Supplement of

Sensitivities to biological aerosol particle properties and ageing processes: potential implications for aerosol–cloud interactions and optical properties

Minghui Zhang et al.

Correspondence to: Minghui Zhang (minghui.zhang@uca.fr) and Barbara Ervens (barbara.ervens@uca.fr)

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**Figure S1.** Total absorption coefficient for different PBAP number concentrations. The detailed input parameters can be found in *Table 2*. The black, red, blue, and brown lines correspond to $S_{\text{opt1}}$, $S_{\text{opt2}}$, $S_{\text{opt3}}$, and $S_{\text{opt4}}$ in *Table 2*, respectively. No obvious change was predicted for the absorption coefficient.
Figure S2. Total absorption coefficient for different PBAP diameters. The detailed input parameters can be found in Table 2. The black line, red line, blue line, and brown line correspond to $S_{\text{opt1}}$, $S_{\text{opt3}}$, $S_{\text{opt5}}$, and $S_{\text{opt6}}$, respectively. No obvious change was predicted when the diameter of PBAPs increased.
Figure S3. Percentage contribution of ice water content (IWC, dashed lines) and liquid water content (LWC, solid lines) to total adiabatic water content as a function of \( D_{PBAP} \).