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Biogeosciences Discussions

Interactive comment on "Detection and phylogenetic analysis of coastal bioaerosols using culture dependent and independent techniques" *by* R. Urbano et al.

Anonymous Referee #2

Received and published: 22 November 2010

General Comments to Urbano et al., Detection and phylogenetic analysis of coastal bioaerososl using culture dependent and independent techniques:

The topic dealing with coastal bioaerosols is indeed of big interest and few studies exist so far. The matter if the role of airborne microbes is dependent on the viability of the cell has been rarely addressed therefore this paper harbors a most interesting core. However, there are several concerns regarding the concept and presentation of this study.

Specific Comments: The authors state that "Microorganisms in the atmosphere have great potential to impact chemical and physical processes..." - I am still a bit suspicious

when it comes to this statement since the cell number is quite low to generate such an impact.

If the authors want to prove the fraction of viable vs. non-viable cells then I would suggest a more efficient method than the culture-dependent which has been presented. The authors say by themselves that culturing is reducing the result due to limitations of growth. But if the samples are already on impaction filters then a simple life-dead stain could maybe gain a better result to answer this question.

The question in the part Material and Methods "What is the height of the pier from the ocean?" should be removed.

If the samples are collected on a pump house rooftop it would be good to have a reference sample from the rooftop itself, maybe by a swap-sample, to exclude the rooftop-originated organisms.

Towards which direction has the sampler been positioned? Or did the authors change the position to gain different sources?

Which diameter do the filters have?

What is meant by control filters? Were they kept blank?

The amount of isolated DNA (as indicated in Table 1) was massive compared to other oligotrophic environments – it would be very interesting to get an idea about total cell counts since the amount of DNA seems to be not in relation to what could be expected. Please indicate the names of the primers for 18SrRNA and 16SrDNA (page 5936, line 24 and page 5937, line 13-14, respectively). Please add accession numbers to the clones. The abbreviations in the figures 2 and 3 are not clear. Please indicate them in the text or legend. The reader is virtually kept in the dark when it comes to the conclusion about the sandy beaches as origin of the organisms. It would help much more if at least references could be given which species can be possibly found in this environment. The fact that marine planktonic organisms are nearly missing in the

sampling is nearly a paradoxon at this air/land/ocean interface. It is stressed very much at the entrance but not dealt sufficiently.

I would suggest accepting the manuscript with minor revisions. The topic is interesting, however, the methods which have been chosen to explain this question could have been chosen better and also explained more concise. There is more emphasis given on topics which are not addressed in the result and discussion part.

Technical corrections:

page 5932, line 3: place space between "climate" and "by" page 5933, line 1: Matthias-Maser instead of Matthia-Maser page 5933, line 15: write ...such "as" mannitol...

References: References seem to be a bit sloppy: page 5940, line 25: Elbert was indicated in text with 2006, in reference list it appears as 2007.

page 5943, line 29: reference Cheng, 2005: does not appear in text

page 5945, line 14: Matthias-Maser in reference list appears of the year 1999, however, in text with 1998

page 5949, line 17: reference Matthias-Maser 2000 is missing in the text

5945, line 26: Möhler 2008 is missing in text 5945, line 30: Moon-van der Staay, 2000, is missing in text, unless indicated as Staay, 2000, page 5936, line 24

Wu, 2003: is indicated in text as Zhihong Wu, 2003, page 5936, line 8.

It is not clear to me when the terminology "et al." is required and when it is omitted

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Interactive comment on Biogeosciences Discuss., 7, 5931, 2010.