

New reports and molecular diagnostics of circumfenestrate cyst nematodes in the United States.

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Cyst nematodes are a widespread and important group of plant-parasitic nematodes that limit production of numerous crops throughout the world. Aside from the *Globodera* spp. (and unlike the well-described Heteroderinae), relatively few circumfenestrate species have been characterized molecularly, with those limited mostly to ribosomal markers. We have recently identified several isolates from the subfamily Punctoderinae, including a new occurrence of the corn cyst nematode, *Vittatidera zeaphila*, from Indiana [1], and the cactus cyst nematode, *Cactodera cacti*, from Idaho [2], and a new species of *Punctodera* from Oregon. Here we present molecular characterizations for these and other populations that include ribosomal ITS, 28S, and 18S, as well as mitochondrial (COI) and nuclear Hsp90 genes, and present new phylogenetic information for these cyst nematodes. Expansion of this dataset will continue to strengthen evolutionary analysis of cyst nematodes through integration of multi-gene molecular phylogenies with morphological characters and information on geographical origin and host plant speciation.

Keywords: Cyst - Phylogenetics - Molecular - Hsp90 - rDNA.

References:

[1] Skantar et al., 2020. Journal of Nematology (in press).

[2] Skantar et al., 2019. Journal of Nematology 51:1-6.