Intraspecific parasitism by workers in a highly eusocial bee

Denise Araujo Alves, Julia Pinheiro Figueiredo, Fabio Santos Nascimento

Insect societies are well known for their high degree of cooperation, but the nonclonal structure of their colonies can potentially be exploited by reproductive workers who lay unfertilized, male eggs, rather than work for the good of the colony. Over the past decade, it has also been discovered that workers in bumblebees and honeybees can succeed in entering and parasitizing unrelated colonies to produce their own male offspring. The aim of this study was to test whether such intraspecific worker parasitism might also occur in stingless bees, another group of eusocial bees, with perennial colonies headed by a single once-mated queen. Given that 13% of all the males are workers’ sons, Scaptotrigona depilis is a good candidate species for investigating the vulnerability to parasitism by workers of conspecific nests. Choice experiments, in which queenright and queenless workers had the choice to remain in their natal nests or to join a queenright or queenless colony nearby, showed that very few workers enter unrelated, conspecific nests. The drifters were between ten and twenty days old and half of them had active ovaries. Although there was no preference to drift into queenright or queenless colonies, we detected a slightly tendency of workers to drift out of queenless colonies. Thus, our results suggest that the best option for a worker with active ovaries is to stay where she is, since she has opportunities of reproducing in her natal colony.