

Genetic diversity of *Amblyomma variegatum* (Acari: Ixodidae), the main vector of *Ehrlichia ruminantium* in Indian Ocean Islands

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The hard ticks *Amblyomma variegatum* is the main vector of *Ehrlichia ruminantium* which is the pathogen responsible for heartwater or cowdriosis, a disease of ruminants. This tick originates from sub-Saharan Africa and is now widely widespread. *A. variegatum* has been described in 1899 for the first time in Madagascar, but its introduction is probably older and very likely concomitant with livestock introduction from Africa. *A. variegatum* has also been described in the Comoros, Mayotte, La Reunion and Mauritius islands.

The aim of this study was to investigate the genetic and demographic phenomena that have shaped the present distribution and structure of *A. variegatum* populations in the Indian Ocean area.

A first phylogeographic approach has been carried out, by analysing two mitochondrial-DNA genes at an intra-specific level through the analysis of tick samples from Madagascar and from the other Indian Ocean Islands included in this study. These samples have been compared to samples from Africa, where this species is originated from, and samples from the French West Indies where *A. variegatum* was introduced around the 18th century. This study will help to elucidate *A. variegatum* introduction history in the different Indian Ocean Islands. A population genetics approach, using microsatellite markers, focused on Madagascar and some other islands (La Reunion, Comoros and Mayotte islands), has given an insight into the present population structure.

This study has led to two main lineages identification: one covering all the species distribution and one restricted to East Africa and Indian Ocean area. These two lineages are in sympatry in Madagascar. The results seemed to be in keeping with the historical data concerning the introduction of the tick in the Indian Ocean area.

In Madagascar, a high genetic diversity has been described whereas a lower genetic diversity is observed in the other islands. In Madagascar tick populations are clearly structured but in a heterogeneous way. This structure is probably shaped by the complex interaction of geographic, climatic and anthropic factors.