
 - Observations of *Aphelenchoides besseyi* on rice
 - Suitability of *Heterodera goldeni* on corn, rice, sorghum
 - Histopathology of *Heterodera cruciferae* on cabbage
- Current projects
 - Integrative taxonomy of the stunt nematode genera *Bitylenchus*, and *Tylenchorhynchus*, with description of two new species
 - Variations of US, Russian, and European specimens of *Xiphinema diversicaudatum*
- Future projects
 - Potential new state record of *Helicotylenchus minzi*
 - Collaboration with DuPont
 - Nematodes of grapevine in Baluchistan, Pakistan
 - Survey of nematodes from various regions of Russia



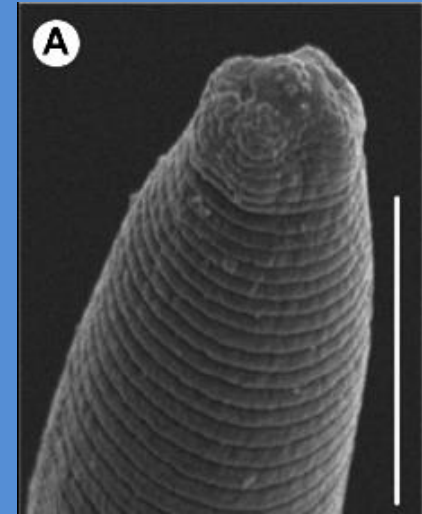
Rugoster colbrani n. sp.



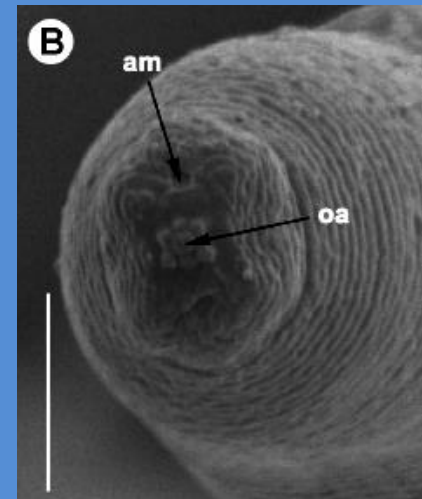
Globodera ellingtonae n. sp.

Taxonomic Research

- Keys and diagnostic compendiums of the genus:
Parodontila, *Merlinius*, *Heterodera* (*avenae* group),
Tylenchorhynchus, *Hoplolaimus*, *Pratylenchus*, *Rugoster*
- Description of new species and higher taxa
 - 16 new species within the last 7 years
 - New *Globodera* sp. from Oregon
 - New genus of cyst nematode (*Vittatidera zeaphila*) parasitizing corn, from Tennessee.
 - New genus, *Rugoster*, with 6 new species
 - 2 new species of stunt nematodes (*Tylenchorhynchus*)
- New occurrence and new host reports from the US and other countries.
- Collaborations with scientists from around the world:
Spain, Russia, Egypt, Pakistan, Turkey, China, United Kingdom, Saudi Arabia, Uzbekistan, Italy, Greece, India, Australia and various states within the US.



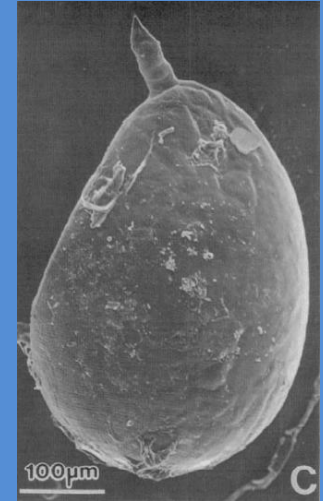
Tylenchorhynchus n. sp.



Tylenchorhynchus n. sp.

Nematode Identifications

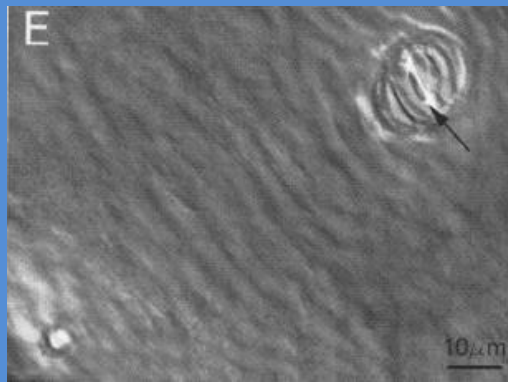
- Receive hundreds of samples each year from Federal and State Agencies, U.S and foreign scientists, and private growers.
- Ongoing work to identify nematodes for APHIS, including for the Potato Cyst Nematode program in Idaho and the Golden Nematode program in New York
- Identifications used for research, regulatory issues, control, publication purposes, and national PCN monitoring programs.



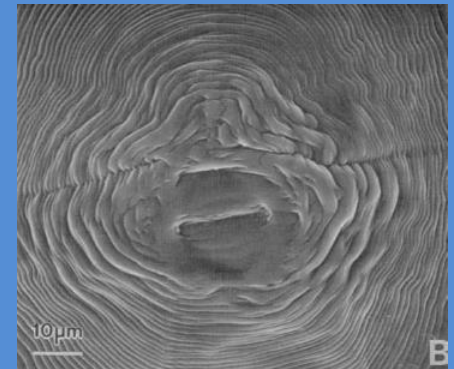
Meloidogyne sauseri



Globodera rostochiensis



Globodera pallida



Meloidogyne sauseri

USDA Nematode Collection

- One of the largest and most valuable repositories of nematodes.
- Used for taxonomic research and reference purposes by U.S. and foreign scientists, as a permanent repository for type and other specimens, and as a source of technical data on nematodes.
- Maintenance and remounting of aging slides in order prevent deterioration of valuable specimens is a continuous and ongoing effort. Time consuming and delicate process that required extensive practice.
- Information about each specimen has been recorded in a database, available to the public at: <http://nt.ars-grin.gov/nematodes/search.cfm>
- Each year, on request, the collection loans specimens to various U.S. and foreign scientists around the world for taxonomic research.
- Scientists are always welcomed and encouraged to deposit material into the collection.



N.A. Cobb's original slide from 1890 in the USDANC



USDA Nematode Collection

Nematode Database (USDANC)

File Edit View History Bookmarks Tools Help


Nematode Database (USDANC)

nt.ars-grin.gov/nematodes/search.cfm

USDANC



USDA Nematode Collection Database



You may retrieve a record directly using the entry number , or use search criteria to retrieve many records (see [Search Tips](#)). Over 38,000 records will be queried.

In the following search fields any part of a term may be used:

	Genus	Species	Common Name
Nematode:	<input type="text"/>	<input type="text"/>	
Host:	<input type="text"/>	<input type="text"/>	<input type="text"/>
City:	<input type="text"/>		
State:	<input type="text"/>		
Country:	<input type="text"/>		
Collector:	<input type="text"/>		
Year:	<input type="text"/>		
Collection:	<input type="text"/>		

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For a loan request, comments, or corrections contact USDANC curator, [Zafar A. Handoo](mailto:zafar.handoo@ars.usda.gov) at zafar.handoo@ars.usda.gov

Updated: April 16, 2012

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