

HOW PEACEFUL ARE EGYPTIAN QUEENS? COMPARING AGGRESSIVE BEHAVIOUR OF VIRGIN *APIS MELLIFERA CARNICA* AND *APIS MELLIFERA LAMARCKII* QUEENS IN A BIOASSAY

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In *Apis mellifera* supernumerary young queens are produced before swarming. Conflict among these sister queens is predicted to occur in the course of colony reproduction, because queens compete for the workers as a limited resource necessary for starting a new colony. As a rule, young *Apis mellifera* queens fight each other after emergence and only one queen survives the aggressive encounter. However, in the subspecies *A.m. lamarckii*, frequently more than 50 virgin queens are simultaneously found in swarms.

The objective of the study is to compare aggressive behaviour of *A.m. lamarckii* and *A.m. carnica* in a bioassay. In an arena (d=12,5 cm, height 2 cm) the aggressive behaviour of 1 to 4 day old queens towards an immobilised queen (exposition to 20 sec CO₂) was recorded on video over a test duration of 3 min at a temperature of 29°C. Stinging behaviour was scored (negative = no stinging, positive = stinging at least once).

For each of the four possible combinations of queens of the two subspecies trials were conducted. Conspicuous differences in the sequence of the aggressive acts between *A.m. lamarckii* and *A.m. carnica* queens were noticed. The frequency of aggressive behaviour was lower in *A.m. lamarckii* queens compared to *A.m. carnica*. Further *A.m. carnica* was more frequently attacked than *A.m. lamarckii*.

The temporary „coexistence“ of virgin *A.m. lamarckii* queens during swarming seems to depend on a lower level of aggressive interaction. However also workers may play a yet unknown role in regulation of surplus queens in *A.m. lamarckii*.

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