

Temperature-dependent life history of *Schizaphis graminum* on barley

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Abstract

A population of greenbug, *Schizaphis graminum* (Rondani) was originally collected from barley fields in Isfahan (central Iran). Biology and thermal requirements were studied on the barley plants (Karoon variety) under laboratory conditions at seven constant temperatures: 10, 15, 19, 22, 26, 31, and 33 °C, 60 ± 5% RH, and a photoperiod of 16:8 L:D. The aim of this study was to evaluate the effect of temperature on biology and development with thermal requirement of the greenbug on barley (Karoon variety). Developmental time decreased significantly from 32 to 6 days as the temperature increased from 10 to 26 °C and then increased to 10.18 days at 31 °C. The aphid failed to develop at 33 °C. Survivorship of immature stages varied from 88% at 26 °C to 27% at 31 °C. The highest and lowest longevity were observed at 10 and 26 °C, respectively. The aphids doubling time and mean generation time were significantly higher at 10 °C (12.19 ± 0.02 and 38.70 ± 0.35 days, respectively). The r_m ranged from 0.06 at 10 °C to 0.31 at 26 °C. The lower developmental threshold was 5.73 °C and the aphids required 133.33 degree-days (DD) to complete the immature life cycle. The results of this study showed that 26 °C is optimal temperature for greenbug development and growth.

Key words: greenbug, development, demography, thermal requirement, Iran.

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