

Biogeosciences Discuss., referee comment RC1
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Comment on bg-2020-452

Martin R. Langer (Referee)

Referee comment on "Bioerosion and fungal colonization of the invasive foraminiferan *Amphistegina lobifera* in a Mediterranean seagrass meadow" by Martin Vohník, Biogeosciences Discuss., <https://doi.org/10.5194/bg-2020-452-RC1>, 2021

This is an interesting and novel manuscript and reports on the vital status, destruction/decomposition and mycobiota communities of *A. lobifera* in the rhizosphere and on epiphytic shells from the Mediterranean seagrass *Posidonia oceanica*. The novel aspects concern the study of the mycobiota on living and dead shells of the foraminifer *Amphistegina lobifera* (as epiphytes and as dead shells) and within the rhizosphere of *Posidonia oceanica*. While the analysis of seagrass roots yielded 81 identified isolates, the surface-sterilized substrate specimens revealed no cultivable fungi. Only 16 identified isolates were obtained from the epiphytes.

The manuscript is well written and provides new insight into the fate, destruction and bioerosion of foraminiferal shells.

Three sites were investigated, where shells of the epiphytic symbiont-bearing foraminifera live on the seagrass and eventually accumulate in the sand. The sediments were found to eventually accumulate dead shells of *Amphistegina*, but the shells do not (yet) accumulate as thick layers, as has been reported from other sites in the eastern Mediterranean Sea.

As such, I find that the title of the ms does not reflect the content of this paper for the 3 reasons outlined below:

1. The focus of this study is on mycobiota communities and bioerosion
2. The *Amphistegina* rich deposits do not form thick sands (yet), as reported from other sites in the eastern Mediterranean Sea

3. The sands are not "dead", as they contain abundant other living organisms including living foraminifera (but not studied here).

Technical issues concerning the sampling methods:

The sampling procedure for the collection of epiphytes is not well described and as such it is difficult to replicate this study (how many leaves were collected, how were the epiphytes collected? Collection of the epiphytes by placing a bag over the leaves or by just cutting the leaves makes a big quantitative difference. A clarification of this issue is needed.

The material analyzed includes not only leaves of *Posidonia oceanica* but also **other seaweeds** growing in the immediate vicinity. What are the other seaweeds? Epiphytic foraminifera communities may differ substantially when you collect them from different types of algae and seagrasses (see e.g. Langer 1993, Epiphytic foraminifera or papers by Kitazato).

The references concerning the invasion of alien/invasive species of foraminifera, environmental engineers, carbonate production of tropical foraminifera are often "second hand" references and do not cite the original source/relevant papers. I have added numerous comments in the marked-up manuscript and suggested additional references.

Other than this, I find this paper to be of interest to a wide range of readers and recommend publication with minor/moderate revisions.

Attached is my marked-up manuscript.

Martin Langer

Please also note the supplement to this comment:

<https://bg.copernicus.org/preprints/bg-2020-452/bg-2020-452-RC1-supplement.pdf>