

DIRECT AND INDIRECT VIRUS EFFECTS ON THE PROBING AND FEEDING BEHAVIOR OF *APHIS GOSSYPYII* GLOVER

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Virus infection may indirectly affect the performance and behavior of their insect vectors because of changes in the physiology and biochemistry of the infected host plant. Viral infection has been reported to cause changes in the host plants that may increase the attractiveness and preference to vectors, modifying the pattern of spread of the virus. However, all these changes may depend on the kind of plant virus-vector relationship. Conversely, direct effects of plant viruses on the behavior of their aphid vectors have never been reported, but they may be an important component in understanding plant virus epidemics. In the present work, we have studied the plant-mediated indirect effects caused by virus infection with the nonpersistent *Cucumber mosaic virus* (CMV) on the feeding behavior of the melon aphid, *Aphis gossypii*. Non-viruliferous aphids were connected to a DC-EPG device and placed on CMV-infected or non-infected cucumber plants for six hours. Furthermore, we have used the persistent virus *Cucurbit aphid-borne yellows virus* (CABYV) to study the feeding behavior of CABYV-viruliferous and non-viruliferous aphids on healthy cucumber plants to assess any direct effects of the virus on the feeding behavior of *A. gossypii*. Our results showed that CMV infection had a clear impact on the stylet activities of *A. gossypii* at the phloem level. Aphids rejected CMV-infected plants as a feeding source, and stayed significantly longer on sustained phloem ingestion activities in healthy than on CMV-infected cucumber plants. These results suggest that CMV-infection alters the behavior of aphids in a way that virus acquisition and retention is optimized and ideally adapted to a typical non-persistent virus transmission strategy.

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