**EFFECTS OF GLOBAL CLIMATE CHANGE ON INVASIVE SPECIES, SPOTTED WING DROSOPHILA, *DROSOPHILA SUZUKII* (MATSUMMURA, 1931) (DIPTERA:** **DROSOPHILIDAE)**

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**Abstract**

*Global climate change and increasing human population give rise to the need for food and reveal the importance of agricultural production. Climate change can reduce yield by increasing crop losses, particularly by affecting the distribution of invasive pest species. Drosophila suzukii (Matsumura, 1931), also known as spotted wing drosophid, is a polyphagous invasive species that causes great losses in the fruit industry. Although D. suzukii was first reported in Japan, originated from Southest Asia. The female adult lays eggs inside the fruits using its serrated ovipositor. In the USA alone, the management cost of D. suzukii has been reported to range from $ 129-172 million annually. The aim of this study is to examine the effects of global climate changes on Drosophila suzukii. Temperature is considered to be the most effective abiotic factor on insects life traits and geographic distribution. The effects of temperature on D. suzukii wing morphology and flight parameters were investigated. It has been determined that high temperature negatively affects flight parameters and wing morphology, they have higher flight speed and larger wings at lower temperatures (16ºC). In another study, it was found that D. suzukii had a lower survival rate from egg to adult as a result of exposure to heat stress during development, and lifespan and fecundity decreased in survivors. While there was no change in the form of ovipositor at lower temperatures, a visible change in ovipositor shape was detected at higher temperatures. In addition, it has been determined that they have longer development times at lower temperatures, while they have larger body sizes and wider wings. D. suzukii was first reported in strawberries in Erzurum in 2014. Later, it was detected on strawberries in Uşak and Çanakkale provinces in 2017. Global climate change has caused invasive species such as Drosophila suzukii to increase crop damage and spread over a wider range in worlwide. It has been stated that the ability of D. suzukii to tolerate thermal changes is a risk factor to its expansion to the new continental invasions.*

***Key words:*** *Drosophila suzukii, Spotted wings Drosophila, invasive species, global climate change*