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Disease Notes

First Report of Root-Knot Nematode *Meloidogyne hispanica* Infecting Grapevines in Southern Spain

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Some commercial vineyards producing the 'Condado de Huelva' wine denomination of origin in Almonte, Bonares, and Rociana (Huelva

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Province), southern Spain, showed general decline in sandy soils in 2009. Disease surveys revealed severe infections of grapevine rootstock Richter 110 feeder roots and heavy soil infestations by a root-knot nematode (*Meloidogyne* sp.). Infected plants showed a general decline as the only visible aboveground symptom, but when roots were inspected, moderate to small galls on secondary feeder roots were detected. The *Meloidogyne* sp. population was extracted and quantified from soil and root samples as previously described (1) and identified by the female perineal pattern, esterase (Est) and malate dehydrogenase (Mdh) phenotypes, and sequencing and maximum parsimony (MP) analysis of the ribosomal DNA region D2-D3 of 28S (2,4). Morphology of the perineal patterns and measurements of the second-stage juveniles (J2s) matched those of the original description of *Meloidogyne hispanica* (3). Enzyme analysis revealed two slow and a medium Est bands, a strong band, and two additional weaker bands coincident with the S2-M1 and N3 Mdh *M. hispanica* phenotypes (2,4). D2-D3 sequences of all three populations sampled were 100% homologous (GenBank Accession No. GQ375158). Phylogenetic analyses with MP of those sequences placed the *Meloidogyne* sp. in a clade (100% support) that included all *M. hispanica* sequences available from the GenBank database (4). *M. hispanica* was first found in Seville Province, southern Spain, infecting rootstocks of *Prunus* spp. Its distribution has been confirmed worldwide on different agricultural crops. Thus, *M. hispanica* has been reported to be infecting grapevines in South Africa and Australia (4); however, to our knowledge, this is the first report of *M. hispanica* infecting grapevines in Europe. Our data suggest that *M. hispanica* may pose a threat for vineyard production in southern Spain since *M. hispanica* was found in 52.63 and 47.36% of soil and root samples, respectively, from 19 fields in 'Condado de Huelva', with nematode population densities ranging from 2.4 to 129.6 eggs and J2s per 100 cm³ of soil and 1 to 1,797 eggs and J2s per gram of fresh roots. Furthermore, genes that confer resistance to other common root-knot nematodes reported on grapevine in Europe may not protect against *M. hispanica*.

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