

# Turkish Journal of Agriculture and Forestry

Turkish Journal

of

Agriculture and Forestry



The Screening of F<sub>2</sub> Plants for the Root-Knot Nematode Resistance Gene, Mi  
by PCR in Tomato

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**Abstract:** Root-knot nematodes are major pests of field and vegetable crops in Turkey and worldwide. They cause damage to many economically important horticultural crops like potato, cotton and tomato. Tomato is one of the crops in which genetic resistance has been especially effective against root-knot nematodes. In the 1940s the root-knot nematode resistance gene (Mi) was introgressed into the cultivated tomato from the wild species *Lycopersicon peruvianum*. Today, many commercial tomato varieties carry the Mi gene, which has been mapped. This gene confers resistance to *Meloidogyne incognita*, *M. javanica* and *M. arenaria*. The short arm of chromosome 6 and many markers linked to Mi have also been identified. The Mi gene has been isolated, cloned and sequenced. In this study, plants were infected with *M. incognita* race 2 and resistant and susceptible lines were determined. According to nematode resistance assays, the root-gall index was determined as > 2 and £ 2 for susceptible and resistant plants, and reproduction factors were 0 and > 1 for resistant and susceptible plants, respectively. In conjunction with traditional screening Mi gene specific primers were used to differentiate between resistant and susceptible plants with a 1.6 kb DNA band being detected in resistant plants but absent in susceptible plants. The data showed a clear correlation between traditional screening and the use of markers and support the possibilities of using marker assisted selection for *M. incognita* resistance breeding.

**Key Words:** Mi gene, root-knot nematodes, resistance

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Turk. J. Agric. For., **28**, (2004), 253-257.

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