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QUEEN CHOICE IN THE STINGLESS BEE *Melipona flavolineata* (APIDAE, MELIPONINI)

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The queen choice by eu-social bees is under strong selective pressures, since choosing a low quality queen would affect the fitness of a colony. In honeybees (Apini), there is a direct fight between competing queens and workers show little influence in this decision. But in stingless bees (Meliponini), the choice is made by the workers, which kill several queens until a new one is accepted. The aim of this study was to test if workers use queen size as a parameter for this choice. To test this hypothesis we compared the size of virgin queens with size of physogastric queens of *Melipona flavolineata*. The virgin queens represent the population from where the workers choose their queen; whereas physogastric queens represent the chosen population. If the size is not important for this choice process, we would expect no difference between the sizes of these groups, since choice would be random. We measured the head width as a size parameter of 30 virgin queens (from 13 colonies) and 30 physogastric (from 30 colonies). Although we did not find a significant difference (tHW: -1.7943; df: 58; p = 0.0779), the physogastric queens were in average smaller than virgin queens (Physo = 3.142 ± 0.135; Virgin = 3.211 ± 0.161), showing that smaller queens are chosen more often than bigger ones. Several additional parameters could also be used by workers to access the quality of a queen, such as pheromones, ability to escape from workers attacks, ability for hiding, etc. The results we found are not conclusive, but indicate that in *Melipona* genera there may have adaptive advantages for choosing smaller queens. This could have consequences on the selective pressures acting on variability of virgin queen sizes and could also influence the evolution of caste determination systems.

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