

**OR290***Unraveling the mysteries of honeybees in the Mascarene Islands*

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The islands of the South West of the Indian Ocean are a hotspot of biodiversity with high rates of endemism. Honeybees play a major role in these insular tropical ecosystems, interacting with indigenous and endemic species but also with exotic and invasive species. In Madagascar (heart of the hotspot of biodiversity) the honeybee has already been described as *Apis mellifera unicolor*, an endemic subspecies belonging to the African lineage. However, knowledge about the established honeybee populations from other islands is extremely limited and their origins and diversity remain unknown. We focused on *A. mellifera* populations from the three islands (La Réunion, Mauritius and Rodrigues) of the Mascarene archipelago (> 700km East from Madagascar). This study aimed to 1) characterize the evolutionary lineages and subspecies, 2) determine the genetic diversity and 3) reconstruct the roads of colonization by testing multiple scenarios. Maternal origin of *A. mellifera* was assessed with the study of the mitochondrial tRNA<sup>Leu</sup>-COII intergenic region. Then, nuclear genetic diversity was investigated with 18 microsatellites markers on all samples. A total of 2101 colonies were sampled in La Réunion, 355 in Mauritius and 524 in Rodrigues between 2011 and 2013. Mitochondrial analyses revealed striking differences among islands. On La Réunion, 91% of the sampled colonies were attributed to *A. mellifera unicolor* and 4% to European lineages; in Mauritius the proportion of African and European lineages were equivalent (45% and 43%, respectively) whereas Rodrigues was exclusively represented by exotic European subspecies. Hypotheses for such contrasting patterns between close islands are discussed regarding to original forest loss (75% in La Réunion to 100% in Rodrigues), distance from Madagascar (La Réunion at 700 km to 1400 km for Rodrigues) and past human activities. Nuclear genetic diversity results showed that hybridization occurred between introduced or indigenous subspecies in all islands but at different levels.