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Supplement of

Water adsorption and hygroscopic growth of six anemophilous pollen species: the effect of temperature

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7 **Table S1.** Sample mass (normalized to that at <1% RH) as a function of RH at three different
8 temperatures (37, 25 and 5 °C) for populus deltoides pollen and populus tremuloides pollen. All
9 the errors ($\pm 1 \sigma$) are statistical only.

RH (%)	populus deltoides			populus tremuloides		
	37 °C	25 °C	5 °C	37 °C	25 °C	5 °C
<1 ^a	1.000	1.000	1.000	1.000	1.000	1.000
5 ^b	1.008	1.008	1.007	1.004	1.006	1.001
10	1.014±0.001	1.013±0.002	1.012±0.004	1.010±0.011	1.008±0.004	1.002±0.001
15 ^b	1.020	1.021	1.020	1.016	1.019	1.006
20	1.024±0.002	1.024±0.004	1.024±0.006	1.022±0.002	1.021±0.004	1.010±0.004
25 ^b	1.030	1.032	1.033	1.035	1.033	1.016
30	1.035±0.001	1.035±0.003	1.036±0.008	1.038±0.005	1.037±0.003	1.019±0.004
35 ^b	1.042	1.044	1.048	1.054	1.049	1.024
40	1.050±0.003	1.051±0.001	1.057±0.004	1.058±0.007	1.058±0.002	1.044±0.009
45 ^b	1.057	1.059	1.074	1.079	1.070	1.041
50	1.070±0.008	1.072±0.006	1.085±0.006	1.084±0.009	1.085±0.002	1.085±0.008
55 ^b	1.077	1.079	1.108	1.112	1.099	1.110
60	1.098±0.014	1.104±0.015	1.123±0.013	1.121±0.011	1.122±0.004	1.126±0.009
65 ^b	1.109	1.110	1.156	1.159	1.144	1.159
70	1.144±0.022	1.154±0.025	1.181±0.021	1.176±0.012	1.181±0.005	1.190±0.010
75 ^b	1.164	1.170	1.233	1.231	1.218	1.238
80	1.226±0.033	1.246±0.041	1.288±0.038	1.273±0.012	1.284±0.007	1.308±0.012
85 ^b	1.276	1.297	1.401	1.373	1.368	1.405
90	1.427±0.060	1.476±0.094	1.597±0.100	1.514±0.015	1.549±0.018	1.649±0.051
95 ^b	1.986±	2.045	2.340	1.872	1.923	2.267

10 a: Sample mass was normalized to that at 0% RH, and therefore the uncertainty for the data at 0% RH was
11 not reported.

12 b: Only one measurement was carried out at each of these RH, and therefore the uncertainties were not
13 reported.

14

15 **Table S2.** Sample mass (normalized to that at <1% RH) as a function of RH at different
 16 temperatures for ragweed pollen (37, 25 and 5 °C) and corn pollen (37, 25, and 15 °C). All the
 17 errors ($\pm 1 \sigma$) are statistical only.

RH (%)	ragweed			corn		
	37 °C	25 °C	5 °C	37 °C	25 °C	15 °C
<1 ^a	1.000	1.000	1.000	1.000	1.000	1.000
5 ^b	1.006	1.005	1.003	1.001	1.004	1.000
10	1.011 \pm 0.002	1.011 \pm 0.002	1.012 \pm 0.007	1.005 \pm 0.002	1.009 \pm 0.001	1.002 \pm 0.001
15 ^b	1.016	1.015	1.011	1.006	1.013	1.002
20	1.020 \pm 0.003	1.021 \pm 0.005	1.021 \pm 0.008	1.015 \pm 0.003	1.018 \pm 0.001	1.011 \pm 0.006
25 ^b	1.026	1.025	1.020	1.018	1.025	1.009
30	1.029 \pm 0.003	1.031 \pm 0.005	1.030 \pm 0.006	1.028 \pm 0.003	1.030 \pm 0.002	1.025 \pm 0.007
35 ^b	1.036	1.039	1.036	1.035	1.041	1.029
40	1.040 \pm 0.002	1.045 \pm 0.006	1.043 \pm 0.001	1.047 \pm 0.002	1.046 \pm 0.003	1.048 \pm 0.010
45 ^b	1.048	1.056	1.055	1.061	1.058	1.047
50	1.053 \pm 0.002	1.061 \pm 0.007	1.060 \pm 0.009	1.072 \pm 0.004	1.067 \pm 0.002	1.076 \pm 0.006
55 ^b	1.064	1.078	1.080	1.093	1.083	1.081
60	1.074 \pm 0.001	1.082 \pm 0.009	1.083 \pm 0.017	1.105 \pm 0.006	1.099 \pm 0.002	1.112 \pm 0.005
65 ^b	1.086	1.108	1.113	1.134	1.121	1.132
70	1.100 \pm 0.002	1.114 \pm 0.012	1.115 \pm 0.015	1.152 \pm 0.008	1.147 \pm 0.001	1.161 \pm 0.012
75 ^b	1.119	1.151	1.156	1.195	1.189	1.199
80	1.148 \pm 0.002	1.167 \pm 0.014	1.177 \pm 0.024	1.231 \pm 0.010	1.243 \pm 0.002	1.253 \pm 0.013
85 ^b	1.188	1.234	1.253	1.311	1.318	1.332
90	1.249 \pm 0.002	1.293 \pm 0.028	1.338 \pm 0.036	1.406 \pm 0.015	1.456 \pm 0.007	1.488 \pm 0.017
95 ^b	1.473	1.566	1.776	1.691	1.813	1.920

18 a: Sample mass was normalized to that at 0% RH, and therefore the uncertainty for the data at 0% RH was
 19 not reported.

20 b: Only one measurement was carried out at each of these RH, and therefore the uncertainties were not
 21 reported.

22

23 **Table S3.** Sample mass (normalized to that at <1% RH) as a function of RH at different
 24 temperatures (37, 25, and 5 °C) for pecan pollen and paper mulberry pollen. All the errors ($\pm 1 \sigma$)
 25 are statistical only.

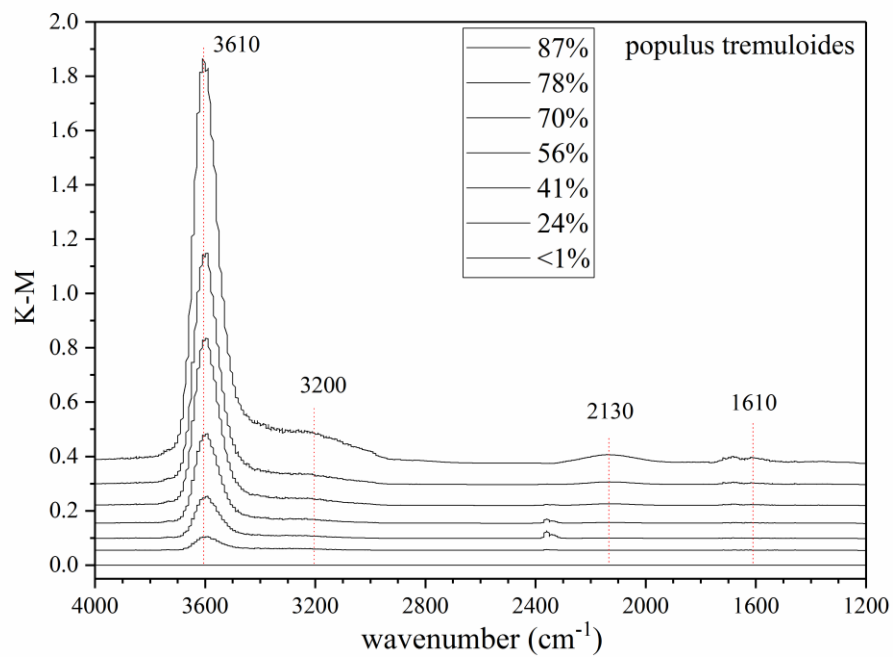
RH (%)	pecan			paper mulberry		
	37 °C	25 °C	15 °C	37 °C	25 °C	15 °C
<1 ^a	1.000	1.000	1.000	1.000	1.000	1.000
5 ^b	1.003	1.005	1.002			
10	1.008 \pm 0.002	1.008 \pm 0.004	1.004 \pm 0.003	1.011 \pm 0.001	1.014 \pm 0.001	1.013 \pm 0.001
15 ^b	1.011	1.014	1.008			
20	1.016 \pm 0.001	1.015 \pm 0.004	1.015 \pm 0.001	1.021 \pm 0.001	1.024 \pm 0.001	1.024 \pm 0.001
25 ^b	1.020	1.021	1.021			
30	1.026 \pm 0.002	1.023 \pm 0.003	1.027 \pm 0.001	1.033 \pm 0.001	1.034 \pm 0.001	1.037 \pm 0.001
35 ^b	1.031	1.029	1.035			
40	1.038 \pm 0.002	1.032 \pm 0.003	1.041 \pm 0.003	1.050 \pm 0.001	1.046 \pm 0.001	1.054 \pm 0.001
45 ^b	1.047	1.041	1.052			
50	1.054 \pm 0.002	1.046 \pm 0.003	1.058 \pm 0.005	1.073 \pm 0.001	1.065 \pm 0.001	1.077 \pm 0.001
55 ^b	1.067	1.056	1.075			
60	1.076 \pm 0.004	1.064 \pm 0.002	1.081 \pm 0.009	1.103 \pm 0.001	1.095 \pm 0.001	1.111 \pm 0.001
65 ^b	1.096	1.077	1.108			
70	1.108 \pm 0.007	1.089 \pm 0.002	1.116 \pm 0.013	1.148 \pm 0.004	1.139 \pm 0.001	1.163 \pm 0.001
75 ^b	1.141	1.108	1.161			
80	1.161 \pm 0.013	1.132 \pm 0.002	1.179 \pm 0.022	1.226 \pm 0.004	1.221 \pm 0.003	1.255 \pm 0.001
85 ^b	1.230	1.171	1.275			
90	1.314 \pm 0.017	1.303 \pm 0.004	1.358 \pm 0.050	1.418 \pm 0.017	1.473 \pm 0.001	1.515 \pm 0.001
95 ^b	1.574	1.716	1.927			

26 a: Sample mass was normalized to that at 0% RH, and therefore the uncertainty for the data at 0% RH was
 27 not reported.

28 b: Only one measurement was carried out at each of these RH, and therefore the uncertainties were not
 29 reported.

30

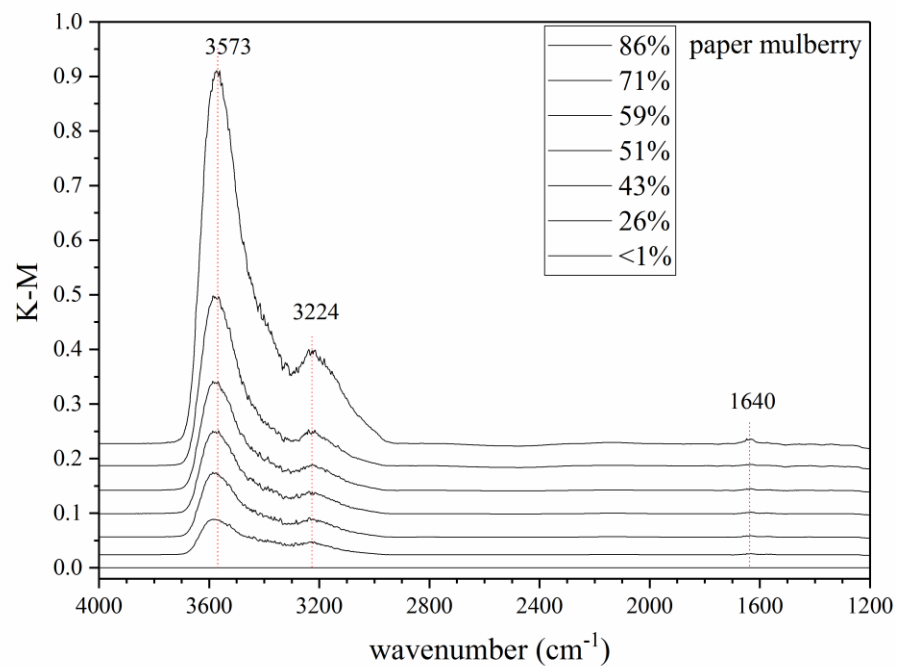
31



32

33 **Figure S1.** In-situ DRIFTS spectra of populus deltoides pollen as a function of RH at 25 °C,
34 relative to that at <1% RH.

35

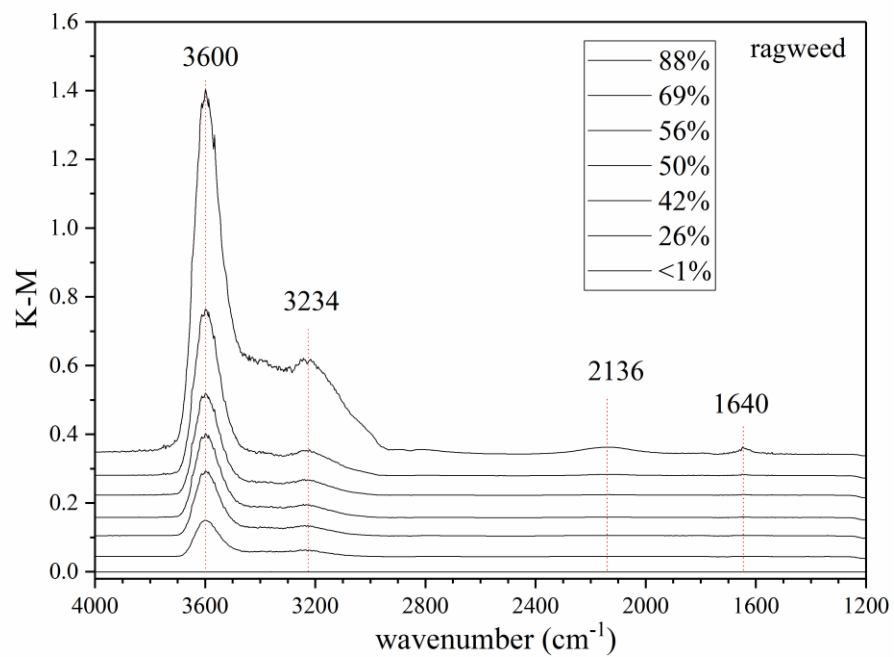


36

37 **Figure S2.** In-situ DRIFTS spectra of paper mulberry pollen as a function of RH at 25 °C, relative

38 to that at <1% RH.

39

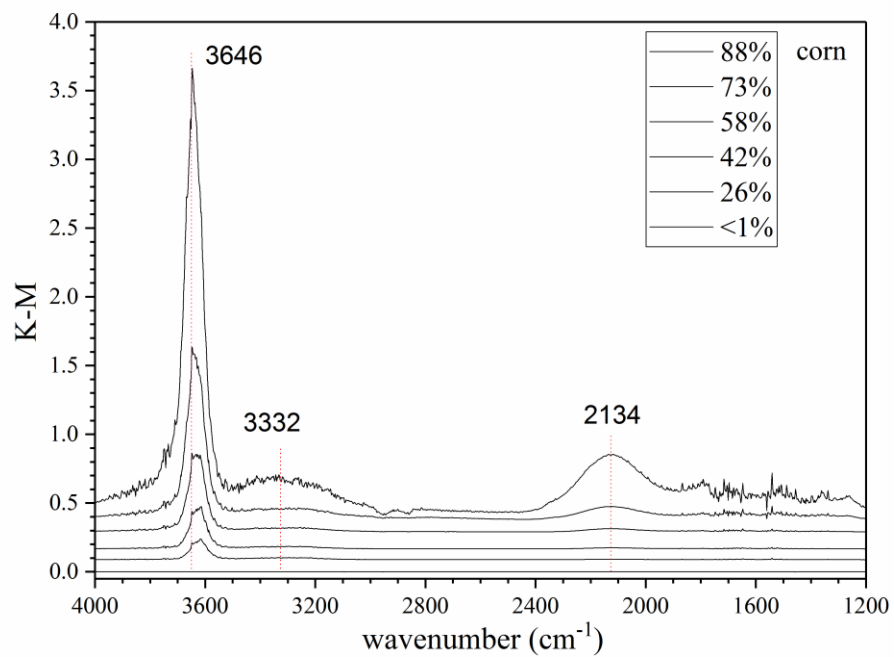


40

41 **Figure S3.** In-situ DRIFTS spectra of ragweed pollen as a function of RH at 25 °C, relative to that

42 at <1% RH.

43

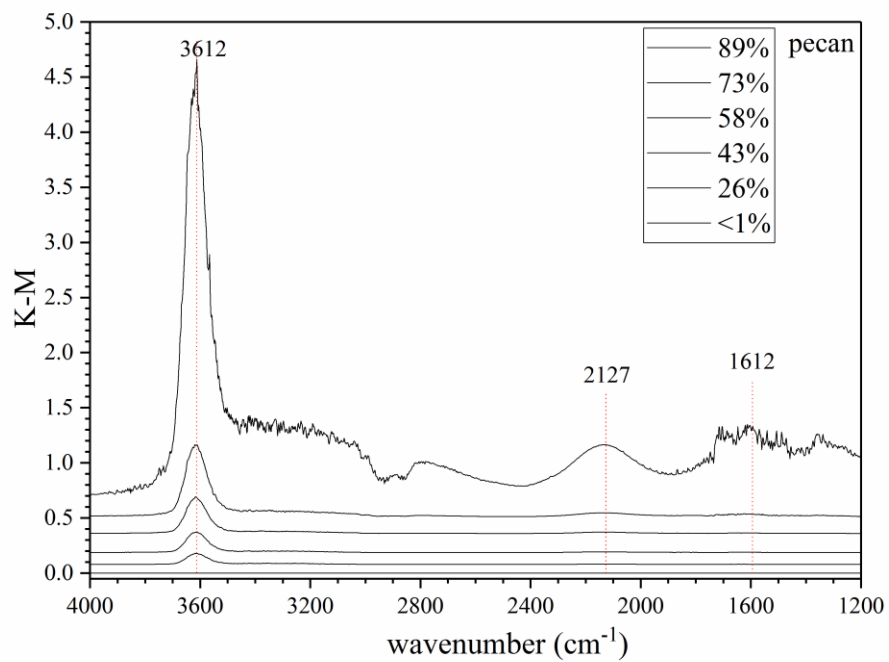


44

45 **Figure S4.** In-situ DRIFTS spectra of corn pollen as a function of RH at 25 °C, relative to that at

46 <1% RH.

47



48

49 **Figure S5.** In-situ DRIFTS spectra of pecan pollen as a function of RH at 25 °C, relative to that at

50 <1% RH.

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