

Effect of temperature on functional response of coccinellid (*Coccinula elegantula*) on *Aphis gossypii*

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Abstract

Aphis gossypii Glover (Hem.: Aphididae) is an important pest of vegetables and ornamental plants in greenhouses. Continued use of chemical pesticides for control of this pest has caused several problems and it is necessary to use other management methods, such as biological control. *Coccinula elegantula* weise (Col.: Coccinellidae) is one the natural enemies of cotton aphid with effective role in control of this pest. In this study, the effect of temperature was investigated on functional response and predation potential of this coccinellid with respect to different densities of the aphid. Based on the results, the predator exhibited type II functional response at three tested temperatures (18, 25 and 32 °C). By increasing the temperature from 18 to 25 °C, handling time of *C. elegantula* was significantly increased and searching efficiency was decreased; but these parameters didn't change when the temperature increased from 25 to 32 °C. According to the results of the present study, in which the high searching rate and short handling time of *C. elegantula* were found to be at 25 and 32 °C and the fact that optimum temperature range for *A. gossypii* development over cucumber is 22.5 to 30 °C, and more importantly if we can overcome the obstacles of mass rearing, this predator could be a valuable and potential species in biological control of cotton aphid

Keywords: Plant pests, Natural enemies, Searching rate, Handling time.

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