

Supplementary Information

Table 1: Composition of ½ Tamiya medium and its corresponding microelements solution, pH 5.5-6.0 (Hase *et al.*, 1957).

Substance	[g L ⁻¹]	Microelements	[g L ⁻¹]
KNO ₃	2.5	H ₃ BO ₃	2.86
MgSO ₄ x 7 H ₂ O	1.25	MnCl ₂ x 4 H ₂ O	1.81
KH ₂ PO ₄	0.625	ZnSO ₄ x 7 H ₂ O	0.22
FeSO ₄ x 7 H ₂ O	0.0045	MoO ₃	0.018
EDTA	0.0186	NH ₄ VO ₃	0.023
Microelements solution	0.5 ml L ⁻¹		

Table 2: Mean and standard error of EC₅₀-values and fitting parameters of concentration-response curves of freely suspended and immobilized cells after different times of exposure to atrazine (corresponding to Fig. 5). A_{min} was fixed at 0. (N=6).

	EC ₅₀ [mg L ⁻¹]	Y(l) _{controls}	Amax [%]	x0 [mg L ⁻¹]	Hill slop p	reduced Chi ²	R ²
free cells - 1h	0.11 ± 0.008	0.47 ± 0.005	110.17 ± 1.98	0.136 ± 0.008	0.949 ± 0.042	7.76	0.995
free cells - 3h	0.28 ± 0.029	0.43 ± 0.006	110.30 ± 4.07	0.334 ± 0.029	1.078 ± 0.079	10.87	0.992
free cells - 5h	0.33 ± 0.028	0.39 ± 0.005	99.05 ± 3.78	0.325 ± 0.028	1.171 ± 0.099	12.04	0.990
free cells - 24h	0.22 ± 0.038	0.46 ± 0.004	118.36 ± 5.26	0.307 ± 0.038	0.912 ± 0.070	14.83	0.990

	EC ₅₀ [mg L ⁻¹]	Y(l) _{controls}	Amax [%]	x0 [mg L ⁻¹]	Hill slop p	reduced Chi ²	R ²
immob. cells - 1h	0.09 ± 0.007	0.41 ± 0.011	106.06 ± 1.85	0.096 ± 0.007	1.183 ± 0.071	17.30	0.990
immob. cells - 3h	0.27 ± 0.021	0.39 ± 0.009	107.76 ± 3.36	0.309 ± 0.021	1.194 ± 0.087	1.81	0.999
immob. cells - 5h	0.35 ± 0.021	0.39 ± 0.009	98.44 ± 2.93	0.338 ± 0.021	1.319 ± 0.095	9.32	0.993
immob. cells - 24h	0.23 ± 0.027	0.45 ± 0.011	117.93 ± 4.16	0.308 ± 0.027	1.033 ± 0.072	11.99	0.992

Table 3: Mean and standard error of EC₅₀-values and fitting parameters of concentration-response curves of four different batches of *C. vulgaris* cells immobilized within alginate/silica hydrogels after 1 h exposure to atrazine (corresponding to Fig. 6). A_{min} was fixed at 0. (N=6).

	EC ₅₀ [mg L ⁻¹]	Y(l) _{controls}	Amax [%]	x0 [mg L ⁻¹]	Hill slop p	reduced Chi ²	R ²
Batch 1a	0.04 ± 0.003	0.28 ± 0.013	100.71 ± 1.09	0.038 ± 0.003	1.252 ± 0.087	7.97	0.995
Batch 1b	0.04 ± 0.006	0.34 ± 0.006	102.38 ± 2.10	0.045 ± 0.006	0.994 ± 0.096	17.25	0.986
Batch 2a	0.09 ± 0.007	0.41 ± 0.011	106.06 ± 1.85	0.096 ± 0.007	1.183 ± 0.071	17.30	0.990
Batch 2b	0.09 ± 0.011	0.39 ± 0.009	107.80 ± 2.87	0.103 ± 0.011	1.084 ± 0.089	20.93	0.988
Batch 3a	0.08 ± 0.006	0.43 ± 0.011	104.64 ± 1.63	0.090 ± 0.006	1.175 ± 0.063	13.79	0.992
Batch 3b	0.08 ± 0.004	0.43 ± 0.009	105.20 ± 1.15	0.091 ± 0.004	1.182 ± 0.045	6.95	0.996
Batch 4a	0.07 ± 0.004	0.52 ± 0.011	105.52 ± 1.30	0.077 ± 0.004	1.083 ± 0.043	7.90	0.995
Batch 4b	0.06 ± 0.004	0.40 ± 0.013	104.17 ± 1.16	0.068 ± 0.004	1.128 ± 0.048	7.36	0.995

Table 4: Mean and standard error of EC₅₀-values and fitting parameters of concentration-response curves of *C. vulgaris* cells immobilized within alginate/silica hydrogels after storage at 4 °C in the dark (corresponding to Fig. 7A) and storage at 20 °C under a 14/10h light/dark cycle (corresponding to Fig. 7B). A_{min} was fixed at 0. (N=6).

	EC ₅₀ [mg L ⁻¹]	Y(I) _{controls}	Amax [%]	x0 [mg L ⁻¹]	Hill slop p	reduced Chi ²	R ²
Start	0.04 ± 0.002	0.39 ± 0.009	101.93 ± 0.85	0.047 ± 0.002	1.051 ± 0.043	7.67	0.995
1 week at 4°C	0.04 ± 0.001	0.43 ± 0.006	102.01 ± 0.62	0.041 ± 0.001	1.237 ± 0.039	3.11	0.998
2 weeks at 4°C	0.06 ± 0.003	0.44 ± 0.009	104.26 ± 1.11	0.067 ± 0.003	1.166 ± 0.045	7.49	0.995
4 weeks at 4°C	0.05 ± 0.002	0.42 ± 0.007	102.35 ± 0.57	0.054 ± 0.002	1.279 ± 0.031	2.55	0.998
8 weeks at 4°C	0.06 ± 0.002	0.43 ± 0.007	93.57 ± 0.78	0.057 ± 0.002	1.230 ± 0.042	4.40	0.997

	EC ₅₀ [mg L ⁻¹]	Y(I) _{controls}	Amax [%]	x0 [mg L ⁻¹]	Hill slop p	reduced Chi ²	R ²
Start	0.04 ± 0.002	0.39 ± 0.009	101.93 ± 0.85	0.047 ± 0.002	1.051 ± 0.043	7.67	0.995
1 week at 20°C	0.04 ± 0.003	0.47 ± 0.015	104.88 ± 1.65	0.044 ± 0.003	0.973 ± 0.057	13.19	0.991
2 weeks at 20°C	0.06 ± 0.005	0.51 ± 0.005	107.27 ± 1.83	0.074 ± 0.005	0.892 ± 0.041	9.49	0.993
4 weeks at 20°C	0.12 ± 0.010	0.52 ± 0.012	98.70 ± 2.33	0.119 ± 0.010	1.181 ± 0.095	22.36	0.985
8 weeks at 20°C	0.11 ± 0.010	0.46 ± 0.017	87.11 ± 2.41	0.094 ± 0.010	1.148 ± 0.099	22.72	0.981

Table 5: Mean and standard error of EC₅₀-values and fitting parameters of concentration-response curves of *C. vulgaris* cells immobilized within alginate/silica hydrogels after repeated usage and intermediate storage at 4 °C in the dark (corresponding to Fig. 8A) as well as intermediate storage at 20 °C under a 14/10h light/dark cycle (corresponding to Fig. 8B). A_{min} was fixed at 0. (N=6). For vitality validation of repeatedly used samples, Y(I) was evaluated for all samples after recovery prior to each exposure cycle; the mean value is given in the tables.

	EC ₅₀ [mg L ⁻¹]	Y(I) _{prior exposure}	Amax [%]	x0 [mg L ⁻¹]	Hill slop p	reduced Chi ²	R ²
1x (1 day)	0.04 ± 0.006	0.34 ± 0.006	102.38 ± 2.10	0.045 ± 0.006	0.994 ± 0.096	17.25	0.986
2x (1 week at 4°C)	0.04 ± 0.002	0.44 ± 0.011	101.10 ± 0.58	0.045 ± 0.002	1.146 ± 0.035	4.02	0.997
3x (2 weeks at 4°C)	0.04 ± 0.002	0.47 ± 0.017	97.62 ± 0.78	0.039 ± 0.002	1.154 ± 0.054	7.52	0.995
4x (3 weeks at 4°C)	0.07 ± 0.006	0.52 ± 0.007	103.24 ± 1.68	0.072 ± 0.006	0.827 ± 0.048	16.62	0.988
5x (4 weeks at 4°C)	0.07 ± 0.007	0.52 ± 0.017	103.45 ± 1.57	0.081 ± 0.007	0.928 ± 0.054	17.60	0.989
6x (5 weeks at 4°C)	0.04 ± 0.011	0.45 ± 0.029	100.17 ± 4.31	0.041 ± 0.011	0.884 ± 0.168	26.40	0.981
7x (6 weeks at 4°C)	0.06 ± 0.003	0.50 ± 0.012	101.78 ± 0.93	0.059 ± 0.003	1.117 ± 0.048	9.49	0.994
8x (8 weeks at 4°C)	0.05 ± 0.002	0.51 ± 0.002	95.46 ± 0.86	0.045 ± 0.002	1.120 ± 0.053	8.57	0.994

	EC ₅₀ [mg L ⁻¹]	Y(I) _{prior exposure}	Amax [%]	x0 [mg L ⁻¹]	Hill slop p	reduced Chi ²	R ²
1x (1 day)	0.04 ± 0.003	0.28 ± 0.013	100.71 ± 1.09	0.038 ± 0.003	1.252 ± 0.087	7.97	0.995
2x (1 week at 20°C)	0.04 ± 0.004	0.51 ± 0.008	99.17 ± 1.42	0.044 ± 0.004	0.879 ± 0.054	16.51	0.988
3x (2 weeks at 20°C)	0.05 ± 0.004	0.56 ± 0.005	93.25 ± 1.41	0.046 ± 0.004	0.925 ± 0.062	17.62	0.985
4x (3 weeks at 20°C)	0.08 ± 0.005	0.62 ± 0.004	91.87 ± 0.96	0.075 ± 0.005	1.586 ± 0.094	13.97	0.991
5x (4 weeks at 20°C)	0.06 ± 0.004	0.58 ± 0.008	89.49 ± 1.26	0.045 ± 0.004	1.053 ± 0.074	17.03	0.986
6x (5 weeks at 20°C)	0.06 ± 0.002	0.59 ± 0.008	84.79 ± 0.87	0.040 ± 0.002	1.037 ± 0.055	8.18	0.992
7x (6 weeks at 20°C)	0.07 ± 0.003	0.59 ± 0.008	95.65 ± 0.84	0.061 ± 0.003	1.060 ± 0.042	7.17	0.995
8x (8 weeks at 20°C)	0.08 ± 0.004	0.56 ± 0.005	86.15 ± 1.01	0.059 ± 0.004	1.056 ± 0.056	10.34	0.991