

Review of the pre-print entitled: “Can intraspecific variation in an herbivorous mite alter responses to drought-stressed host plant? A common garden experiment in the context of climate change”

In this manuscript, the authors characterized the intraspecific variability in the response of an herbivorous mite to drought-stressed host plants and aimed to assess if climatic differences in the geographic origin of mite populations explained the variability in their response. This was performed by sampling mite populations on different locations of a climatic gradient and, after 6 generations of acclimation to laboratory conditions, testing life-history traits of such populations on drought-stressed and control bean plants. The authors also assessed differences in dispersal attempts of all populations from drought-stressed and control bean plants.

Climate change affects plant-herbivore interactions, via changes in temperature, extreme drought-events, among other factors. Such effects may have important consequences for the management of crop production and control of crop pests. Recent work from several authors has focused on the effects of drought on different plant-herbivore systems, including herbivorous mites. Here, the authors, add relevant knowledge on intraspecific variability for the response of herbivores to drought-stressed plants, assessing herbivore populations that were sampled in a climatic gradient having, therefore, experienced differently the effects of climate change.

The main short coming of this work, in my view, is that each population was assessed in separate moments (line 202), being impossible to disentangle if the observed differences among populations are derived from their genetic background, which may be linked to the climatic characteristics of their sample location, or from confounding effects pertaining from uncontrolled/unidentified differences between the experimental blocks. I understand the logistic limitations of performing a study with this number of field-collected populations, however this issue could have been solved if the 15 replicates per experimental treatment of each population were divided among experimental blocks consisting of many populations.

Nevertheless, and being impossible to tackle this issue *à posteriori*, in my point of view, the information provided by the differences in life-history traits between drought-stressed and control plants for each population is very relevant for this research area. Considering intraspecific variability in the response of herbivores, whatever the cause, is key to the development of pest control strategies and to understand and predict the effect of climate change on plant-herbivore interactions in general. With this in mind, I highly suggest that the authors focus the scope of this manuscript on these intra-population differences, keeping the discussion of link between the differences in climate among the geographic locations of the samplings and the observed differences in life-history traits of this herbivorous mite as a possibility.

Another issue regarding the analyses of the results is that on experiment II the authors used 3-day old and 9-day old females to assess life-history traits. Even though, as I understood, both type of females were used on drought-stressed and control plants, they were used in different experimental blocks (line 246). If this is the case, I believe that is important to present the result for 3-day old females and 9-day old females (as the authors did) to show other types of intraspecific variability. However, I would not compare the results from females with different ages. If I understood it wrong, and the 2 batches of plants (referred to in line 246) were used at the same time, please clarify this in the text.

Other than these two main issues regarding the analyses of the results I only have a few minor comments that I mention below:

C1: Regarding the title: In my view it is not intraspecific variation that alters the response of herbivores to drought-stressed host plants. I think that the question is "Is there intraspecific variation for..."

C2: Line 26-28 I don't understand this "...but attractiveness can also occur". Attractiveness of the herbivore offspring? Of the plants? Could the authors please clarify?

C3: In my view the first paragraph is too long and not directly linked to the main message of the manuscript. The sentences between line 52 and 60 could be summarized in one sentence.

C4: line 107. This sentence is very broad, yes intraspecific variation is common in many organisms. Can the authors specify and maybe link this sentence to the previous paragraph?

C5: table 2: Df is not reference is degrees of freedom, please clarify this in the legend of the table. And also, where do the 8 degrees of freedom come from? Wasn't there 12 to 15 replicates? (line 225)