

## **Sperm specificity and potential paternal effects in gynogenesis in the Amazon Molly (*Poecilia formosa*)**

The current study aims to understand how *Poecilia formosa* fertilization and reproductive success vary according to species relatedness and species distribution of the mating partner. The model species suites this issue since the Amazon molly reproduce through 1. gynogenesis, thus fertilization is modulated by paternal effect only, excluding any potential effect of the genome from the reproductive outcome 2. and with both sympatric and allopatric mates. The experimental design and associated statistics are appropriated. The manuscript provides all the required background to understand and interpret the results. The findings are interesting and advance the current knowledge on fertilization dynamics regulated by paternal effects in geographical and phylogenetical related species. Furthermore, the study provides future applications to broaden our insights on sperm-egg compatibility and pre- and post-zygotic barriers, crucial factors in determining fertility. I thus recommend the publication of the manuscript with the inclusion of minor revisions I list below in green.

LL 51: "Finally, there is an important ecological and spatial dimension as the presence or absence of sperm-providing (donor) species influences where gynogenetic species can live."

Can you rearrange this sentence in a question form? I believe it is easier for a reader to have all the questions you wish to address in the same form.

LL 162-164 "Differences would suggest that sympatric donor sperm or the receiving Amazon mollies have adapted to activate embryogenesis more successfully during fertilization"

I would move this interpretation to the discussion section to favor the question followed by a prediction flow in both experiments.

LL 157 "we tried to test"

Remove tried to.

LL 204-205 "*Gambusia affinis*, *Gambusia sexradiata*, *Girardinus metallicus*, *Heterandria formosa*, *Limia islai*, *L. melanogaster*, *Poeciliopsis prolifica*, *Poecilia dominicensis*, *Poecilia sphenops*"

I noticed that you use the extended genus name the first time you mention it in the manuscript while you abbreviated it after. Please use abbreviation in a consistent way throughout the text.

LL 228-230

When you mention the week number please avoid using two different styles but use either always the number or the letter indication.

LL 253

Can you provide here the average brood/embryo size as you did for Experiment 1B?

LL 404-405 "G. affinis and G. sexradiata"

Please use italic characters.

Fig.2 "Size not to scale"

It would be nice if you could scale your pictures. You should be able to do so using the software ImageJ scaling from pixel size.