

Diet and Dating: How diet effects the mating preferences in flies

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Figure 1. Comparison of serrated and blunt ovipositor.

Images taken from Hauser *et al.* (2) and adapted to show comparison between serrated ovipositor of female *Drosophila suzukii* (top) and blunt ovipositor of female *Drosophila simulans* (bottom), as shown by a black arrow.

My research project will focus on the effects of diet on mating preferences in *Drosophila suzukii*. *Drosophila suzukii* is a spotted wing fruit fly native to South East Asia. Due to its serrated ovipositor, the organism has the ability to lay eggs in healthy fruits, unlike the majority of *Drosophila* species, which usually utilise rotting fruit. Figure 1 shows the difference in ovipositor of *Drosophila suzukii* compared with the usual blunt edge of most *Drosophila* species. Due to this adaptation, the species has become a major pest, and has been documented in nine different European countries (1). However, currently little is known about *Drosophila suzukii*. Therefore, any information on the behaviour and physiology of the species could be vital for determining any evolutionary advantage or drive for the switch to their unusual diet. My study concentrates on the effects of diet on fecundity and mating preferences. Specifically, I will study and assess the effects of low protein, and presence or absence of gut bacteria. The potential effects caused by the gut microbiota could give insight into the species' unusual ability to survive on a low-protein diet.

References:

1. Cini, A., Ioriatti, C. and Anfora, G. (2012). A review of the invasion of *Drosophila suzukii* in Europe and a draft research agenda for integrated pest management. *Bulletin of Insectology*, 65(1), pp.149-160.
2. Hauser, M., Gaimari, S., Damus, M. (2009). *Drosophila suzukii* new to North America. *California Department of Food & Agriculture*, 43, pp.12-15.