

Korfanty, G., Heifetz, E., & Xu, J. (2023). Assessing thermal adaptation of a global sample of *Aspergillus fumigatus*: Implications for climate change effects. *Frontiers in Public Health*, 11. <https://doi.org/10.3389/fpubh.2023.1059238>

Figure 2:

**Quote:** Figure caption states:

- “Temperature significantly contributes to growth differences among strains of *A. fumigatus*.”

In-text, the author states:

- “At each temperature, we observed substantial variations in growth among strains (Figures 1, 2). As the temperature increases, the range of growth rates became wider among strains. Similarly, as time progresses, the growth differences among most strains became more obvious and the standard deviations correspondingly increased.”

**Issue:** I believe their actual visualization/presentation of the data is fine. They could have changed the scaling of the significance so that it doesn't impact the length of the boxplots. My issue mostly arises from their in-text statement. I don't think it is accurate to state that the range of temperature becomes wider as temperature increases from the tests done here. It seems true for the lower two temperatures but not necessarily for the higher ones. Further, there is no statistical backing to provide a confident statement like this. Another issue is the figure caption statement. I don't think this is what they were testing. Their post-hoc test is looking at between temperature growth but not differences between strains.

**Revision:** Figure caption should state “Growth of *A. fumigatus* differed significantly between temperatures”. This removes the strain aspect and focuses on the comparisons between temperatures which is what the post-hoc was for.

Figure 5:

**Quote:** Figure caption states:

- “The coefficients of variation are highly variable among *A. fumigatus* strains but decreased over time.”

In-text states:

- “Our results showed overall highest CV values in Day 1, followed by those in Day 2 and with Day 3 being the lowest. The results suggest big differences in strains' initial

responses to different temperatures. However, as time progresses and the strains adapt, the differences in growth among the temperatures decreased. Interestingly, most of the delayed growth occurred at 22°C where limited growths were seen for most strains during the first 24 h but significant growths were observed over the following 48 h at day 2 and day 3 (Figure 5A). Indeed, upon removal of the 22°C data from the dataset, the three-day data showed no significant contribution to differences in CV at the whole sample level”.

**Issue:** My biggest issue with the statements is using the word significant to describe growth during day 2 and 3. I am not quite sure what is meant by significant growth or what describes significant growth. Maybe the author just misused the word “significant” here and meant that growth was clearer compared to that at lower temperatures. Further, I am not an overall fan of using CV other than testing within-strain for validity of replicates data. Further, the heading of the section is “*A. fumigatus* strains demonstrate highly variable thermal adaptability to different temperatures” but the author contradicts this by later stating there were no significant contributions to differences in CV among the three days.

**Revision:** I think some of this is quite redundant with previous results in the paper. I don’t think a revision statement is required but more so a removal of incorrect significance statement as those mentioned in my issues section.

Figure 8:

**Quote:** “Overall, our comparisons showed limited difference between the two mating types, in either growth or CV (Figure 8). Except in one comparison, we observed no significant influence of mating type on either growth or CV. The only marginally significant difference observed here were growth at 35°C on day 3 where strains of MAT1-2 overall grew slightly more and had higher CV than strains of MAT1-1.”

**Issue:** In terms of visualization, I don’t think boxplots within the violin plots are necessary as the violin plots already shows where the data is denser (median). There should be some justification for using the Mann Whitney or student’s t-test (what assumptions from these tests fit your data). There is no real statistical hypothesis to back this analysis.

**Revision:** Overall, I would add a statement explaining why each test was used (non-parametric vs. parametric). I think the actual significance statements are fine and do not over assume anything.