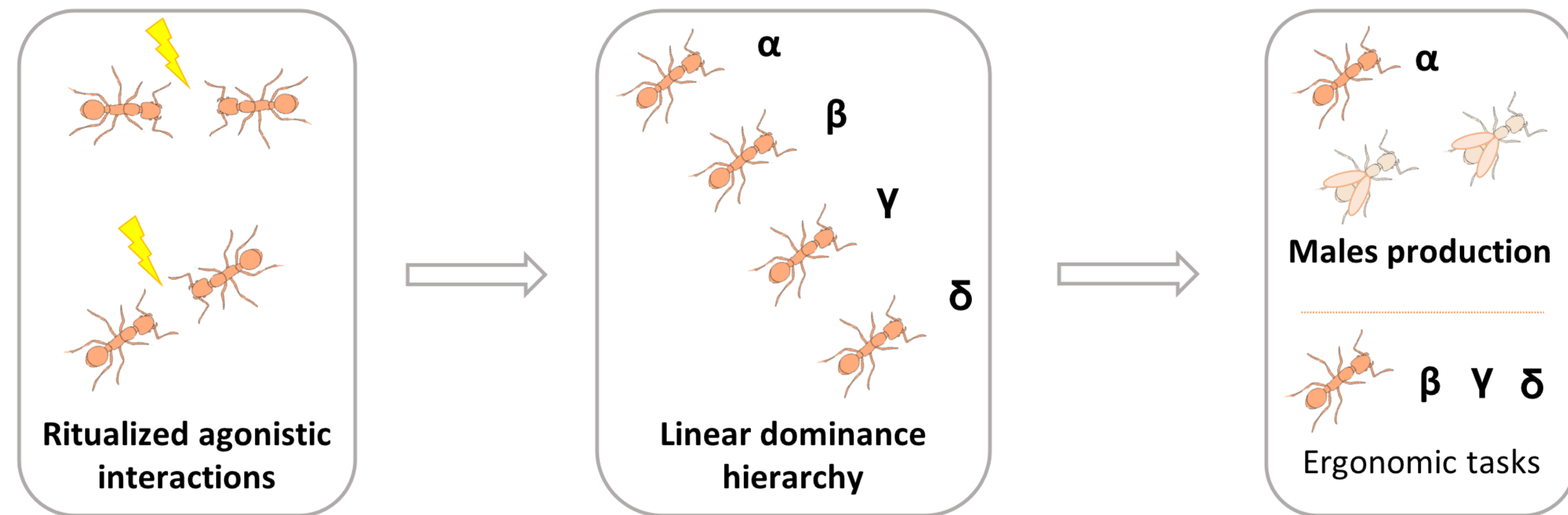


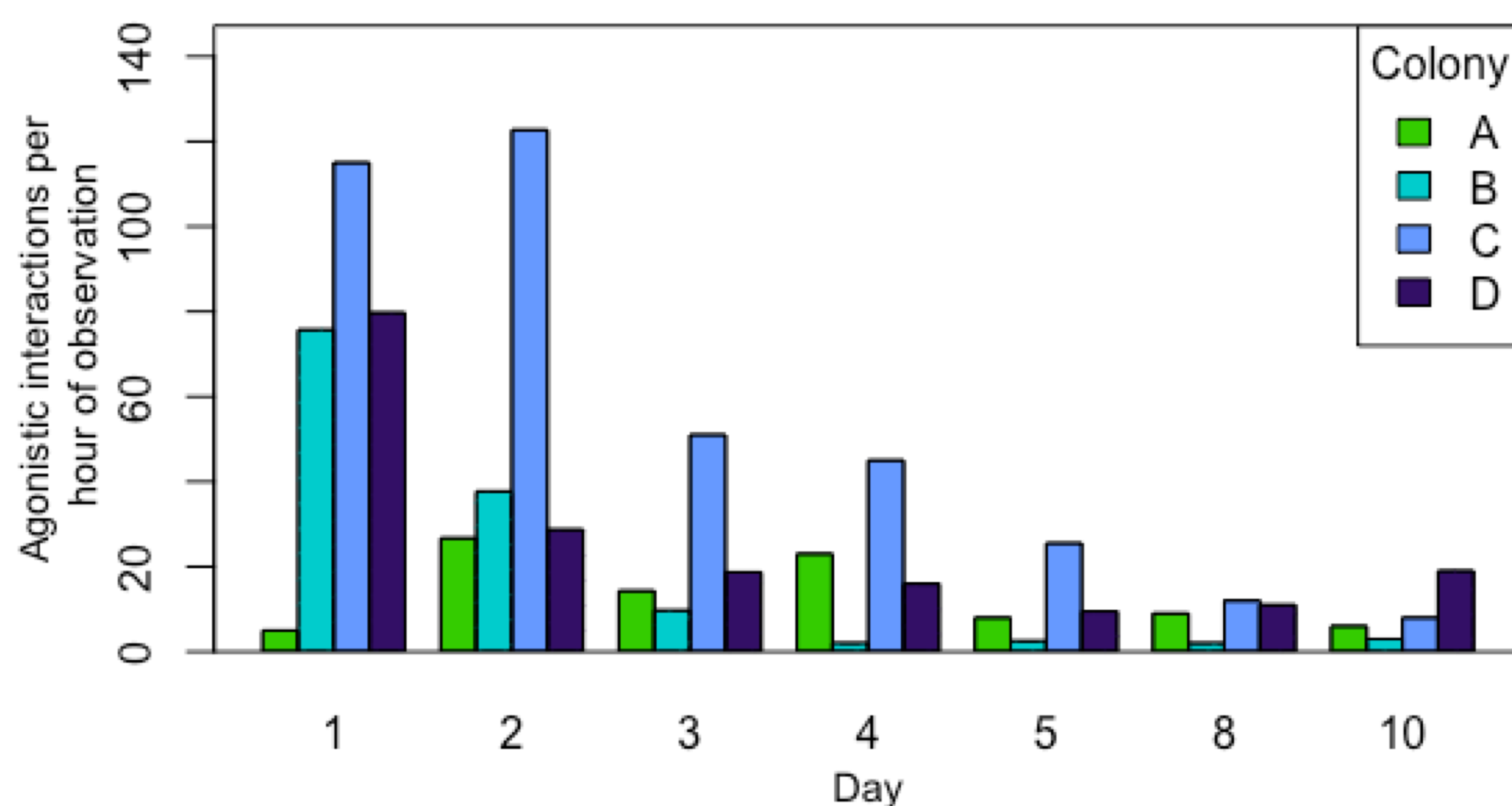
Introduction

- Social insects → Division of labour (queen caste : reproduction ; worker caste : ergonomic tasks)
- In most ants species, when the queen dies, workers produce males to increase their fitness → conflicts between workers to produce males.
- Establishment of a hierarchy based on interactions and idiosyncratic variations → **Differences in ovarian activity between workers in the queen's presence**
- Correlation between fertility and cuticular hydrocarbons → allows rapid establishment of hierarchies ?
- **Do workers with the most developed ovaries become higher rankers in the reproductive hierarchy ?**



Results & Discussion

Agonistic behaviours per observation days.

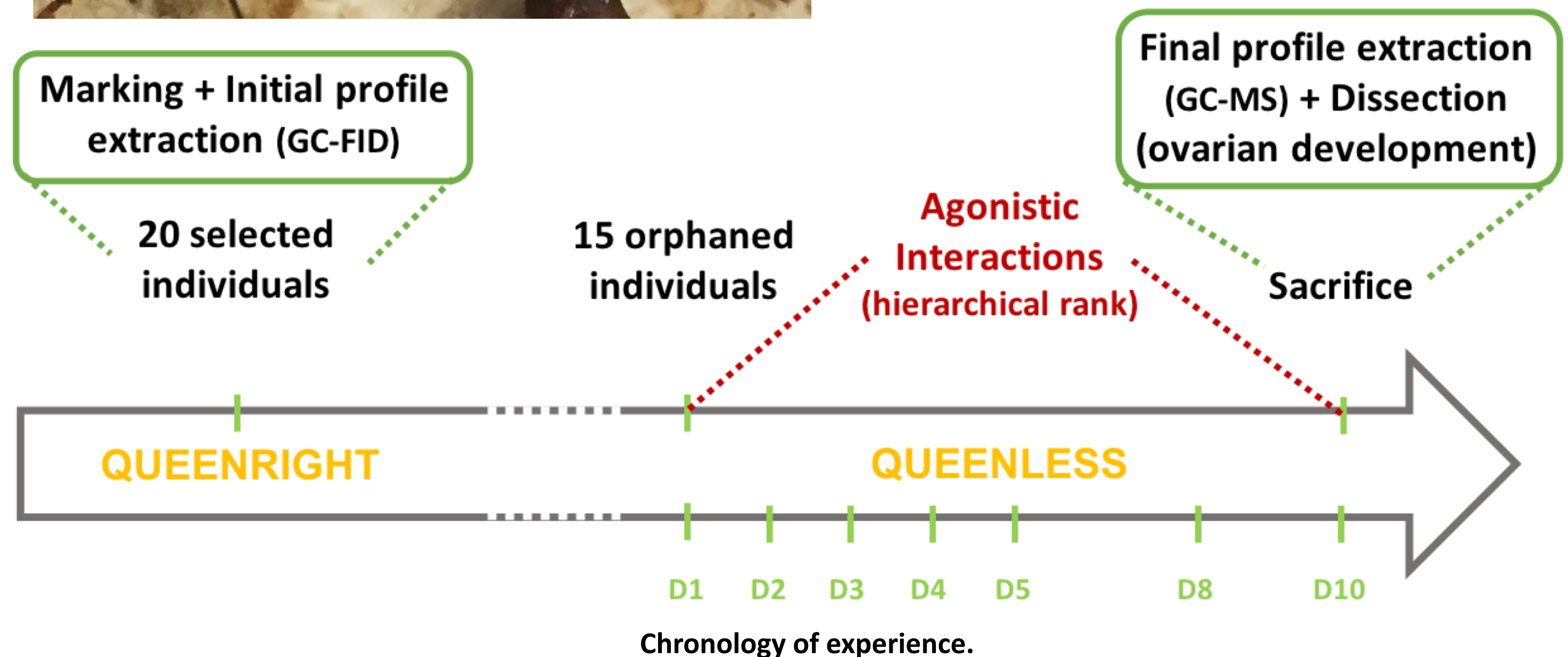


Rapid decrease in ritualized fighting → **Linear hierarchy**

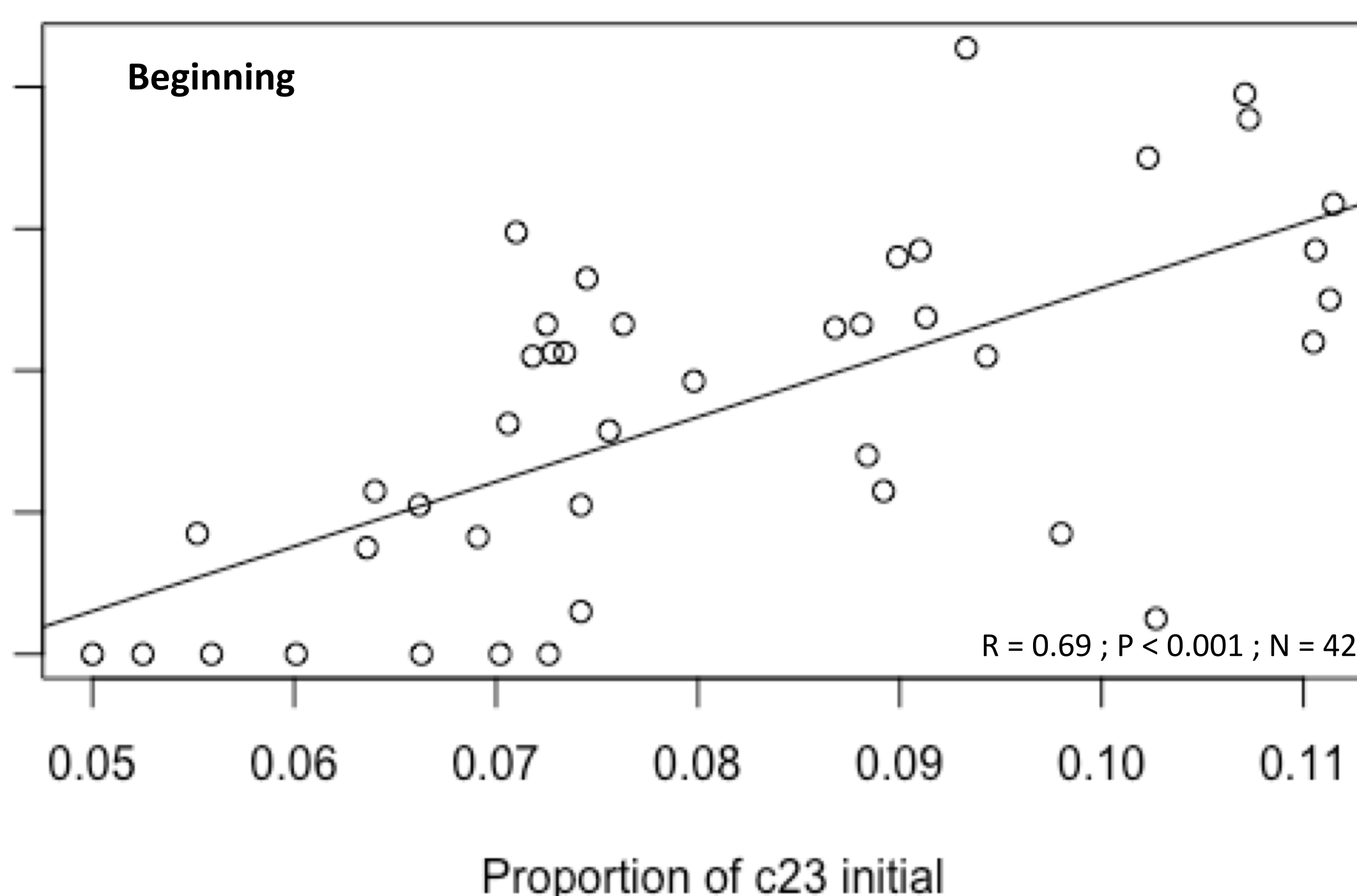
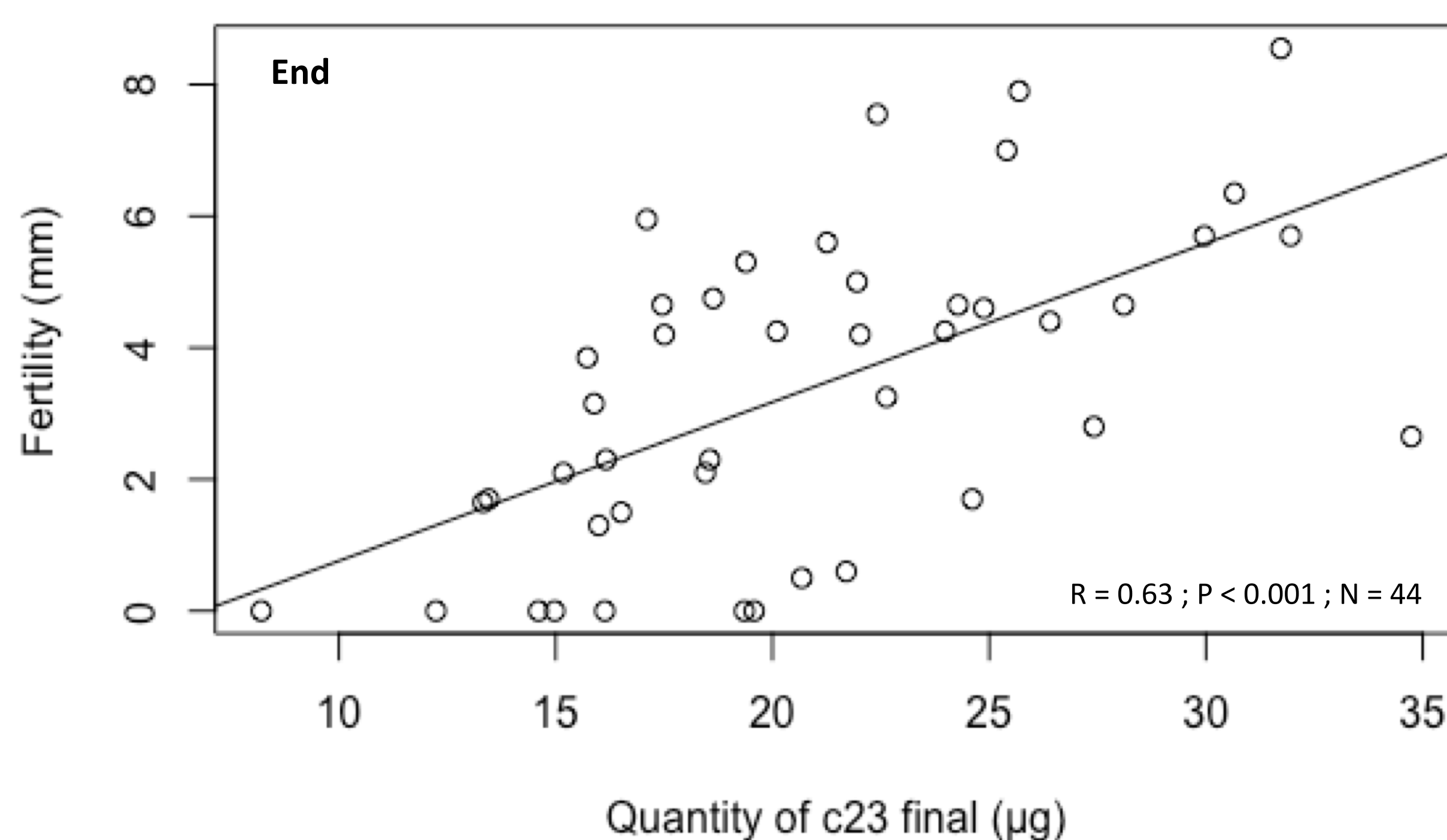
Material and Methods



Neoponera apicalis
collected in Belém, Para,
Brazil : 4 colonies.



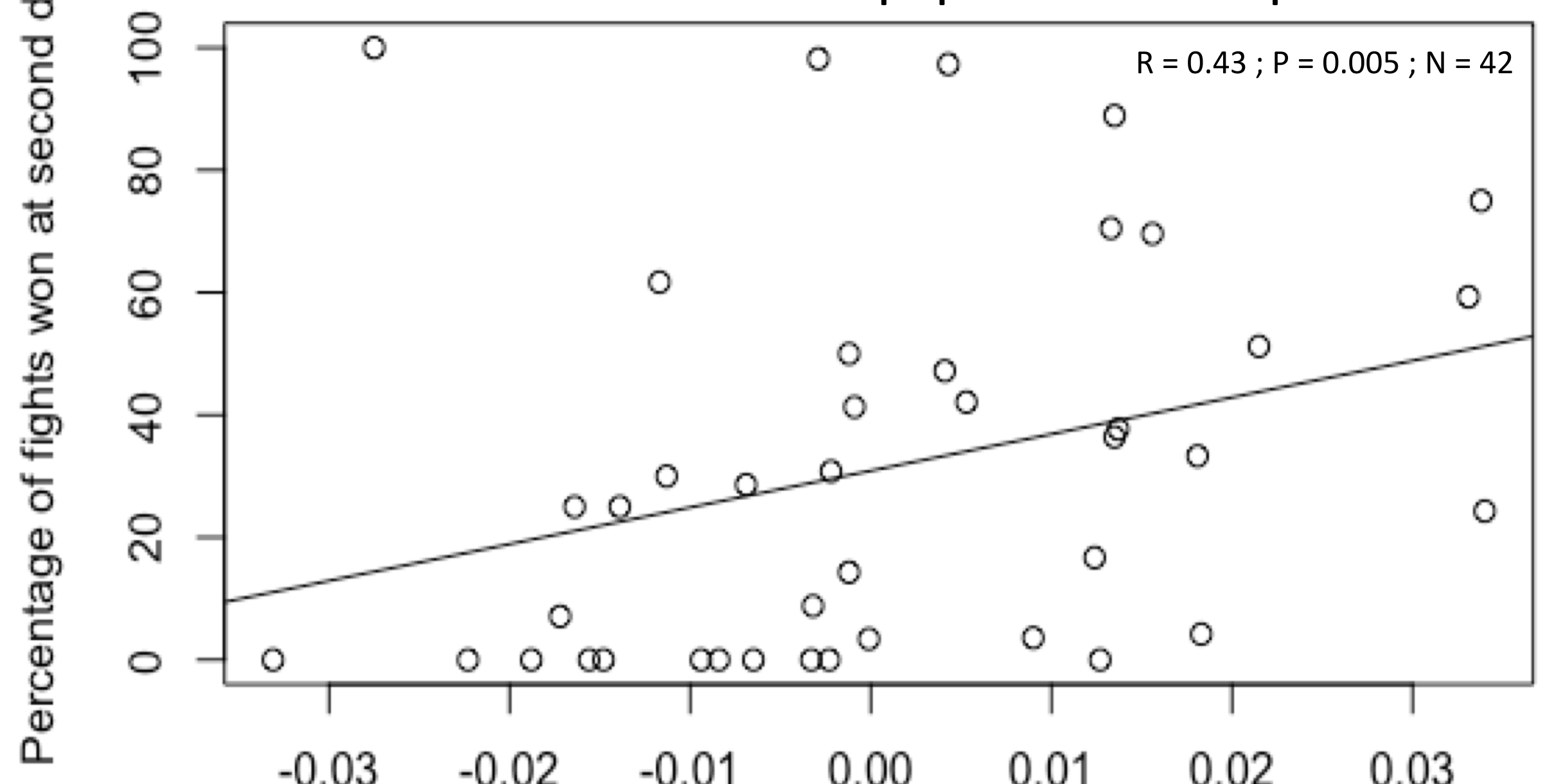
Fertility as a function of tricosane (c23) at the end and at the beginning of the experiment



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Percentage of fights won at day 2 as a function of deviation from the mean of initial c23 proportion between orphaned workers



Same correlations with final observations and final c23.

Tricosane (cuticular hydrocarbon ; C23) : correlated with both fertility and agonistic behaviours → Putative **fertility signal** in our model species.

- **Strong link between behaviour, fertility and chemistry.**
- Chemical heterogeneity between workers in queenright conditions → Difference in ovarian activity, facilitates the rapid establishment of hierarchy.
- **Workers whose ovaries are already active reach the higher hierarchical ranks.**
- Reduced costs associated with fighting, faster production of males (limited time once orphaned colony).