

The Potential Effect of Sexual Selection on the Distal Genitalia Variability of the Simultaneously Hermaphroditic Land Snail *Helix aperta* in Bejaia/Kabylia/Algeria

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Abstract : Sexual selection is the most supported explanation for genital extravagance occurring in animals. In promiscuous species, population density, as well as climate conditions, may act on the sperm competition intensity, one of the most important mechanism of post-copulatory sexual selection. The present study is empirical testing of sexual selection's potential role on genitalia variation in the simultaneously hermaphroditic land snail *Helix aperta* (Pulmonata, Stylommatophora). The purpose was to detect the patterns as well as the origin of the distal genitalia variability and especially to test the potential effect of sexual selection. The study was performed on four populations, *H. aperta*, different in habitat humidity regimes and presenting variable densities, which were mostly low. The organs of interest were those involved in spermatophore production, reception, and manipulation. We examined whether the evolution of those organs is connected to sperm competition intensity which is traduced by both population density and microclimate humidity. We also tested the hypothesis that those organs evolve in response to shell size. The results revealed remarkable differences in both snails' size and organs lengths between populations. In most cases, the length of genitalia correlated positively to snails' body size. Interestingly, snails from the more humid microclimate presented the highest mean weight and shell dimensions comparing to those from the less humid microclimate. However, we failed to establish any relation between snail densities and any of the measured genitalia traits.

Keywords : fertilization pouch, *helix aperta*, land snails, reproduction, sperm storage, spermatheca

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