

## Grape phylloxera leaf galling - traits or triggered?

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### Abstract

Grape phylloxera, *Daktulosphaira vitifoliae* FITCH (Hemiptera, Phylloxeridae) is a notorious pest in viticulture. The insect feeds on roots and leaves of grapevines where it induces nodosities and tuberosities on roots and pocketlike galls on roots and leaves of grapevines. As an effective plant protection against phylloxera, resistant rootstocks are used worldwide in viticulture. In contrast to successful research efforts targeting root resistance, knowledge on the resistance in leaves is still limited. From the eight genetic loci published (*Rdv1-8*), one (*Rdv3*) could be characterized as relevant for leaf resistance. Moreover, phylloxera resistance in grapevine leaves seems to rely on several interacting QTLs. Foliar infestations in commercial vineyards on *V. vinifera* occur rarely, although leaf galls on cultivated cold-hardy or fungi-tolerant hybrids may frequently occur in commercial viticulture. As to date, studies of the damage of phylloxerated foliage on the yield and quality have provided no unambiguous results, and management options remain limited.

A knowledge gap remains with regard to the genetic background and environmental constraints on the leaf resistance (or susceptibility) towards grape phylloxera which include the insects' genotype(s) and feeding performance (biotypes).

In this article, we present a short review of the most urgent questions from our research on controlled studies of the phylloxera–leaf interaction.

**Keywords:** Grapevine, Grape Phylloxera, Foliar infection