

## Numbers of spermatozoa in queens and drones indicate multiple mating of queens in *Apis andreniformis* and *Apis dorsata*.

### ABSTRACT

Drones of *Apis dorsata* had an average of  $2.46 \cdot 10^6$  spermatozoa in their vesiculae seminales. Two queens had  $3.67 \cdot 10^6$  spermatozoa in their spermathecae. In *A. andreniformis*, drones had an average of  $0.13 \cdot 10^6$  and the spermathecae of 2 queens contained 0.98 and  $1.09 \cdot 10^6$  spermatozoa. In both *A. dorsata* and *A. andreniformis* the spermathecae of queens contained more spermatozoa than the vesiculae seminales of a single drone of either species. Therefore, we conclude that multiple mating occurs in both species as is the case for *A. mellifera*, *A. cerana* and *A. florea*.

**Keyword:** Multiple mating; Spermatozoon; *Apis andreniformis*; *Apis dorsata*.