

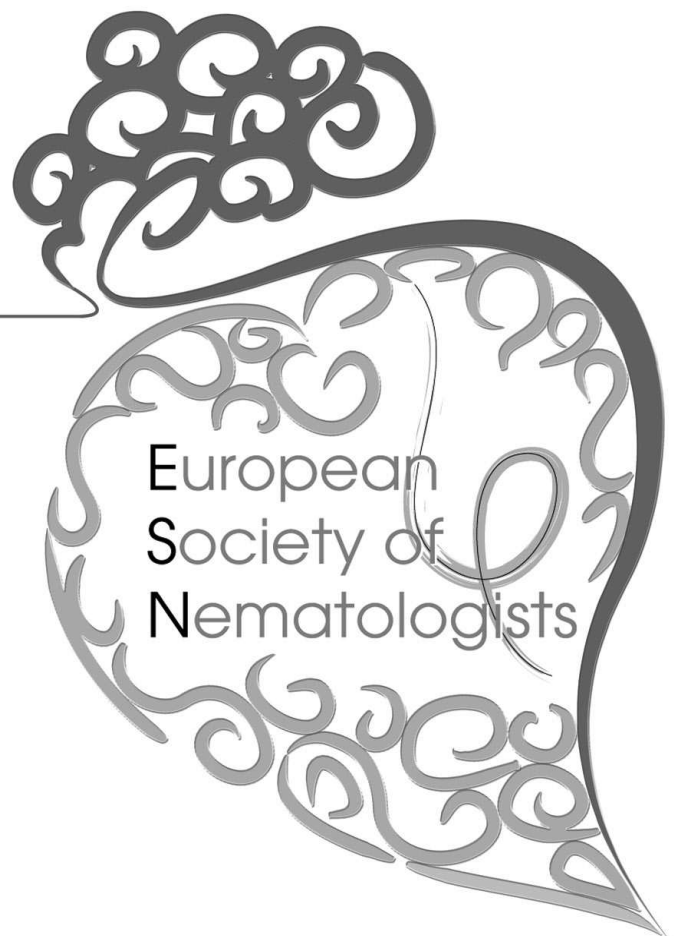
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Integrative taxonomy and molecular phylogeny of “dagger” and “needle” nematodes (Fam. Longidoridae) infesting grapevine soils in Portugal

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Longidorid nematodes are one of the most economically important parasitic nematode groups in grapevine worldwide. They are polyphagous root ectoparasites causing severe damage to plants by their direct feeding, and in addition some species can transmit plant viruses. Grapevine fanleaf virus (GFLV) is transmitted by *Xiphinema index*, and it is one of the main factors responsible for a progressive degeneration of grapevines, which occurs in most vineyards worldwide. Surveys are being conducted since 2015 on representative vineyards. An integrative taxonomy strategy based on the combination of morphometric and morphological characterisations with molecular analysis using ribosomal DNA segments (rDNA) (D2–D3 expansion regions of the 28S gene, and ITS1 region) and/or a segment of a mitochondrial DNA (mtDNA) (cytochrome c oxidase 1 subunit or COI), were used for identification of longidorids. Severe nematode infestations have been found in grapevine soils in the oldest vineyard regions, highlighting *X. index* by its phytopathological importance. Longidorid nematodes detected, in order of decreasing frequency of infestation were *X. pachtaicum*, *X. santos*, *X. index*, *X. dissimile*, *X. italiae* and *Longidorus* sp. Disease symptoms were observed on aboveground plant parts of the infected grapevines with *X. index*, displaying a yellow mosaic pattern in leaves characteristic of infections by GFLV.

Keywords: Longidorids; *Longidorus*; rDNA; virus vector; *Xiphinema*.