

ẢNH HƯỞNG CỦA NHIỆT ĐỘ ĐẾN PHÁT TRIỂN CÁ THỂ CỦA SÂU KEO DA LÁNG *Spodoptera exigua* (Hubner) (Lep.: Noctuidae) Ở TRONG PHÒNG THÍ NGHIỆM

Influence of Different Temperatures on The Life History of The Beet Armyworm, *Spodoptera exigua* (Hubner) (Lep.: Noctuidae) at Laboratory

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Abstract

The influence of different temperatures on the development of the beet armyworm, *Spodoptera exigua* (Hubner) was studied under laboratory conditions at constant temperatures of 20°C, 25°C, 28°C and 30°C, 65% RH, and a photoperiod of 12 h light:12 h dark, using green onion leaves as food.

In this study, the all larvae passed through 6 instars before pupating. Among them, the first instar larvae suffered from the strongest impact by the lowest tested temperature (20°C). With increasing in tested temperatures, the developmental time of all stages and life span of the beet armyworm were decreased. Especially, egg stage and the pre-oviposition period were impacted strongest by the lowest tested temperature (20°C). The duration of egg stage and the pre-oviposition period at temperature of 20°C increased 3.1-3.3 times in comparison with that of at 30°C. However, the duration of larval stage and pupal stage at temperature of 20°C only increased 2.0-2.5 times in comparison with that of at 30°C. The life span of the beet armyworm decreased from 48.7 days at 20°C to 21.07 days at 30°C (it was shortened about 2.3 times). The number of females was low, and was only 42.28-47.28% in population of the beet armyworm. The fecundity of females was at low level, and was only from 203.05-266.33 (at 20°C and 30°C) to 400.66-402.34 eggs/female (at 25°C). The population growth parameters of the beet armyworm were very varied and depended on temperature. The net reproductive rate (R_0) was highest at 25°C (360,9). The intrinsic rate of increase (r_m) and finite rate of increase (λ) increased with increasing in tested temperatures, and reached the highest value at 30°C and were $r_m=0,302$ and $\lambda=1,353$. On the contrary, increasing in tested temperatures significantly shortened the mean generation time (T) and doubling time (DT) of the beet armyworm. These parameters were shortened about 2.74-2.85 times when tested temperatures increased from 20°C to 30°C. Calculated threshold temperatures for development of egg, larva, pupa and life cycle of the beet armyworm were 15.3°C, 10.5°C, 13.3°C and 12,3°C, respectively. The beet armyworm can complete about 11.4 generations per year at Hung Yen province.

Key words: green onion, *Spodoptera exigua*, the beet armyworm, threshold temperature for development

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