Predation efficiency of ladybird beetles *Harmonia axyridis* and *Coccinella septempunctata* on *Daktulosphaira vitifoliae*

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The ladybird beetles *Harmonia axyridis* and *Coccinella septempunctata* are used for biological control in cultures like hop or field crops. *H. axyridis* was therefore introduced in several countries. In viticulture, both species are not always welcome due to their potential to influence the taste of wine. Their potential in reducing the grapevine pest *Dactulosphaira vitifoliae* (grape phylloxera) has not been investigated so far. *D. vitifoliae* is an important root damaging, leaf feeding and gall-forming insect for grapevines of *Vitis vinifera*. In Europe there is a lack of efficient natural enemies to control grape phylloxera. In our trials, *H. axyridis* adults consumed appr. 90% of grape phylloxera eggs (500 offered simultaneously to each beetle) within 24 h. When fed exclusively with these eggs, the average developmental period (from 1st instar to adult stage) was 18.40 +/- 7.73 days, the mortality 33%, and the average adult weight 18.20 +/- 4.12 mg. In contrast, *C. septempunctata* consumed less than 20% of offered phylloxera eggs in 24 h and could not complete its larval development. Thus, the mortality rate was 100%. Field observations on grapevines with and without leaf galls showed that *H. axyridis* was significantly more abundant on grapevines than *C. septempunctata*, and also more abundant on grapevines infested by leaf galls of grape phylloxera. Its abundance was significantly lower on leaves infested by a few leaf galls, than on higher infested leaves ($p<0.05$). Thus, we conclude that *H. axyridis* can use D*. vitifoliae* as prey and track grapevines with high infestation of leaf galls under field conditions. In conclusion, *H. axyridis* represents an efficient predator for grape phylloxera in vineyards. In contrast, *C. septempunctata* plays no role for the biological control of *D. vitifoliae.*