

## Abstract

Nosemosis is a parasitic disease caused by microsporidian pathogens of the genus *Nosema* infecting both the Western honey bee, *Apis mellifera*, and the Asian honey bee *Apis cerana*. The disease may adversely affect bee colonies and eventually result in high losses in apiculture and agriculture. We determined the *Nosema* species infecting honey bees and their prevalence in two islands of the Comoros Archipelago (Grande Comore (GCO) and Mohéli (MOH)) in the Southwest Indian Ocean. In Comoros, beekeeping is largely traditional and practiced at subsistence-level, including honey hunting. Five honey bee foragers from 69 colonies in different localities within the two islands were selected and screened for *Nosema* infection using microscopy and Polymerase Chain Reaction-restriction fragment length polymorphism (PCR-RFLP). Selected positive samples were sequenced to confirm the species identified using PCR-RFLP. We also examined spore loads to determine the intensity of *Nosema* infections. *Nosema ceranae* is the only species detected in the two Comoros islands. High prevalence occurred in the large island, GCO (73.9%), while MOH (25.0%) had a low prevalence. Spore counts indicated higher infection intensities in GCO compared to MOH. Generally, PCR-RFLP underestimated the prevalence, although microscopic and molecular diagnostics were well in agreement at the colony level. MOH had lower prevalence and infection intensity compared to GCO, which is the larger island with a higher density of human population. We postulate that the lower levels of pathogen prevalence in MOH in comparison to GCO could arise from minimal human interference.