

Host status of *Salvia hispanica* (chia) to *Meloidogyne incognita* and nematotoxic activity of root and shoot extracts.

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Chia (*Salvia hispanica* L.) plant parts are used for traditional medicine, and the seeds for food, oil, and drinks. Plant-parasitic nematodes have been collected from other *Salvia* spp., but in a literature search, chia was not found to be listed as a host [USDA Nematode Collection,1,2,3]. It is not known if the lack of phytoparasitic nematodes reported from chia is due to resistance to multiple species, or because little attention has been paid to nematodes attacking chia. As chia production expands, this information is important for growers. The objectives of this research were as follows: 1) Chia lines were tested as hosts for the root-knot nematode *Meloidogyne incognita* (Kofoid & White) Chitwood (referred to here as RKN). 2) Chia shoots were amended into soil to determine whether RKN populations would be suppressed on a subsequent crop. 3) Extracts from plant parts were investigated for nematotoxic compounds. Six chia lines were used for the study: Brad's Organic, Cono, E2, G3, G5 and W13.1. Aqueous root and shoot extracts from all six lines were tested against RKN eggs and second-stage juveniles (J2) in microwell assays. Seeds from the same chia lines were planted in the greenhouse, inoculated with RKN, and harvested after 6 weeks to determine numbers of eggs and galls on the roots. Chia shoots were collected, chopped, and amended into soil in greenhouse pots (2.3% or 2.5% weight fresh shoots:weight dry soil). The soil was then inoculated with RKN, and cucumber 'Sweet Slice' seedlings were transplanted into the pots and harvested 5-6 weeks later to determine effects on RKN population numbers. In the microwell assays, chia plant extracts could kill at least a third of RKN J2, but hatch was generally not affected. In greenhouse trials, all six chia lines were RKN hosts. Gallings and egg production on cucumber roots were not suppressed by soil amendment with chia plant parts. This study demonstrated that chia is a host to RKN, and that chia roots and leaves produce compounds that can kill J2. However, at the tested rates, amending soil with chia shoots did not suppress RKN on susceptible cucumber. Surveys for *Meloidogyne* spp. and other phytoparasitic nematodes on chia may provide information about distribution and potential damaging effects of nematodes on this crop plant.

Keywords: Meloidogyne - Nematode host - Plant extract - *Salvia hispanica* - Soil amendment.

References:

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