عنوان مقاله:

Laboratory estimation of growth degree-day (GDD) developmental requirements of Anopheles stephensi (Diptera: Culicidae), 2018

محل انتشار:

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خلاصه مقاله:

Background: GDD can be used to help predict events in insect's life cycle during the season by measuring growth in terms of temperature over time, as a guide for timing control actions.Objective: This study objective Was Determine of Anopheles stephensi minimum, maximum growth temperatures and GDD.Material and method: This study was conducted from July to December of 2018)6 months (in the Insectarium of Medical Entomology and vector control Department of Health Faculty, Tehran University of Medical Sciences. An. stephensi (Hormoodar village of Bandar Abbas county strain, intermediate biological form) was used in this study to determine the GDDs. Minimum and maximum growth temperatures studied for all immature stages by incubating in refrigerated incubator at different temperatures. We had 5 tests and one control for each stages of growth and each temperature. Tests were followed for 10 days and growth status was monitored for each temperature regime (3 times per day). United States Davis University Pest Management website was used to calculate the GDD. By entering daily mean temperature data and defining temperature thresholds (upper and lower thresholds), the thermal requirement of An. stephensi was calculated separately for each stage of growth.Result: A total of 4500, 3750 and 1450 An. stephensi specimens

(approximately 10000 specimens) were used to determine respectively the minimum, maximum growth temperature and test controls at 5 different growth stages AND 11 different temperatures. Among the 6 temperatures used to determine the minimum growth temperature (zero growth), At 14° C and° C 38 ° C water temperature, all the immature stages of An. stephensi life transferred to next life stage. Growth at other temperatures above 38 ° C and below 14° C, did not occur during the 10 days of testing, for some stages. Approximately essential heat for growthing of one generation (emerging 80 % of egg to adult) of An. stephensi is 611.25±264.82 DD.Conclusion: Determining of An. stephensi minimum and maximum and GDD threshold is performed for the first time in the world. finding of GDD of this specie that is the main vector in Iran and several neighbor countries are useful for control programs.

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کلمات کلیدی:

Anopheles stephensi, minimum growth temperature, maximum growth temperature, GDD, Iran

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