عنوان مقاله:

Impact of Cold Exposure on the Mortality of Tuta absoluta Pupae

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خلاصه مقاله:

The tomato leafminer, Tuta absoluta is a devastating invasive pest that poses a serious threat to tomato crops worldwide. Its extensive global dispersion serves its capacity to adapt to variations in climate conditions. In this context, the pupa is the most resistant stage to prolonged exposure to cold temperatures. Therefore, indicators of cold resistance were studied in overwintering pupae collected from the field and pupae reared under two constant conditions, high temperature, and long day (۲۵℃, ۱۶:۸ L:D and ۶۵±۵% RH), and low temperature and short day (۱۵℃, ۱۳:۱۱ L:D and ۶۵±۵% RH). The results show that the super cooling point (SCP) significantly decreased in December (-۲۰.۵±۱.۲℃) and January (-۲۰.۲۶±۰.۷۸℃) with a decrease in temperature. In the laboratory, the decrease in temperature and photoperiod increased the tolerance of pupae to subzero temperatures. Lethal Temperature ۵۰ (LT۵۰) and LT۹۰ of pupae collected in the field were recorded at -۱۳.۷۰ to -۱۰.۲۳℃ and -۱۸.۷۳ to -۱۵.۳۷℃, respectively. A comparison of lethal temperatures with the lowest ambient temperature in December and January indicated that T. absoluta has a high overwintering potential in Karaj, Alborz Province, Iran, and can easily survive cold winters.

کلمات کلیدی:

Cold hardiness, Lethal temperature, Supercooling point, Tomato leafminer.