

Dear editor:

I have read the manuscript by Ye et al entitled "Variation in brachiopod microstructure and isotope geochemistry under low pH–ocean acidification–conditions", which test the ultrastructural and stable isotope geochemical variations in the shell of *M. venosa* shells that were partially cultured under different pH conditions.

The subject of the manuscript fits well within the scope of BG and the paper present a novel application to brachiopods that are known to archive the climatic and oceanographic conditions of the ambient seawater.

The title reflects the paper contents and the abstract is concise and to the point. The authors used the proper methodology and utilized the most suitable tools to perform their investigation that lead to clear and reliable and good results that will contribute significantly to the subject of study. The experimental procedure is clear and the statistical analyses utilized are suitable. The references are up to date and the general structure of the manuscript is appropriate.

I have some minor comments that I list hereby below.

Karem Azmy

Page 7 Line 6: How were samples transported? in what type of containers and under what conditions of transportation. Provide couple of lines that describe the conditions during transportation and how they were maintained to simulate the original environment as close as possible.

Page 11 Line 7: "Four sub-zones (C2, A1, A2, A3)", a figure is needed to be cited here to show the positions of those sub-zones.

Page 15 Line 3: after "microdrill" add here at "low speed"

Page 16 caption of Table 5: "are marked in bold style". There nothing is marked in bold font in the table. Mark those values in bold font. Also replace "style" by "font" or you can delete the entire word "style" and leave it as "marked in bold".

Change to "N" into "*n*" in italic font and fix it in the rest of table headings. This way you do not need to repeat it in the following table captions

Page 17 Line 12: "worth noting" change to "noteworthy"

Caption of Table 6: What does this mean? "①: Specific zones see to Figure 7". Something is wrong. Delete "to"

Also no specific zones marked on Figure 7. This is confusing and similarly in the Caption of Table 7.

Is STD 1σ or 2σ . Replace by the correct value and use the Greek proper letter σ . Fix it in the rest of the manuscript and table captions when applicable

If you used excel for your calculations, then this is 1σ .

Page 28 Line 27: "which in", delete "in" and replace by "during". Also add "s" to "expansion"

Page 31 Line 6, add “,” after “inconspicua”

Page 33 Line 22: replace “similarly” by “and similar”

Page 34 Line 9: “We exclude.....” The structure of this sentence is wrong. Re-write it.

Page 34 Line 11: add “a” before “similar”

Page 34 Line 16: delete “also” and put it after “been” and delete the other “also in” after “observed”