
Dynamics of the liver flukes in a highly anthropized system: the Camargue

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Abstract

The emergence and re-emergence of diseases encountered over the last hundred years are a real health crisis largely due to anthropic disturbance. Fasciolosis is particularly sensitive to human related changes. This zoonosis caused by the parasite *Fasciola hepatica*, is recognized as a veterinary problem and major public health issue. We studied the population dynamics of *F. hepatica* and its intermediate host *Galba truncatula* a mollusk of the Lymnaeidae family within a study area in the Camargue allowing us to have access to definitive hosts (bulls) and intermediate hosts. We found that the prevalence of this parasite is very high among bulls. Moreover all the liver flukes belong to the same genetic cluster suggesting that all bulls get infected from a single outbreak. We also characterized the habitats that are favorable to the presence of the intermediate host. The genetic study showed that populations were less self-fertilizing than expected from previous studies, probably due to permanent and stable drainage network, providing higher stability to the fresh-water snails. Furthermore, we showed that the populations living in different irrigation canals were genetically distinct whereas within a canal populations were not significantly different. Finally, the freshwater snail persistence and high prevalence detected in bulls emphasize that fasciolosis could represent a major problem in the Camargue and encourages further work on this disease. To conclude, I will talk about the objectives of my PhD that aims at gaining a more comprehensive view of this parasite circulation and to adapt herd management to control fasciolosis.

Keywords: *Fasciola hepatica*, *Galba truncatula*, self, fertilization, drainage networks, genetic structure.

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