



EGUsphere, referee comment RC1
<https://doi.org/10.5194/egusphere-2022-838-RC1>, 2022
© Author(s) 2022. This work is distributed under
the Creative Commons Attribution 4.0 License.

Comment on egusphere-2022-838

Anonymous Referee #1

Referee comment on "Chemical characterization of organic compounds involved in iodine-initiated new particle formation from coastal macroalgal emission" by Yibei Wan et al., EGU sphere, <https://doi.org/10.5194/egusphere-2022-838-RC1>, 2022

Manuscript entitled "Chemical characterization of organic compounds involved in iodine-initiated new particle formation from coastal macro-algal emission" studied the identity and transformation mechanisms of organic compounds from low-tide macroalgal emission. This manuscript simulates vapor emission oxidation and new particle formation (NPF) experiments of real coastal macroalgae in a bag-reactor. Based on the integrated mass spectrometry measurements, the authors report for the first time a variety of volatile precursors and their oxidation products in the gas and particle phases in such a highly complex system. The results show that organic compounds dominate the growth of new particles induced by iodine species.

This paper falls in an active field of research, and I believe it brings interesting insights to the study of the ongoing laboratory and field researches of coastal I-NPF. The paper could be published in the journal assuming some minor corrections.

- Page 4 Lines 96-98: What is the proportion of VOCs and O₃ in the VOCs/O₃ flow of the dynamic mode, respectively?
- Page 4 Lines 98-99: Does the residence time of 67min refer to the sampling time of particulate matter?
- Page 5 Lines 133-134: How can we see from Figure 2a when O₃ is injected? And when to add light? Why only see the figure of SMPS under static conditions of the ozonolysis experiment.
- Page 5 Line 157: Please indicate what kind of macroalgae you choose and how to preserve the algae and seawater. And why you choose this type of macroalgae?
- Page 8 Lines 225-229: Does accretion reactions or dimer formation change particle size? Please describe the accretion reaction in detail.
- Page 8 Lines 230-232: Why do ESI-Orbitrap MS and FIGAERO-iodide-CIMS use quartz

fiber filter and PTFE membrane filter, respectively? Is filter inconsistency the reason why ESI-Orbitrap MS did not measure bimodal distribution?