**THE EFFECTS OF GLOBAL CLIMATE CHANGE ON THE DIAMONDBACK MOTH, *PLUTELLA XYLOSTELLA* (LİNNAEUS, 1758) (LEPİDOPTERA: PLUTELLİDAE)**

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**Abstract**

*As a result of global climate change, it is estimated that the annual average temperature on Earth will be increased by 1ºC until 2025, and this temperature increase will reach 3ºC at the end of the century. In addition to increasing CO2 level and heavy rainfall are seen as inevitable. The diamondback moth, Plutella xylostella (Linnaeus, 1758) is originated from Europe and the most important pest of Brassicaeous plants worldwide, distributed in different climatic conditions from the Himalayan Mountains to Ethiopia. P. xylostella survives in cold climates and resistant to insecticides and do not have a diapause. Additionally, it is caused 90% of product loss and 4-5 billions $ are spented annually for its management. The aim of the study is to examine the effects of global climate changes on Plutella xylostella. Plants secrete certain chemicals to attract natural enemies to inhibit insect herbivores. It has been observed that increasing CO2 concentration weakens the plant response to effect the feeding of P. xylostella. Diadegma semiclausum is a parasitic wasp, belonging to Ichneumonidae family and parasites of the diamondback moth larvae however, it moves away from the environment as a result of the increasing temperatures. Physiology, phenology and geographical distribution of insects are effected by abiotic factors as well as biotic factors. It has been revealed that exposure to high temperature during the pupal stage does not effect the fecundity of adult but decreases the adult longevity. It has been determined that the fecundity and oviposition period of P. xylostella are negatively effected at temperatures below 15 °C and above 25 °C, and the population reaches the maximum level in these temperature ranges. Torrential rains, which are the result of changes in the frequency and intensity of rainfall due to climate change, cause the extansion of the development period of P. xylostella. The unfavorable conditions resulted for the migration of P. xylostella to the suitable regions for its development and distribution. Increasing temperature in terrestrial areas may create suitable air currents that will allow the expansion of P. xylostella population towards the north. In Turkey, P. xylostella was first recorded in 1965 in collard fields in the Murgul district of Artvin. Later, it was detected in the cabbage fields in Erzurum in 1995 and recently reported in Çanakkale in 2018, after that distributioned everywhere Brassicaeous family are produced. Further studies are needed to reveal the effects of climate change on the expansion of insect pests and how they become native to invasive pests in worldwide.*

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