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Identification of Nematode Fauna in Vineyards of South of Western Azerbaijan and Determination of the Dominant Parasitic Species

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Introduction: Grapevine belongs to the Vitaceae family that consists of 14 genera and about 700 species. Only in the genus *Vitis* fruits are edible. Italy is the largest producer of grapes and Iran has the seventh position in the world from this point of view. Western Azarbaijan province comprises a high diversity of crops including wild grapes. Although, some nematodes are free living and antagonists of another soil microfauna, the other are plant parasitic agents. Most of which live in the agricultural soils where they are widely dispersed. Effectiveness of the disease management strategies are affected by the accurate identification of the plant disease causal agents and the nematodal diseases are not the exception from this rule. Therefore, for control of the diseases caused by the nematodes, it is necessary to separate the parasitic nematodes from the suspected contaminated soils and identify them. Although separation and identification of the nematodes are partly time-consuming, it is not very complicated. Some nematodes like*Xiphinema*, *Longidorus* and *Ditylenchus* are cosmopolitan and catastrophic nematodes in vineyards worldwide. So far no study has been performed regarding the plant parasitic nematode in vineyards of the south of Western Azerbaijan. Therefore, in this study as an introduction to the management ofthe vineyard parasitic nematodes, the dominant nematodes of the plant were identified. In the next step, investigation of nematodes bioecology, the interaction of nematodes with the other plant pathogens, their host range and their damages to the host plants would be studied.

Materials and Methods: In order to identify the fauna of plant parasitic nematodes in vineyards of the south of Western Azarbaijan, during 2013-2014, 50 soil samples were collected from the rhizosphere of grapevine. The sampling was carried out from the vineyards of five grapevine growing cities including Mahabad, Bookan, Sardasht, Piranshahr and Miyandoab. The samples were collected from the rhizosphere of grapevines from the depth between 10 and 80 cm from the soil surface after digging and separating the surface dry soil. About 2 kg soil from each vineyard from several places were collected and by means of a plastic bag was transferred to the laboratory where they were kept in the refrigerator at 4-degree centigrade until used. Nematodes were extracted from the soil by combined sieving and centrifugal-flotation method and processed to be transferred to glycerin. After preparing microscopic slides, the morphological and morphometrical features of the nematodes were studied using the light microscope equipped with a drawing tube. Identification of the genera and species was performed using reliable sources and valid nematode identification keys and the morphological features. The measurements of the extracted nematodes were compared with those ones given in literature and their similarities and differences with original descriptions and closest species were discussed.

Results and Discussion: As a result, 23 species belonging to 15 genera including Amplimerliniusglobigerus, Basiriatumida, Boleodorusthylactus, Discotylenchusdiscretus, Ditylenchusacutus, Ditylenchusmyceliophagus, Filenchus vulgaris, Geocenamusbrevidens, Geocenamusrugosus, Helicotylenchuspseudorobustus, Helicotylenchus vulgaris, Mesocriconemaantipolitanum, Mesocriconemaxenoplax, Paratylenchuslabiosus, Pratylenchoidesvariabilis, Pratylenchuscoffeae, Pratylenchusneglectus, Pratylenchuspenetrans, Pratylenchussefaensis, Praylenchusscribneri, Scutylenchuspaniculoides, Xiphinema index andZygotylenchusguevaraiwere identified. Five isolated species namely, Helicotylenchus vulgaris,Mesocriconemaantipolitanum, Mesocriconemaxenoplax, Helicotylenchuspseudorobustusand Pratylenchusneglectus respectively based on the frequency and distribution in the soil samples are determined as dominant parasite species. Here, the two more dominant species, Helicotylenchus vulgaris and Mesocriconemaantipolitanum are a little bit described. Helicotylenchus vulgaris, initially worldwide was reported by Yuen in 1964 and for the first time from Iran in 1995 was reported by KargarBideh, and his collaborators from Hamdan province. The species from morphological and morphometrical characteristic point

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of view is very close to Helicotylenchusminzi.Mesocriconemaantipolitanum firstly in 1991 was reported from Iran by Loof and Barooti from apple, wheat and lucerne roots from Karaj, potato from Lorestan, lucerne from Zanjanand apricot from Northern Azarbaijan. In the research, the species was isolated from Piranshahr, Miyandoab, Bookan and Mahabad vineyard cities of Western Azarbaijan. The species is very similar to M. surinamense.

Conclusion: Nine species including Discotylenchusdiscretus, Ditylenchusacutus, Ditylenchusacutus, Paratylenchuslabiosus, Pratylenchoidesvariabilis, Pratylenchuscoffeae, Pratylenchuspenetrans, Pratylenchusscribneri, Pratylenchussefaensisand Scutylenchuspaniculoides were recorded for the first time from the rhizosphere of grapevine from Iran. Considering thatall the nematodes are already recorded from Iran, herein only the dominant species are described.

Keywords: Grapevine, Morphology, Rhizosphere