
Paper review: Predatory functional response and fitness parameters of *Orius similis* when fed *Bemisia tabaci* and *Trialeurodes vaporariorum* as determined by age-stage, two-sex life table

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The paper entitled Predatory functional response and fitness parameters of *Orius similis* when fed *Bemisia tabaci* and *Trialeurodes vaporariorum* as determined by age-stage, two-sex life table presents an interesting study to evaluate the interaction of predator *O. similis* with prey species under controlled conditions. The paper has a clear aim, and its results shows a potential application in Biological Control, despite of field experiment is still required to validate this study. Some questions arising through methodology and results was described in details in the following sections.

1 BASIC REPORTING

1. The article was written in a clear and technically correct English, and a sufficient number of references is supporting how the works fit into the field of study.
2. I recommend authors to increase the resolution of all Figures.
3. There is no make sense include seven equation as Table 1. I encourage the authors to include this equations in body of the paper.
4. Please, provide 4 digits numbers in Table 5 and 7.
5. Conclusion is well linked with research question.

2 EXPERIMENTAL DESIGN

1. Line 121: The introduction to your methodology section should begin by restating the research problem and underlying assumptions underpinning your study rather than just include subsections. Please, write an introduction, and, at same time, authors can describe the methodology subsections.
2. Line 122: Please, do the same as described for line 121.
3. Lines 159-160: How the authors would guarantee that predator choice is related to specie of prey rather the distance between predator and prey in the Petri dishes?
4. Line 187: The logistic and beta regressions were widely functions used to describe proportion data. Did the authors checked both models? Could they describe the difference between them, and explain why logistic regression was better than beta regression.

3 VALIDITY OF THE FINDINGS

1. Line 187: What is the reason to use a cubic polynomial function as linear predictor? How the authors did the model selection? How they check model assumptions? It will be important at least include a half-normal plot of the residuals. This plot is relevant to shows that all finds are reliable, under the model assumptions.
2. Line 187: Why the authors did not include sex, and developmental stage of the larval forms (*B. tabaci*, and *T. vaporariorum*) as fixed effect in the model?
3. Line 192: The linear regression model is $y = ax + b + \epsilon$, where ϵ represents the error term under the normal distribution assumption $\epsilon \sim N(0, \sigma^2)$. Please, include the error term. The error term is also missing in the equation of line 194.
4. Line 194: As the authors is using a linear model to explain the reciprocal function of the number of prey killed by predators during experimental time, will be essential they include, as supplementary material, a plot of residuals versus fitted values, a Q-Q plot of empirical cumulative distribution function of a data set and a specified theoretical cumulative distribution function (probably normal distribution). These plot is relevant to shows that all finds are reliable, under the model assumptions.
5. Lines 235-236: Authors described that *O. similis* is more efficient at finding whitefly nymphs at low prey densities. I am not sure if this information is correct as they did not shows the standard error of these averages. Please, provide the standard error (SE) in the manuscript and then compare the predator consumption based on both statistics, that is, using mean and SE.
6. Lines 237-238: Use same idea described in the item 13.
7. Lines 258-263: Based on results described by the authors and Table 4, I suggest the usage of Bivariate Analysis to evaluate using 3rd and Adult as response variable adjusted to Prey

Species and Prey density as an alternative analysis to check the effects of specie and density.

8. Lines 279-280: I am not sure about the significant difference found for TPOP of *O. similis*, as the means and SE were 19.82 ± 0.81 for *B. tabaci* and 20.5 ± 0.22 for *T. vaporariorum*. Please, include more information about how the difference between means was tested.
9. Line 318: Authors conclude that life expectancy of newborn *O. similis* egg was greater when fed nymphs of *B. tabaci* than when fed *T. vaporariorum*. I disagree about with this conclusion because they did not include the uncertainty around the mean time. Please, include the confidence intervals to make validate this conclusion.
10. Lines 322-333: Please, do the same as described for line 318.

4 GENERAL COMMENTS FOR THE AUTHOR

1. Lines 53,60,68,80,84: Arrange references by year in ascending order. Based on this examples, reorder the references for entire manuscript.
2. Lines 73-74: Authors described that *T. vaporariorum* has received much research attention. I agree with them, however, why they cited just papers made in 2007 and 2011? I encourage the authors to review recent paper such as Pym et. al. (2019), whom describe host plant adaptation in the polyphagous whitefly, and *Trialeurodes vaporariorum*. Please, review the introduction by adding recent papers.
3. Line 92: I encourage the authors to remove the phrase "In a recent study".
4. Line 195: I suggest the authors change $1/a$ by $1/\alpha$ (or other letter) to avoid confusion with parameter a in the linear regression.
5. Lines 202-209: Authors used the age-stage, two sex life table to represent the life table analysis. However, how they included the female-age dependence of the offspring sex ratio? Although I did not see the inclusion of that correlation, several works such Huang and Chi (2011), Qi Chen et al (2017), Farooq et al. (2018) have been working with same approach developed here. These references could be added in the paper.

References

Huang Y.; Chi, H. The Age-Stage, Two-Sex Life Table with an Offspring Sex Ratio Dependent on Female Age. **J. Agri. & Fore.**, 60(4): 337-345, 2011.

Chen, Q., Li, N., Wang, X., Ma, L., Huang, J.-B., & Huang, G.-H. (2017). Age-stage, two-sex life table of *Parapoynx crisonalis* (Lepidoptera: Pyralidae) at different temperatures. **PLOS ONE**, 12(3), 1–12. <https://doi.org/10.1371/journal.pone.0173380>

Farooq, M; Shakeel, M; Iftikhar, A; Shahid, M.R; Zhu X. Age-Stage, Two-Sex Life Tables of the Lady Beetle (Coleoptera: Coccinellidae) Feeding on Different Aphid Species. **Journal of Economic Entomology**, 111(2), 2018.