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127 Patterns of *Vespa velutina* invasion in western Iberia and Italy as revealed by molecular markers

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The Yellow-legged or Asian hornet (*Vespa velutina nigrithorax*) was naturally distributed in Southeast Asia. However, in 2004, it was accidently introduced in France from China and in the last decade it spread rapidly through the French territory and to other European countries. In the Iberian Peninsula it was reported for the first time in Spain, in 2010, and in Portugal, in 2011. Using a population genetics framework, the goal of this study was to test the genetic patterns of colonization of this invasive honey bee predator in the Atlantic side of Iberia and in Italy. A total of 246 individuals, each representing a single colony, were collected across the invaded area in Portugal (190), Spain (45) and Italy (11). Additionally, a dataset containing samples from France, Vietnam, South Korea, Indonesia and two provinces of China provided by Arca et al. (2015) was used as a reference for testing hypothesis about origin of the invasion. The genetic variability was assessed using 16 microsatellite loci and the mitochondrial cytochrome C oxidase. Population structure was inferred using the Bayesian approach STRUCTURE and diversity was estimated using GenAlex 6.5. Our results show that genetic diversity is low in Portugal, as expected from a founder effect originating from the French population. The Spanish population shows a higher genetic diversity and our data suggest that this is due to independent invasions originating from two range expansions: one from France and another from Portugal. The molecular data obtained for the Italian sample show diversity levels similar to those of Spain and supports introduction by range expansion from France. The mtDNA analysis revealed the presence of a single haplotype in Iberia and Italy, which has been also reported for France and UK. These results are in accordance with other European studies, further supporting an entrance of a small number of propagules or even of a single multi-mated queen in Europe.

128 Reproductive success in European orchard bee *Osmia cornuta* (Hymenoptera: Megachilidae) influenced by the number of males

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The main objective of this study was to analyze the effect of the number of males mated with females on their fecundity and nesting potential. In the spring of 2017, the three experimental groups of bees were designated by the sex ratio (female/male) as 1:1, 1:2 and 1:3. Each group of bees, in the controlled laboratory conditions, consisted from 30 newly emerged females were released in the small cage (40x50x60 cm) with the designed numbers of males, provided with artificial carbohydrate food source of sucrose/water (50:50) solution. Males were emerged 2-3 days before females and immediately transferred to the cages. The first group of females spent 6h with males, and the second group 12h at the light regime 1:1, t=20±2 °C, and RH=65-70%. The body size and weight of both sexes are consistent with the average of our reared "population". After completion of mating, the females were transferred into a part of the field covered with a large cage (4x4x2 m) with a mixture of flowering plants (mostly rapeseed) and suitable natural nesting material.
During the mating and nesting activity were recorded behavior, longevity, and provisioning rate. The results of offspring production show statistically significant differences among experimental groups in both mating times. The group with equal sex ratio had a smaller number of progenies than others four: 1) mating time 6h: M=12.67±3.04, compared with M=17.93±3.33 and M=18.33±3.84, respectively; 2) mating time 12h: M=13.37±3.85 compared with M=20.30±3.39 and M=20.07±3.33, respectively. Sex ratio among offspring varies from 1:1.89 in the group with three males per female to 1:3.51 in the group with one male per female.
The low sex ratio in parent population is positively correlated with higher production of male progeny and vice versa. The main restriction factor for population abundance increasing is correlated with the available number of males.