

**Table S2.** Sorption and desorption parameters with statistical indices estimated by Elowich (EM) nonlinear kinetics model describing the sorption/desorption processes of acetamiprid and thiachloprid in experimental soils.

Sorption					Desorption				
Fitted/statistical parameter	S1	S2	S3	S4	Fitted/statistical parameter	S1	S2	S3	S4
Acetamiprid									
$(1/Y)\text{Ln}(XY)^{\text{sor (a)}}$	65.95	49.81	58.33	60.70	$(1/Y)\text{Ln}(XY)^{\text{des (c)}}$	74.11	50.23	65.82	67.14
(mg/kg)	(±2.21)	(±0.64)	(±1.21)	(±3.28)	(mg/kg)	(±2.98)	(±2.41)	(±3.36)	(± 2.56)
$1/Y^{\text{sor (b)}}$	2.43	1.46	2.58	2.23	$1/Y^{\text{des (d)}}$	0.94	1.93	1.43	1.36
	(±0.18)	(±0.23)	(±0.64)	(±0.45)		(±0.25)	(±0.52)	(±0.39)	(±0.18)
% (e)	85	90	85	87	% (e)	62	50	29	28
$R^2$ (f)	0.9880	0.9789	0.9534	0.9360	$R^2$ (f)	0.9050	0.9503	0.9449	0.9537
SRMSE (g)	0.0437	0.0774	0.0967	0.1322	SRMSE (g)	0.1268	0.0803	0.0888	0.0841
err-% (h)	3.51	5.92	7.75	10.61	err-% (h)	10.18	6.45	7.13	6.76
Thiacloprid									
$(1/Y)\text{Ln}(XY)^{\text{sor (a)}}$	94.25	62.16	75.44	85.08	$(1/Y)\text{Ln}(XY)^{\text{des(c)}}$	97.66	73.39	85.14	93.11
(mg/kg)	(±4.14)	(±3.18)	(± 4.98)	(±3.95)	(mg/kg)	(±4.11)	(±2.32)	(±3.21)	(±5.16)
$1/Y^{\text{sor (b)}}$	5.46	4.17	4.05	4.46	$1/Y^{\text{des(d)}}$	0.36	1.26	1.07	0.46
	(±0.07)	(±0.38)	(±0.51)	(±0.35)		(±0.11)	(±0.23)	(±0.19)	(±0.13)
% (e)	97	93	91	93	% (e)	47	32	44	37
$R^2$ (f)	0.7225	0.6670	0.7156	0.8365	$R^2$ (f)	0.9030	0.9924	0.9911	0.9748
SRMSE (g)	0.2572	0.2963	0.2668	0.2419	SRMSE (g)	0.1333	0.0126	0.0169	0.0452
err-% (h)	20.65	23.79	21.42	19.42	err-% (h)	10.71	1.01	1.36	3.63

(a), (b), (c), (d) – sorbed/desorbed parameters obtained by modelling with Elowich (EM); (e) – amount sorbed/desorbed during the rapid phase (1 h) in regards to the sorbed/desorbed amount at 96 h; (f) – coefficient of multiple determination (g) – Scaled Root Mean Squared Error; (h) – minimum error level of  $\chi^2$  test