

Supplementary material

Table S1. Results of the non-linear regression of the idxSWL (%) time series for sample P1 and all pH factor levels.

idxSWL(%) P1	pH 1.2	pH 3	pH 5	pH 6.8	pH 7.4
One phase exponential association					
Best-fit values					
Ymax	1540	6264	13478	12299	14833
K	0.2327	0.06906	0.08771	0.2324	0.299
Half Life	2.979	10.04	7.902	2.982	2.318
Std. Error					
Ymax	37.94	868.7	2158	333.4	213.7
K	0.01138	0.0119	0.01848	0.0125	0.01003
95% Confidence Intervals					
Ymax	1461 to 1618	4462 to 8066	9002 to 17953	11607 to 12990	14390 to 15276
K	0.2091 to 0.2563	0.04438 to 0.09375	0.04938 to 0.1260	0.2065 to 0.2583	0.2782 to 0.3198
Half Life	2.704 to 3.315	7.393 to 15.62	5.499 to 14.04	2.683 to 3.356	2.168 to 2.492
Goodness of Fit					
Degrees of Freedom	22	22	22	22	22
R square	0.9922	0.9907	0.9793	0.9907	0.9941
Adjusted R square	0.9918	0.9902	0.9784	0.9903	0.9939

Table S2. Results of the non-linear regression of the idxSWL (%) time series for sample P2 and all pH factor levels.

idxSWL(%) P2	pH 1.2	pH 3	pH 5	pH 6.8	pH 7.4
One phase exponential association					
Best-fit values					
Ymax	1541	6085	13374	12295	14835
K	0.2372	0.0721	0.08886	0.2332	0.2996
Half Life	2.922	9.613	7.801	2.972	2.313
Std. Error					
Ymax	36.97	784	2089	329.6	212.3
K	0.01143	0.01165	0.01833	0.01243	0.009994
95% Confidence Intervals					
Ymax	1464 to 1617	4459 to 7711	9042 to 17706	11611 to 12979	14395 to 15275
K	0.2135 to 0.2609	0.04794 to 0.09627	0.05084 to 0.1269	0.2074 to 0.2590	0.2789 to 0.3203
Half Life	2.657 to 3.247	7.200 to 14.46	5.463 to 13.63	2.677 to 3.342	2.164 to 2.485
Goodness of Fit					
Degrees of Freedom	22	22	22	22	22
R square	0.9921	0.991	0.9796	0.9908	0.9942
Adjusted R square	0.9918	0.9906	0.9787	0.9904	0.9939

Table S3. Results of the non-linear regression of the idxSWL (%) time series for sample P3 and all pH factor levels.

idxSWL(%) P3	pH 1.2	pH 3	pH 5	pH 6.8	pH 7.4
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One phase exponential association						
Best-fit values						
	Ymax	1539	5848	13223	12284	14833
	K	0.2435	0.07641	0.09049	0.2343	0.3006
	Half Life	2.847	9.071	7.66	2.958	2.306
Std. Error						
	Ymax	36.82	675.6	1996	324.2	210.4
	K	0.01188	0.01122	0.01813	0.01233	0.009961
95% Confidence Intervals						
	Ymax	1462 to 1615	4446 to 7249	9084 to 17363	11611 to 12956	14396 to 15269
	K	0.2188 to 0.2681	0.05313 to 0.09969	0.05289 to 0.1281	0.2088 to 0.2599	0.2799 to 0.3212
	Half Life	2.585 to 3.168	6.953 to 13.05	5.411 to 13.11	2.667 to 3.320	2.158 to 2.476
Goodness of Fit						
	Degrees of Freedom	22	22	22	22	22
	R square	0.9916	0.9916	0.98	0.9909	0.9942
	Adjusted R square	0.9912	0.9913	0.9791	0.9905	0.9939

Table S4. Results of the non-linear regression of the idxSWL (%) time series for sample P4 and all pH factor levels.

idxSWL(%) P4	pH 1.2	pH 3	pH 5	pH 6.8	pH 7.4
One phase exponential association					
Best-fit values					
Ymax	2509	4998	-313.3	15782	15465
K	0.08762	0.0648	683	0.1345	0.2438
Half Life	7.911	10.7		5.153	2.843
Std. Error					
Ymax	483.3	1129	83.66	1395	239.4
K	0.0222	0.01795	16.57	0.01801	0.007703
95% Confidence Intervals					
Ymax	1507 to 3512	2657 to 7339	-486.8 to -139.8	12889 to 18674	14968 to 15961
K	0.04156 to 0.1337	0.02758 to 0.1020	648.7 to 717.4	0.09716 to 0.1718	0.2278 to 0.2597
Half Life	5.186 to 16.68	6.794 to 25.14		4.033 to 7.134	2.669 to 3.043
Goodness of Fit					
Degrees of Freedom	22	22	22	22	22
R square	0.9703	0.9799	0.9872	0.9801	0.9963
Adjusted R square	0.969	0.979	0.9866	0.9792	0.9962

Table S5. Results of the non-linear regression of the idxSWL (%) time series for sample P5 and all pH factor levels.

idxSWL(%) P5	pH 1.2	pH 3	pH 5	pH 6.8	pH 7.4	
Line						
Best-fit values	Y Intercept	-6.416	-38.02	-448	421.3	1898
	Slope	140.1	225.6	599	1104	1263
Std. Error	Y Intercept	20.34	26.24	104	133.1	176.6
	Slope	4.029	5.195	20.59	26.35	34.97

95% Confidence Intervals					
Y Intercept	-48.61 to 35.78	-92.43 to 16.39	-663.7 to -232.4	145.4 to 697.3	1532 to 2264
Slope	131.7 to 148.4	214.8 to 236.4	556.3 to 641.7	1049 to 1158	1191 to 1336
Goodness of Fit					
Degrees of Freedom	22	22	22	22	22
R square	0.9821	0.9885	0.9747	0.9876	0.9834
Adjusted R square	0.9813	0.9879	0.9735	0.9871	0.9827

Table S6. Results of the non-linear regression of the idxSWL (%) time series for sample P6 and all pH factor levels.

idxSWL (%) P6	pH 1.2	pH 3	pH 5	pH 6.8	pH 7.4
Line					
Best-fit values					
Y Intercept	-22.87	-81.46	-415.7	-19.66	1009
Slope	124.6	210.1	520.5	1068	1265
Std. Error					
Y Intercept	19.62	25.09	67.78	146.6	95.98
Slope	3.886	4.969	13.42	29.04	19.01
95% Confidence Intervals					
Y Intercept	-63.57 to 17.82	-133.5 to -29.42	-556.3 to -275.1	-323.8 to 284.5	810.3 to 1208
Slope	116.5 to 132.6	199.8 to 220.4	492.6 to 548.3	1008 to 1128	1225 to 1304
Goodness of Fit					
Degrees of Freedom	22	22	22	22	22
R square	0.979	0.9878	0.9856	0.984	0.9951
Adjusted R square	0.9781	0.9873	0.9849	0.9833	0.9948

Table S7. Results of the non-linear regression of the idxSWL (%) time series for sample E1 and all pH factor levels.

idxSWL(%) E1	pH 1.2	pH 3	pH 5	pH 6.8	pH 7.4
One phase exponential association					
Best-fit values					
Ymax	1528	5637	13078	12273	14830
K	0.2533	0.08071	0.09212	0.2355	0.3015
Half Life	2.736	8.588	7.524	2.944	2.299
Std. Error					
Ymax	31.68	586.1	1908	318.9	208.6
K	0.01098	0.01081	0.01793	0.01223	0.009929
95% Confidence Intervals					
Ymax	1462 to 1594	4421 to 6853	9120 to 17036	11612 to 12934	14398 to 15263
K	0.2305 to 0.2761	0.05829 to 0.1031	0.05493 to 0.1293	0.2101 to 0.2608	0.2809 to 0.3221
Half Life	2.511 to 3.007	6.720 to 11.89	5.360 to 12.62	2.657 to 3.299	2.152 to 2.468
Goodness of Fit					
Degrees of Freedom	22	22	22	22	22
R square	0.9928	0.9922	0.9804	0.9911	0.9942

Adjusted R square	0.9925	0.9918	0.9795	0.9907	0.994
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Table S8. Results of the non-linear regression of the idxSWL (%) time series for sample E2 and all pH factor levels.

idxSWL(%) E2	pH 1.2	pH 3	pH 5	pH 6.8	pH 7.4
Line					
Best-fit values					
Y Intercept	128.5	-5.451	-217.6	1045	2729
Slope	155.3	309.8	789	1250	1464
Std. Error					
Y Intercept	38.87	39.15	137.1	264.7	379.5
Slope	7.698	7.754	27.14	52.43	75.15
95% Confidence Intervals					
Y Intercept	47.86 to 209.1	-86.66 to 75.76	-501.9 to 66.71	496.2 to 1594	1942 to 3516
Slope	139.3 to 171.3	293.7 to 325.8	732.7 to 845.3	1141 to 1359	1308 to 1620
Goodness of Fit					
Degrees of Freedom	22	22	22	22	22
R square	0.9487	0.9864	0.9746	0.9628	0.9452
Adjusted R square	0.9464	0.9858	0.9735	0.9611	0.9427

Table S9. Results of the non-linear regression of the idxSWL (%) time series for sample E3 and all pH factor levels.

idxSWL(%) E3	pH 1.2	pH 3	pH 5	pH 6.8	pH 7.4
Line					
Best-fit values					
Y Intercept	34.4	-37.21	-587.8	92.34	1742
Slope	147.3	249.8	682.5	1313	1424
Std. Error					
Y Intercept	31.41	30.26	113.7	203.3	289.7
Slope	6.22	5.993	22.51	40.27	57.37
95% Confidence Intervals					
Y Intercept	-30.74 to 99.54	-99.97 to 25.55	-823.6 to -352.1	-329.4 to 514.1	1141 to 2343
Slope	134.4 to 160.2	237.4 to 262.2	635.8 to 729.1	1229 to 1396	1305 to 1543
Goodness of Fit					
Degrees of Freedom	22	22	22	22	22
R square	0.9622	0.9875	0.9766	0.9797	0.9655
Adjusted R square	0.9605	0.9869	0.9756	0.9788	0.964

Table S10. Results of the non-linear regression of the idxSWL (%) time series for sample E4 and all pH factor levels.

idxSWL (%) E4	pH 1.2	pH 3	pH 5	pH 6.8	pH 7.4
Line					
Best-fit values					
Y Intercept	-14.83	-49.46	-377.4	331.4	1433
Slope	131.5	214.3	543.1	1062	1263
Std. Error					
Y Intercept	16.41	22.98	78.3	150.9	152.9
Slope	3.25	4.55	15.51	29.89	30.27
95% Confidence Intervals					

Y Intercept	-48.86 to 19.21	-97.12 to -1.800	-539.8 to -215.0	18.38 to 644.4	1116 to 1750
Slope	124.8 to 138.2	204.9 to 223.7	511.0 to 575.3	999.5 to 1124	1200 to 1326
Goodness of Fit					
Degrees of Freedom	22	22	22	22	22
R square	0.9867	0.9902	0.9824	0.9829	0.9875
Adjusted R square	0.9861	0.9897	0.9816	0.9821	0.987

Table S11. Results of the idxSWL(%) for P1-P6 samples in all pH levels.

pH	P1	P2	P3	P4	P5	P6
1.2	914.807l-n ±0.572	924.672l-n ±0.542	935.683l-n ±0.569	772.215l-n ±1.309	623.972mn ±1.131	537.767n ±1.188
3	1603.543j-n ±0.215	1614.367j-n ±0.263	1627.044j-n ±0.243	1207.633k-n ±2.279	977.138l-n ±1.984	864.176l-n ±2.084
5	4149.649gh ±0.411	4160.473gh ±0.452	4173.150gh ±0.328	2760.377ij ±1.265	2247.395i-l ±1.117	1926.485j-n ±1.169
6.8	7296.741c-e ±0.334	7307.565c-e ±2.361	7320.242c-e ±0.563	6684.781de ±0.319	5387.675fg ±0.254	4787.327fg ±0.309
7.4	9973.059a ±0.663	9983.945a ±0.215	9996.623a ±0.123	9431.456a ±0.109	7582.578cd ±0.086	6701.290de ±0.105

Table S12. Results of the idxSWL(%) in all pH levels, expressed in terms of time and pH

time	pH_1.2	pH_3	pH_5	pH_6.8	pH_7.4
1h	191.330w ±72.395	266.159vw ±76.258	485.013s-w ±94.912	1665.135r-v ±361.239	2972.709r-u ±493.620
2h	377.537q-t ±165.874	530.255q-s ±209.755	1229.763p-r ±566.038	3222.050vw ±1066.292	5392.412t-w ±1237.801
3h	621.008r-u ±165.401	910.790p-r ±214.103	2166.603o-q ±804.237	5053.342no ±1110.367	7478.961-o ±1422.319
4h	770.892n ±202.831	1190.589u ±323.424	2948.168p-r ±1176.542	6397.322n ±1300.358	8900.014m ±1763.748
5h	934.695l ±180.775	1530.209k ±368.001	3645.050j ±1283.234	7488.399j ±1350.590	10147.745n-p ±1779.058
6h	1025.960lm ±145.861	1782.036j ±377.886	4185.314i ±1265.283	8464.181h ±891.390	11027.129g ±1282.563
7h	1120.543ef ±155.245	1990.247e ±470.941	5028.672m ±1177.650	9270.492j ±1013.613	12046.675h ±1297.194
8h	1165.420fg ±131.811	2138.877d ±396.213	5500.254c ±978.611	9555.741b ±716.877	12643.360a ±904.720

Table S13. Results of idxSWL(%) of CAQ-Ms in all pH levels.

pH	idxSWL (%)
1.2	775.923e ±0.367
3	1292.395d ±1.037
5	3148.605c ±0.426
6.8	6389.583b ±1.274
7.4	8826.126a ±0.267

Table S14. Results of idxSLW(%) of CAQ-Ms with/without quercetin

Sample	idxSWL (%)
P1	4787.5±0.63
P2	4798.2±0.12
P3	4810.5±0.03
P4	4171.3±0.42
P5	3363.7±0.36
P6	2963.4±0.43
E1	4823.3±0.17

E2	4307.1±0.71
E3	3683.2±0.19
E4	3156.8±0.69

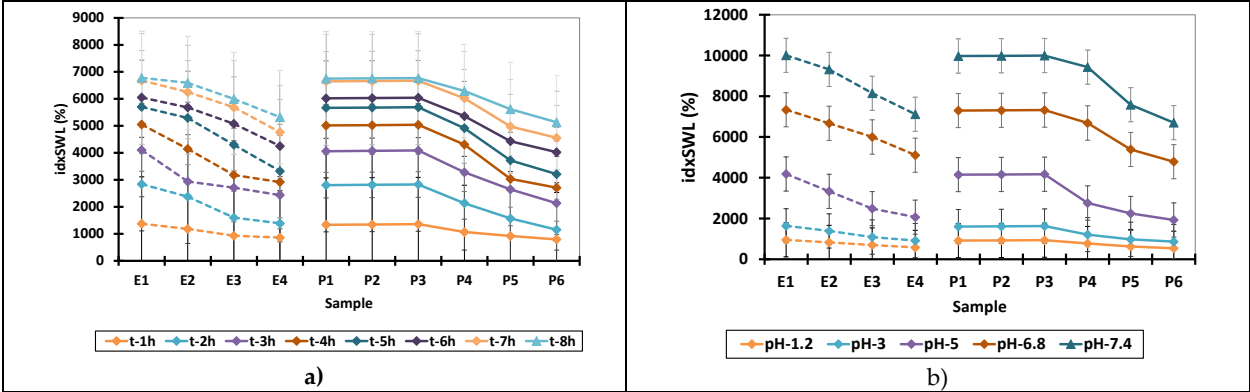


Figure S1. Analysis of swelling capacity of Ms as a function of: a) Time*Sample and b) pH*Sample.

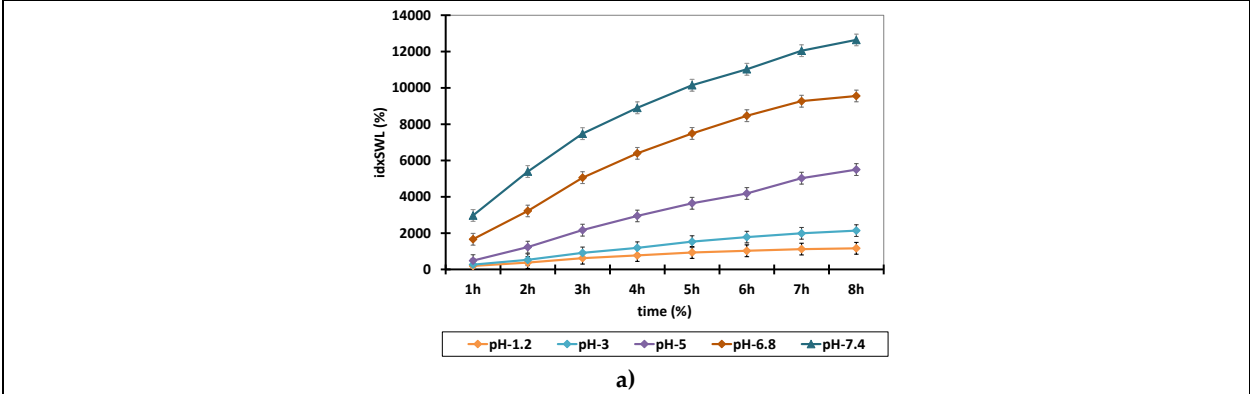


Figure S2. idxSWL of Ms expressed as a function of pH.