

Phylogeny and sexual pheromones of Corsican bumblebees

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Abstract: Eight taxa of bumblebees live in Corsica. Among these, six are endemic and very different in their morphology from their continental sister taxon (counterpart). This differentiation is such that two of them are actually considered as true species (*B. perezi* and *B. pereziellus*). The four other endemic species are considered as subspecies of continental taxa (*B. hortorum jonghei*, *B. lucorum renardi*, *B. ruderatus corsicola* and *B. terrestris xanthopus*). These endemic Corsican taxa have a conspicuous color pattern, quite monotonous. They could be isolated from their counterparts since the last ice-age of Würm (-13 000 years ago). The two remaining taxa are identical to their continental counterpart from Italy (*B. maxillosus italicus* and *B. pascuorum melleofacies*).

The taxonomic statuses are only based on traditional morphology and so there are a lot of doubts. The aims of this work is to check the taxonomic status with modern method (phylogenetic studies; , 24 specimens, studies of sexual pheromones; 245 specimens) and see if a speciation can take place in a period of 13 000 years.

We collected Corsican bumblebees and continental counterparts in 2007 and 2008. We compared the composition of Corsican and continental bumblebees' sexual pheromones and we sequenced two genes nearly from the same specimens (COI and EF-1 α).

Our results show that two taxa (*B. ruderatus corsicola* and *B. terrestris xanthopus*) are different from their continental counterpart. The others seem to be subspecies from their continental counterparts. In conclusion, a speciation could have occurred in a short period of isolation.

Keywords: *Bombus*, Corsica, Pheromones, Phylogeny, Taxonomy