

Development and survival of *Aulacorthum solani*, *Macrosiphum euphorbiae* and *Uroleucon ambrosiae* at six temperatures

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Abstract

Temperature is one of the most important factors in determining the survival and developmental rate of aphids. The aim of this study was to evaluate the developmental time and survival of the aphid species *Aulacorthum solani* (Kaltenbach), *Macrosiphum euphorbiae* (Thomas) and *Uroleucon ambrosiae* (Thomas) (Rhynchota Aphididae) at six constant temperatures. Tests were conducted on lettuce plants (*Lactuca sativa* L.) in climate chambers at 16, 19, 22, 25, 28 and 31 ± 1 °C, 70 ± 10% RH and 12 h photophase. At high temperatures these species showed lower rates of survival than at low temperatures, and at 31 °C no aphids reached adulthood. The highest survival rates and the shortest developmental times were observed between 16 and 22 °C. The lower temperature threshold (Tb) and thermal constant (K) for *A. solani* and *M. euphorbiae* were 1.09 and 1.05 °C and 142.9 and 144.9 degrees-day (DD), respectively, while for *U. ambrosiae* these parameters could not be estimated. The highest survival rate and short developmental time found at 22 °C indicate that this temperature is optimal for development of *A. solani* and *M. euphorbiae*, whereas the optimal temperature for *U. ambrosiae* is 19 °C.

Key words: potato aphid, foxglove aphid, greenhouse, lower temperature threshold, thermal constant.

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