

Plant-parasitic nematodes associated with medical hemp in Maryland.

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Plant-parasitic nematodes are microscopic worms that cause an estimated ten billion dollars of crop losses each year in the United States and 100 billion dollars globally. One problem with nematodes is that growers have no idea of how many kinds of nematodes exist and the host ranges of nematodes on specific crop cultivars such as medical hemp (*Cannabis sativa indica*) which was recently deregulated for cultivation in the United States. A survey was conducted in October and November, 2019 from an organic medical hemp field in Baltimore County, Maryland, USA that was previously planted with strawberries. Seven samples were arbitrarily selected from different sections of the field. Nematodes were extracted from 100 cm³ soil through sieving and decanting, followed by sucrose centrifugal flotation. Mixed populations of 11 economically important plant-parasitic nematodes belonging to 11 genera, with 8 identified morphologically to species level using a compound light microscope at 10x to 100x magnifications. Anatomical features and measurements of females and males together with molecular analysis by sequencing were used for final nematode identification. *Boleodorus volutus*, *Criconeema mutabile*, *Pratylenchus penetrans*, *Paratylenchus projectus*, *Helicotylenchus pseudorobustus*, *Tylenchus exiguus*, *Psilenchus hilarulus* and *Basiria siddiqii* were identified for the first time as associated with hemp in Maryland of which *Boleodorus volutus* and *Basiria siddiqii* represent new records for the United States. Other important plant-parasitic nematodes found in hemp rhizosphere were *Anguina sp.*, *Ditylenchus sp.*, and *Hemicriconemoides sp.* In addition, several free-living nematodes belonging to the order Rhabditida and Dorylaimida were recovered. Survey records showed new host plant records for most of the identified nematode species in Maryland. Further research is needed to assess the impact of these nematodes on growth, vigor and yield of hemp production.

Keywords: *Cannabis sativa indica* - Hemp - First report - Nematode - Survey.

References:

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Handoo, Z. A. and Golden, A. M. 1989. Journal of Nematology 21:202-218.