Supplements of

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

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Table S1. Sample mass (normalized to that at 0% RH) as a function of RH at three different temperatures (37, 25 and 5 °C) for populus deltoides pollen and populus tremuloides pollen. All the errors (±1 σ) are statistical only.

RH (%)	populus deltoides			populus tremuloides		
	37 °C	25 °C	5 °C	37 °C	25 °C	5 °C
0 [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

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

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

15 **Table S2.** Sample mass (normalized to that at 0% RH) as a function of RH at different temperatures

16 for ragweed pollen (37, 25 and 5 °C) and corn pollen (37, 25, and 15 °C). All the errors (± 1 σ) are

17 statistical only.

RH (%)	ragweed			corn		
	37 °C	25 °C	5 °C	37 °C	25 °C	15 °C
0 [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±0.002	1.011±0.002	1.012±0.007	1.005±0.002	1.009±0.001	1.002±0.001
15 [b]	1.016	1.015	1.011	1.006	1.013	1.002
20	1.020±0.003	1.021±0.005	1.021±0.008	1.015±0.003	1.018±0.001	1.011±0.006
25 [b]	1.026	1.025	1.020	1.018	1.025	1.009
30	1.029±0.003	1.031±0.005	1.030±0.006	1.028±0.003	1.030±0.002	1.025±0.007
35 [b]	1.036	1.039	1.036	1.035	1.041	1.029
40	1.040±0.002	1.045±0.006	1.043±0.001	1.047±0.002	1.046±0.003	1.048±0.010
45 [b]	1.048	1.056	1.055	1.061	1.058	1.047
50	1.053±0.002	1.061±0.007	1.060±0.009	1.072±0.004	1.067±0.002	1.076±0.006
55 [b]	1.064	1.078	1.080	1.093	1.083	1.081
60	1.074±0.001	1.082±0.009	1.083±0.017	1.105±0.006	1.099±0.002	1.112±0.005
65 [b]	1.086	1.108	1.113	1.134	1.121	1.132
70	1.100±0.002	1.114±0.012	1.115±0.015	1.152±0.008	1.147±0.001	1.161±0.012
75 [b]	1.119	1.151	1.156	1.195	1.189	1.199
80	1.148±0.002	1.167±0.014	1.177±0.024	1.231±0.010	1.243±0.002	1.253±0.013
85 [b]	1.188	1.234	1.253	1.311	1.318	1.332
90	1.249±0.002	1.293±0.028	1.338±0.036	1.406±0.015	1.456±0.007	1.488±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.

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Table S3. Sample mass (normalized to that at 0% RH) as a function of RH at different temperatures (37, 25, and 5 °C) for pecan pollen and paper mulberry pollen. All the errors (±1 σ) are statistical only.

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

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

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

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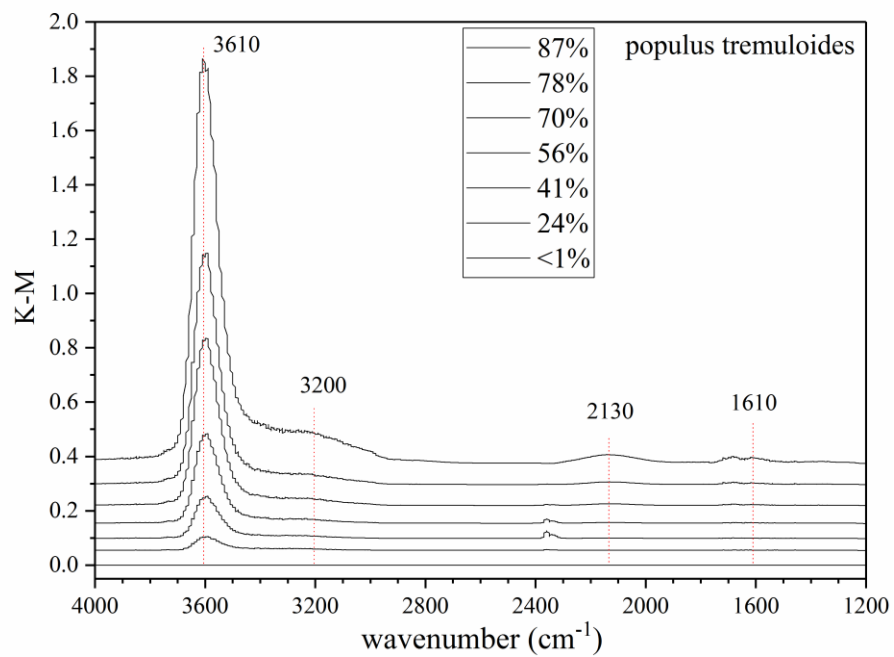
Figure S1. In-situ DRIFTS spectra of populous deltoides pollen as a function of RH at 25 °C,

relative to that at <1% RH.

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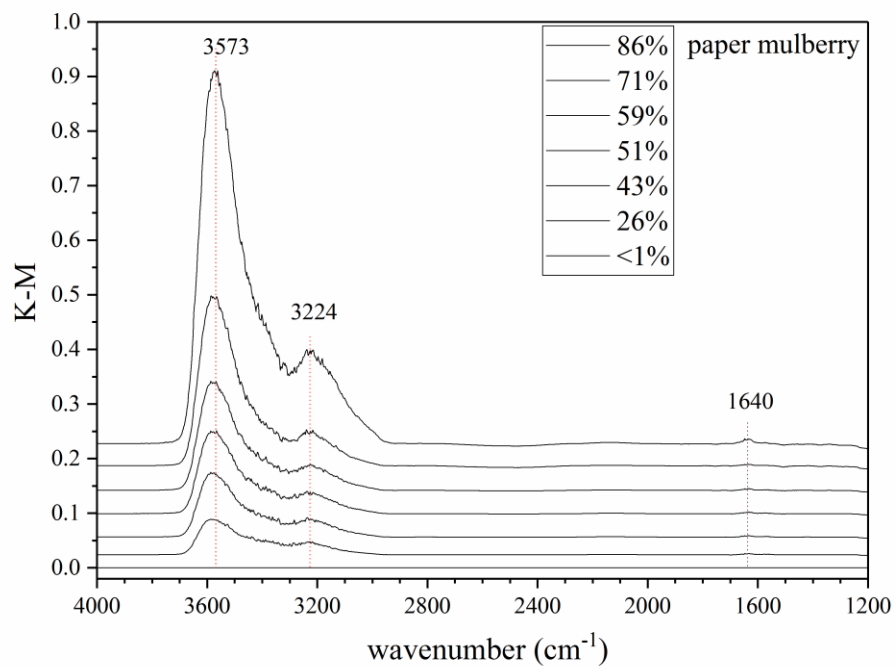
Figure S2. In-situ DRIFTS spectra of paper mulberry pollen as a function of RH at 25 ^{o}C, relative

to that at <1% RH.

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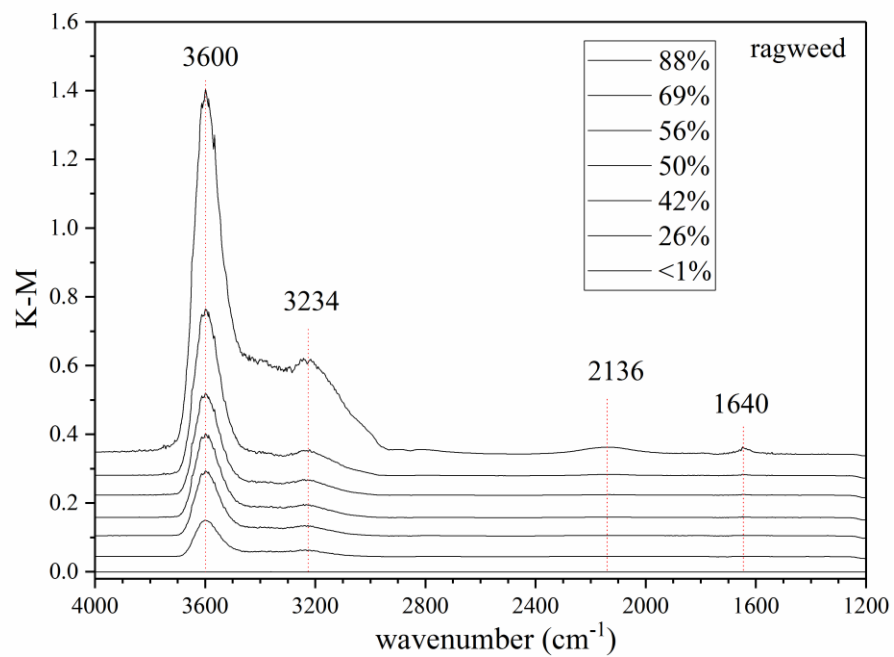
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41 **Figure S3.** In-situ DRIFTS spectra of ragweed pollen as a function of RH at 25 °C, relative to that

42 at <1% RH.

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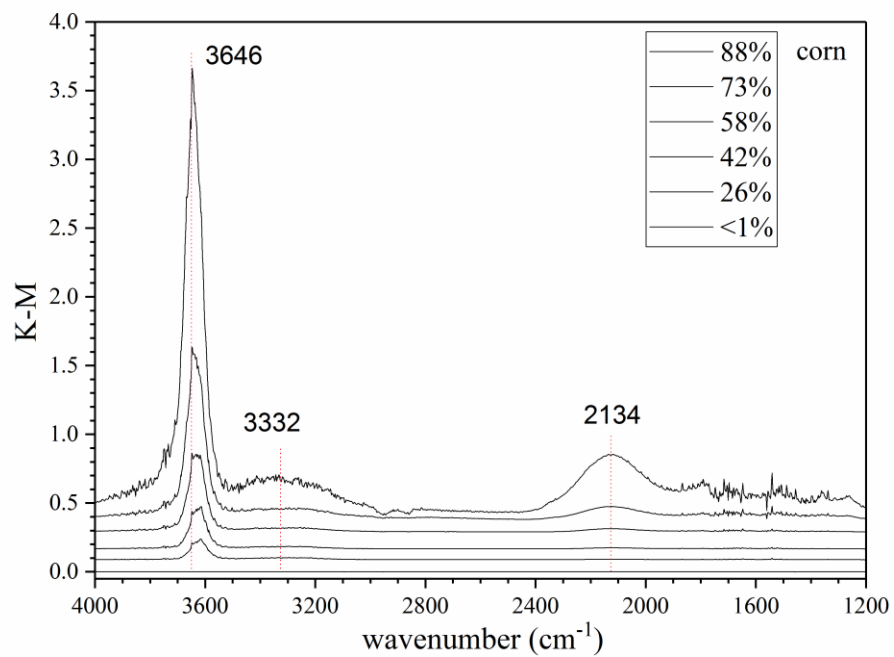
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45 **Figure S4.** In-situ DRIFTS spectra of corn pollen as a function of RH at 25 °C, relative to that at

46 <1% RH.

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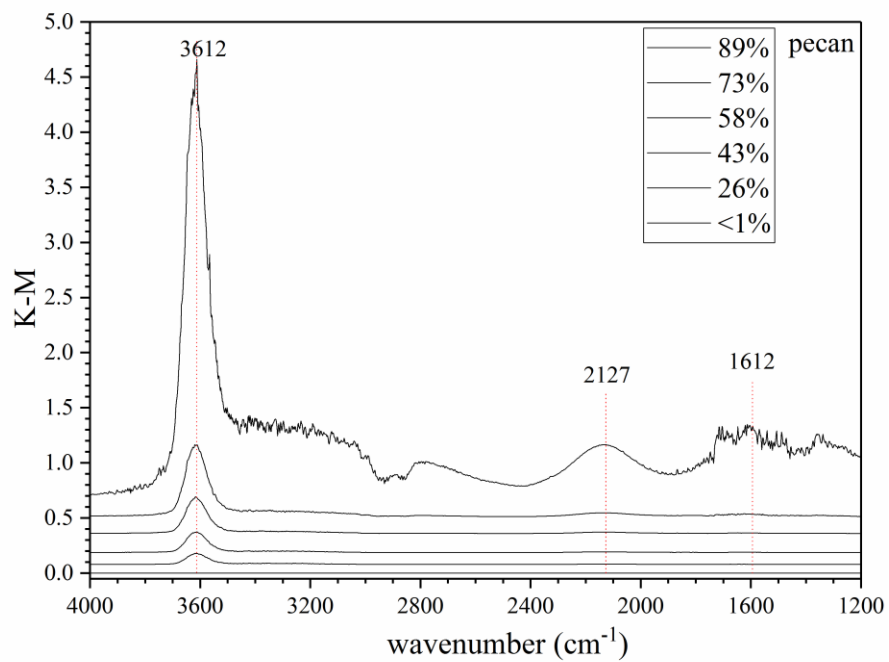
Figure S5. In-situ DRIFTS spectra of pecan pollen as a function of RH at 25 °C, relative to that at

50   <1% RH.

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