

ON THE OCCURENCE OF *XIPHINEMA INDEX* THORNE *ET ALLEN* IN CHILEJ.C. Magunacelaya<sup>1</sup>, F. Lamberti<sup>2</sup> and M.T. Ahumada<sup>3</sup><sup>1</sup> Universidad de Chile, Facultad de Ciencias Agronómicas, Escuela de Agronomía, Santiago, Chile<sup>2</sup> C.N.R., Istituto per la Protezione delle Piante, Sezione di Bari, Bari, Italy<sup>3</sup> Universidad Católica de Valparaíso, Instituto de Biología, Valparaíso, Chile

**Summary.** A nematode survey was carried out during the years 1998-2004 in Chile to assess the occurrence of the dagger nematode, *Xiphinema index*, in vineyards and on fig trees grown in backyards around dwellings. Approximately 45% of samples were positive for the nematode. The nematode occurred more frequently in the northern and central Regions than in the southern ones. *Xiphinema index* was not detected in Regions IX and X.

Grapes (*Vitis* spp.) are one of the most important crops in Chile and *Xiphinema index* Thorne *et Allen* is a major nematode pest of grape in the main viticultural districts of the country (Aballay *et al.*, 2001).

*Xiphinema index* is an economically important species in viticulture because it is a very efficient vector of the Grapevine Fanleaf Nepovirus (Catalano *et al.*, 1992). It also parasitizes grapes directly, including *V. vinifera* L. (Di Vito *et al.*, 1985), which is usually grown in Chile on its own rootstock. The dagger nematode is also a pest of fig trees (*Ficus carica* L.).

*Xiphinema index* was reported for the first time from Chile in 1968 (Gonzales and Valenzuela, 1968). Later, a broad survey indicated that this species occurs in about 70% of the vineyards in the Metropolitana Region (Valenzuela *et al.*, 1992).

An extended nematode survey was undertaken in the years 1998-2004 in various viticultural districts of Chile to update the geographical distribution of this nematode in the country. The results are reported here.

## MATERIALS AND METHODS

Soil samples were collected from the rhizosphere of grapevines, mainly *Vitis vinifera* L., and occasionally fig trees.

Nematodes were extracted from approximately 500 g soil aliquots by a wet sieving technique. Specimens were picked from the aqueous suspension using a stereomicroscope and placed in water on microscope slides. Nematodes were identified with the aid of a compound microscope.

The survey included the following geographical Regions: I, III, IV, V, Metropolitana, VI, VII, VIII, IX and X. A total of 154 samples was collected from the regions surveyed. Region X, was visited, but no samples were collected because neither grapevines nor fig trees were encountered.

## RESULTS AND DISCUSSION

*Xiphinema index* occurred in three of the six samples collected in Region I (Arica). The nematode was more frequent in Region III (Copiapó and Vallenar), where it occurred in 71% of the samples (29 out of 41). In Regions IV (La Serena) and V (Valparaíso), the nematode was detected in 53% (10 out of 19) and 58% (11 out of 19) of the samples collected, respectively. More than 50% (9 out of 17) of the samples collected in the Metropolitan Region (Santiago) were infested by the nematode. *Xiphinema index* was also common in Region VI (Talca), where 30% (3 out of 10) of the samples were infested. However, the nematode was only infrequently encountered in Region VII (Concepción) (1 out of 9 samples) and Region VIII (Temuco, Valdivia) (4 out of 30 samples). The nematode was not detected in the three samples collected in Region IX (Osorno).

During this survey, *X. index* was detected in ca. 40% of the surveyed vineyards. Nematode population levels and frequency were higher in vineyards located in the northern and central regions than in those located in the southern ones. Different ecological factors and management practices adopted in vineyards of north-central regions and in southern regions may affect the frequency and density of this nematode pest.

## LITERATURE CITED

- Aballay E., Flores P. and Insunza V., 2001. Efecto nematocida de ocho especies vegetales sobre *Xiphinema americanum sensu lato*, en *Vitis vinifera* L. var. Cabernet Sauvignon en Chile. *Nematropica*, 31: 95-102.
- Catalano L., Savino V. and Lamberti F., 1992. Presence of grapevine fanleaf nepovirus in populations of longidorid nematodes and their vectoring capacity. *Nematologia Mediterranea*, 20: 67-70.
- Di Vito M., Ekanayake N.M.R.K. and Savino V., 1985. The

- effect of initial population densities of *Xiphinema index* on growth of grapevine. *Nematologia Mediterranea*, 13: 185-189.
- González R.H. and Valenzuela B.J., 1968. *Xiphinema index* (Thorne *et* Allen) y *Xiphinema americanum* (Cobb) en vinedos chilenos. *Agricultura Técnica*, 28: 89.
- Valenzuela A., Aballay E. and Torres M., 1992. Identificación y frecuencia de nemátodos asociados a la vid en la Región Metropolitana. *Investigación Agrícola*, 12(1-2): 15-17.

Accepted for publication on 23 July 2004.