

Interactive comment on “Ergosterol, arabitol and mannitol as tracers for biogenic aerosols in the Eastern Mediterranean” by N. Burshtein et al.

Anonymous Referee #2

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This is an interesting paper that reports seasonal measurements of ergosterol, manitol and arabitol in atmospheric aerosols and relates the observed levels with meteorological variables, air mass transport and particulate inorganic tracers, in order to infer about the origins of the three alcohols.

The authors cannot arrive at a definitive conclusion but the data seems to indicate that arabitol and manitol may have other important sources besides fungi, at least in non-Autumn seasons. As these results may be important for the source apportionment of the organic aerosol component I recommend the acceptance of the article for publication. I want to make some comments in relation to specific parts of the manuscript and/or propose some corrections/changes:

- Page 27727, line 12 - There is a dot after “provide” that divides the sentence and
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makes it incoherent. Please eliminate the dot and reduce the capital letter after.

- Section 2.2.1 – This section needs some rewriting, providing more clear information about the steps for analysis of ergosterol. The analytical methodology seems to have been taken from Lau et al., 2006, but only partially; there is no explanation for the reason of the modifications introduced; are they more efficient in extracting and concentrating the ergosterol and DHC? True standards for ergosterol and DHC, and an internal injection standard, were used in the analysis by GC/MS? Which was the recovery observed for DHC? And was it possible to infer a recovery for ergosterol? By the way “Bis (Trimethylsilyl) triiñĆuoro-acetamid” is called BSTFA and not TMS.

- Figure 3 does not seem necessary because it only shows well known calibration curves in ion analytical measurements by ion chromatography.

- Which is the meaning of vertical bars in points, in Figures 4 and 5? Are they standard deviations of the two analytical measurements for each sample? Connection between individual points is not consistent. Most of the samples are separated by periods without sampling of approximately 15 days; however only the long break in summer is acknowledged.

- Page 27736, lines 14-17 – I’m not convinced by the explanation for the low correlation of ergosterol at high humidity. Other causes may be possible and probably more relevant; although only a close inspection to all variables (Cluster Analysis? Principal Component Analysis?) an alternative (and more feasible?) explanation would be, for example, that high humidity occurs during transport of air masses from the Mediterranean and less spore emissions over marine surfaces. This point is important because if ergosterol is originated only from fungi (and therefore it is a good tracer of fungi biological material in aerosols) it would be expected that at high humidity the fungi would be more active (and more spores would be produced?)

- Page 27738, lines 3-7 – I think that the low correlation of analyzed alcohols with sulfate/ammonium does not demonstrate that the alcohols are not originated at long

distances. It only demonstrates that if they come from long distances, they don't come preferentially from polluted areas.

- Table 1 – Try to reduce the analytical data to maximum of three significant figures.

Interactive comment on Atmos. Chem. Phys. Discuss., 10, 27725, 2010.

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