

Interactive comment on “Photochemical production of aerosols from real plant emissions” by Th. F. Mentel et al.

Anonymous Referee #1

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1) General comments

This manuscript presents results from a laboratory study in a new experimental setup: a plant chamber coupled to a reaction chamber for oxidizing plant emissions and studying SOA formation from the oxidation of plant emissions. This experiment allows studies of aerosol formation from realistic VOC mix emitted by plants. Additionally, alpha-pinene was used as reference compound. The used boreal tree species include birch, pine, and spruce, representing the majority of trees found in boreal forest around Hyytiälä (Finland). This is an interesting paper, clearly worthy of publication in ACP. The manuscript presents the use of the novel experimental setup - the plant chamber facility at Forschungszentrum Jülich as well as new and interesting results. The authors gave proper credits to related work and references are appropriately cited. However, the

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manuscript will benefit greatly with some modifications. In particular, the parts "Experimental", "Results" and "Discussion" should be structured clearer to avoid redundant information.

1) Specific comments

There are some specific points that may require further clarification.

(i) The authors stated in "Abstract" (line 14) and "Summary" (p. 3073, line 16) that OVOC oxidation may play an important role in new particle formation. However, in "Results" (p 3059, line 8 ff) they wrote: "we will focus analysis and discussion on the sum of monoterpenes + sesquiterpenes". I am confused on this.

(ii) The oxidation of sulfur compounds (e.g. SO₂) is also known to play a major role in new particle formation in terpene oxidation experiments (Hoppel et al., J. Geophys. Res., 106, 27603, 2001). The authors stated: "this seems unlikely" (p. 3068, line 2). A series of equipments was used (Table 1) for the chemical analysis of gas phase species and particle properties. Was SO₂ not measured to support this conclusion?

Interactive comment on Atmos. Chem. Phys. Discuss., 9, 3041, 2009.

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