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Ecological plasticity and genetic diversity of the mango blossom gall midge, *Procontarinia mangiferae* (Felt), in Reunion Island

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Phytophagous insects that belong to the Cecidomyiidae family are among the most closely associated with their host plants. Phytophagous insects can specialize not only on a unique host plant but on particular parts of plants as well. Mango blossom gall midge, *Procontarinia mangiferae*, is a mango pest that causes damage to both inflorescences and leaves. The objectives of our study were to highlight the genetic diversity and ecological abilities of a monophagous gall midge and to evaluate the determinants of its genetic structure in subtropical Reunion Island. This study, carried out on an isolated island, is based on morphological and molecular data (mitochondrial DNA and microsatellites). Using mitochondrial COI gene sequences, polymorphism at 11 microsatellite loci and an extensive sampling of 27 populations at 17 sites, we tested the genetic differentiation between populations sampled on different mango organs, different mango cultivars and at different seasons. Our results showed that a single species, *P. mangiferae*, was present all year round at all of the sites sampled, regardless of climatic and cultural conditions, and that it fed on both inflorescences and young leaves. Moreover, our study highlighted the ecological plasticity of this species. However, unlike previous studies on other Cecidomyiidae species, the population genetic structure did not appear to be determined by the species' ability to feed on different organs of the same host plant, but rather by the geographical distribution of populations.

Keywords: *Cecidomyiidae*, *Ecological genetics*, *pest species*

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