

**Table S5.** Correlation coefficients between physico-chemical soil characteristics and acetamiprid/thiacloprid desorption parameters obtained by Pseudo First-Order (PFOM), Elowich (EM) and Weber-Morris (WMM) represented by correlation matrix (N = 1200; pooled data; 4 soils x 3 replication x 10 soil characteristics x 10 sorption parameters). Statistically significant correlations ( $p < 0.05$ ) are presented with bold type numbers and with corresponding p values (written in parentheses in italics).

Variable	pH	HA <sup>(a)</sup>	CEC <sup>(b)</sup>	clay	TOC <sup>(c)</sup>	C <sub>oxHa</sub> <sup>(d)</sup>	C <sub>oxFa</sub> <sup>(e)</sup>	ratio 465/665	ratio C/H	ratio C/N
<b>Acetamiprid</b>										
<b>q<sub>des</sub></b> <sup>(f)</sup>	0.423	-0.804	-0.798	0.481	<b>-0.965</b> ( <i>p=0.035</i> )	-0.378	-0.713	<b>-0.997</b> ( <i>p=0.003</i> )	-0.887	-0.771
<b>k<sub>1</sub> (PFOM)</b> <sup>(g)</sup>	-0.853	0.831	0.848	<b>-0.980</b> ( <i>p=0.020</i> )	0.421	-0.214	0.693	0.413	0.303	0.868
<b>(1/Y)Ln(XY) (EM)</b> <sup>(h)</sup>	-0.364	0.725	0.728	-0.388	0.934	0.467	0.624	<b>0.980</b> ( <i>p=0.020</i> )	0.855	0.688
<b>(1/Y) (EM)</b> <sup>(i)</sup>	0.497	-0.842	-0.844	0.552	<b>-0.959</b> ( <i>p=0.041</i> )	-0.376	-0.729	<b>-0.996</b> ( <i>p=0.004</i> )	-0.866	-0.815
<b>C (WMM)</b> <sup>(j)</sup>	-0.341	0.703	0.706	-0.3659	0.927	0.481	0.604	<b>0.974</b> ( <i>p=0.026</i> )	0.850	0.665
<b>k (WMM)</b> <sup>(k)</sup>	0.698	<b>-0.977</b> ( <i>p=0.023</i> )	<b>-0.977</b> ( <i>p=0.023</i> )	0.804	-0.907	-0.169	-0.850	-0.924	-0.797	<b>-0.968</b> ( <i>p=0.032</i> )
<b>Thiacloprid</b>										
<b>q<sub>des</sub></b> <sup>(f)</sup>	0.114	-0.776	-0.656	0.366	<b>-0.946</b> ( <i>p=0.048</i> )	0.171	-0.908	-0.861	<b>-0.992</b> ( <i>p=0.008</i> )	-0.726
<b>k<sub>1</sub> (PFOM)</b> <sup>(g)</sup>	-0.711	<b>0.950</b> ( <i>p=0.049</i> )	<b>0.967</b> ( <i>p=0.033</i> )	-0.781	0.901	0.271	0.794	0.938	0.776	0.942
<b>(1/Y)Ln(XY) (EM)</b> <sup>(h)</sup>	-0.254	0.768	0.718	-0.373	<b>0.987</b> ( <i>p=0.013</i> )	0.231	0.764	<b>0.980</b> ( <i>p=0.020</i> )	<b>0.960</b> ( <i>p=0.040</i> )	0.722
<b>(1/Y) (EM)</b> <sup>(i)</sup>	0.159	-0.792	-0.688	0.383	<b>-0.972</b> ( <i>p=0.028</i> )	0.075	-0.890	-0.905	<b>-0.999</b> ( <i>p=0.001</i> )	-0.743
<b>C (WMM)</b> <sup>(j)</sup>	-0.256	0.768	0.719	-0.374	<b>0.987</b> ( <i>p=0.013</i> )	0.234	0.763	<b>0.980</b> ( <i>p=0.020</i> )	<b>0.959</b> ( <i>p=0.041</i> )	0.722
<b>k (WMM)</b> <sup>(k)</sup>	0.168	-0.788	-0.692	0.375	<b>-0.980</b> ( <i>p=0.020</i> )	0.023	-0.872	-0.922	<b>-0.999</b> ( <i>p=0.001</i> )	-0.739

---

<sup>(a)</sup> – hydrolitic acidity; <sup>(b)</sup> – cation exchange capacity; <sup>(c)</sup> – total organic carbon; <sup>(d)</sup> – carbon of humic acids; <sup>(e)</sup> – carbon of fulvic acids; <sup>(f)</sup> – desorbed amount in 96. h; <sup>(g)</sup>, <sup>(h)</sup>, <sup>(i)</sup>, <sup>(j)</sup>, <sup>(k)</sup> – parameters obtained by modelling with Pseudo-First Order (PFOM), Elowich (EM) and Weber-Morris (WMM) models.

---