Abstract

Generalist pollinators are often considered less effective in pollination compared to specialists due to their tendency to visit a lower number of plant species. However, the sharing of pollinators among plants does not necessarily reduce their reproductive success, as pollinator flower constancy and preferences can act as mechanisms ensuring efficient pollination. There is limited knowledge on this topic, particularly concerning hoverflies, which are a significant group of pollinators. Furthermore, only a few studies have systematically compared the preferences and flower constancy of hoverflies with those of bees pollinators using standardized methods.

In this study, I investigated the flower constancy, magnitude of preferences (preference adjusted for pollinator flower constancy), and innate and learned preferences of bumblebees, honeybees, and hoverflies through two experiments. The first experiment examined pollinator choices between two flower species, recording which flower type the pollinator initially departed from. Differences were analyzed among functional groups, between sites with and without the presence of one of the offered species, and with respect to the influence of the visual dissimilarity of flower species on observed flower constancy and preference metrics. The second experiment focused on the temporal dynamics of preference changes in naïve individuals of the hoverfly Eristalis tenax (reared in captivity).

The results showed that honeybees had higher flower constancy and preference magnitude than bumblebees and hoverflies, which were similar to each other. All pollinator groups exhibited variability in both traits, with a positive correlation between flower constancy and preference magnitude. Some hoverflies were exceptions, showing high constancy but low preferences. Hoverflies and bumblebees displayed both positive and negative learned preferences, while honeybees showed only positive ones. Pollinator discrimination improved with greater flower trait dissimilarity, but no threshold was found where hoverflies suddenly lost their ability to differentiate flowers, contrary to visual model predictions.

Key words: flower constancy, preference, generalist pollinators, *Apis mellifera*, *Bombus* spp., *Syrphidae*, visual models, learned preference