VISITOR BEES OF YELLOW PASSION FRUIT (*PASSIFLORACEAE*) IN URBAN CULTIVATION

ABELHAS VISITANTES DO MARACUJÁ-AMARELO (*PASSIFLORACEAE*) EM CULTIVO URBANO

Willian Moreira da Costa*[1]; Kamila Moreira da Costa[2]; Luceli de Souza[3]; Aparecida de Fátima Madella de Oliveira[1]

[1]Instituto Federal de Educação, Ciência e Tecnologia do Espírito Santo, Alegre, ES, Brazil;
[2]Universidade Federal de Viçosa, Viçosa, MG, Brasil;
[3]Universidade Federal do Espírito Santo, Centro de Ciências Exatas, Naturais e da Saúde, Alegre, ES, Brazil.
*Corresponding author: willianbiologo@hotmail.com

Abstract

The yellow passion fruit, Passiflora edulis Sims f. flavicarpa, belonging to the Passifloraceae family, is a climbing plant that has long branches with a grooved stem. It is cultivated in different regions of Brazil. The fruit can be consumed fresh or in the form of juices, among products, and is also used in the pharmaceutical industry. The yellow passion fruit plant has self-incompatible reproductive structures, so the flowers need pollinators to carry the pollen from one flower to another for fertilization, generating fruits. The crop thus depends on effective pollinators, without which growers must resort to artificial pollination. Among the effective pollinators are large and robust bee species belonging to the genera Xylocopa, Centris, Epicharis, Eulaema and Bombus. This study sought to identify the species of native bees visiting yellow passion fruit plants growing in an area of 20m2 located in an urban area (Conduru, district of Cachoeiro de Itapemirim, south of Espírito Santo). The surrounding areas contain residences with few spaces for home and/or public gardens, and also by a small strip of adjacent pasture. Observations were carried out in October 2021, when the passion fruit plants were in bloom. Strategic points were set within the area where two observers simultaneously identified and counted the visiting bees. The observations were carried out between 11 a.m. and 2 p.m., three times a week, totaling a sampling effort of 36 hours. Five species of bees were identified, distributed in four tribes and one family: Xylocopa frontalis (Olivier, 1789) and Xylocopa grisescens Lepeletier, 1841, for Xylocopini, Apidae; Epicharis flava Friese, 1900, for Centridini, Apidae; Bombus morio (Swederus, 1787), for Bombini, Apidae; and Trigona spinipes (Fabricius, 1793), for Meliponini, Apidae. Xylocopa frontalis was the most abundant species, with eight individuals, followed by Xylocopa grisescens, with five individuals, Bombus morio and Trigona spinipes with three individuals each, and Epicharis flava, with two individuals. The bees with the highest frequency of visits to the flowers were Xylocopa frontalis, with 55% of all visits, followed by Xylocopa grisescens, with 25%, Bombus morio, with 10%, and Epicharis flava and Trigona spinipes, with 5% each. The richness and abundance of bees in the studied area was low, which is probably related to the absence of nearby green areas, since the crop area us mainly surrounded by residences. The presence of bumblebees in passion fruit crops depends on some factors, mainly the availability of resources close to the cultivation environments, since these bees have some ecological requirements, such as the presence of dry trunks and branches to build their nests. For native bees in general, and for effective pollinators of passion fruit, it is essential to offer food resources (nectar, pollen, oils and resins) provided by the adjacent flora (forested environments, spontaneous plants, gardens, among others) found nearby cultivation areas, as they are supplementary resources in the periods when the crops are not in bloom, thus contributing to maintain the bee community in the areas of interest. Therefore, preserving green areas, as well as enriching the surroundings of cultivation areas with plants that offer resources, can provide benefits to bees and contribute to crop pollination.

Keywords

Agro-ecology, ecosystems, pollinators.

Acknowledgments

To Fapes for the master's scholarship granted to the first author.