

Comparison of *Potato Virus Y* and *Plum Pox Virus* Transmission by Two Aphid Species in Relation to Their Probing Behavior

Lourdes Fernández-Calvino,¹ Dionisio López-Abella,¹
Juan José López-Moya^{1,2} and Alberto Fereres^{*,3}

Two different aphid species, *Myzus persicae* (Sulzer) and *Hyalopterus pruni* (Geoffroy) (Homoptera: Aphididae), were used to analyze their ability to transmit two different potyviruses, *Potato virus Y* (PVY) and *Plum pox virus* (PPV), to pepper (*Capsicum annuum*) and *Nicotiana benthamiana* plants, respectively. In parallel experiments, *M. persicae* consistently transmitted both viruses with high efficiency, whereas *H. pruni* always failed to transmit either virus. This is in contrast to previous reports describing *H. pruni* as a vector of these potyviruses. Different aphid probing behavior among individual aphids of each species was obtained in electrical penetration graph (EPG) experiments performed on pepper plants. This suggested that *H. pruni* did not transmit these potyviruses due to behavioral differences during probing that impeded virus acquisition and/or inoculation. It was found that *M. persicae* usually makes its first probe within the first 2 min, whereas *H. pruni* individuals remained for more than 10 min on the plant before starting to probe. Furthermore, *M. persicae* individuals displayed their first intracellular puncture during the first minute of probing whereas *H. pruni* needed ~15 min to penetrate the cell plasmalemma with their stylets. In addition, intracellular stylet punctures occurred very frequently for *M. persicae* but was a rare event, never exceeding a single one, for *H. pruni*. The relevance of these findings for the epidemiological spread of potyviruses by different aphid species is discussed.

KEY WORDS: Potyviridae; PVY; PPV; aphid transmission; *Myzus persicae*; *Hyalopterus pruni*; feeding behavior; electrical penetration graphs.

Received Oct. 2, 2005; accepted Jan. 26, 2006; <http://www.phytoparasitica.org> posting May 14, 2006.

¹Dpto. de Biología de Plantas, CIB, CSIC, 28040 Madrid, Spain.

²Present address: Consorcio CSIC-IRTA, IBMB, CSIC, 08035 Barcelona, Spain.

³Dpto. de Protección Vegetal, CCMA, CSIC, 28006 Madrid, Spain. *Corresponding author [Fax: +34-1-5640800; e-mail: aferes@ccma.csic.es].