

Supplementary Materials

Concentration of Mercury in the Liver of Small Terrestrial Rodents from Rural Areas in Poland

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Supplementary Table S1. The characteristics of study sites and the number of rodents captured by county, species, and sex.

County	Code	Altitude, m a. s. l.	Mean Annual Temperature, °C	Mean Annual Rainfall, mm H ₂ O/m ²	Background Soil Hg ¹ Median (Range), in mg/kg	Vegetation ²	N	Species	Sex
Dąbrowski (Dąbrowa Tarnowska)	DAB	201	8.4	668	0.09 (0.07–0.20)	<i>Tilio-carpinetum</i>	12	<i>A. agrarius</i>	7 F 6
								<i>A. flavicollis</i>	4 F 1
								<i>M. arvalis</i>	1 M 3
Gliwicki	GLW	235	8.5	663	0.05 (0.05–0.26)	<i>Tilio-carpinetum</i>	13	<i>A. agrarius</i>	2 F 2
								<i>A. flavicollis</i>	9 F 6
								<i>M. arvalis</i>	2 M 3
Lubliniecki	LUB	264	8.3	633	<0.05 (<0.05–0.07)	<i>Tilio-carpinetum</i>	8	<i>A. agrarius</i>	3 F 3
								<i>A. flavicollis</i>	5 F 3
								<i>M. arvalis</i>	2 M 2
Niżański	NIS	168	7.8	572	0.05 (<0.05–0.09)	<i>Quercu-pinetum</i>	20	<i>A. agrarius</i>	14 F 8
								<i>A. flavicollis</i>	4 M 6
								<i>M. arvalis</i>	2 F 3
Oświęcimski	OSW	248	8.6	719	0.07 (0.05–0.74)	<i>Tilio-carpinetum</i>	24	<i>A. agrarius</i>	11 F 5
								<i>A. flavicollis</i>	10 M 6
								<i>M. arvalis</i>	3 F 4
Przemyski	PRZ	215	7.9	634	0.10 (0.07–0.18)	<i>Dentario glandulosae-Fagetum</i>	20	<i>A. agrarius</i>	5 F 2
								<i>A. flavicollis</i>	9 M 3
								<i>M. arvalis</i>	6 F 2

Rawski	RAW	142	7.7	542	<0.05 (<0.05–0.07)	<i>Potentillo albae-Quercetum</i>	24	<i>A. agrarius</i>	8	F	6
										M	2
								<i>A. flavicollis</i>	13	F	9
								<i>M. arvalis</i>	3	M	4
								<i>M. arvalis</i>	3	M	3
Sieradzki	SRD	129	7.5	608	<0.05 (<0.05–0.07)	<i>Quercu-pinetum</i>	23	<i>A. agrarius</i>	7	F	7
										M	9
								<i>A. flavicollis</i>	13	F	4
								<i>M. arvalis</i>	3	F	1
								<i>M. arvalis</i>	3	M	2
Starachowicki	STA	275	7.2	598	<0.05 (<0.05–0.08)	<i>Calamagrostio-Quercetum</i>	17	<i>A. agrarius</i>	3	F	2
										M	1
								<i>A. flavicollis</i>	13	F	7
								<i>M. arvalis</i>	1	M	6
								<i>M. arvalis</i>	1	M	1
Świdnicki	SWI	232	7.4	544	<0.05 (<0.05–0.11)	<i>Tilio-carpinetum</i>	17	<i>A. flavicollis</i>	13	F	5
										M	8
								<i>M. arvalis</i>	2	F	2
								<i>M. glareolus</i>	2	F	1
								<i>M. glareolus</i>	2	M	1
Tomaszowski	TOM	294	7.3	590	<0.06 (<0.05–0.07)	<i>Quercu-pinetum</i>	29	<i>A. agrarius</i>	6	F	1
										M	5
								<i>A. flavicollis</i>	20	F	13
								<i>M. arvalis</i>	2	F	7
								<i>M. arvalis</i>	2	F	1
								<i>M. glareolus</i>	1	M	1
								<i>M. glareolus</i>	1	F	1
Włoszczowski	WLO	245	7.5	626	<0.05 (<0.05–0.05)	<i>Quercu-pinetum</i>	14	<i>A. agrarius</i>	7	F	4
										M	3
								<i>A. flavicollis</i>	7	F	3
								<i>A. flavicollis</i>	7	M	4

¹Data was extracted from the Central Geological Database of the Polish Geological Institute—National Research Institute, available at: <http://baza.pgi.gov.pl>. ² Types of vegetation were taken from the map of Potential natural vegetation of Poland available at: <https://www.igipz.pan.pl/potential-vegetation-zgik.html>.

Supplementary Table S2. DMA-80 operating conditions.

Step	Time (min)	Temperature (°C)
1	1	20–200
2	1.5	200–650
3	1.5	650
4	1.5	650

Supplementary Table S3. Descriptive statistics of Hg concentrations in the liver of rodents according to their species, sampling site, and sex (µg/kg).

	N	mean	SD	median	MAD	min	max	mean	SD	median	MAD	min	max
	Expressed on Dry Weight Basis							Expressed on Wet Weight Basis					
Species													
<i>A. agrarius</i>	70	18.1	20	11.6	8	1.6	119.7	5.5	6	3.5	2	<LOQ	36.4
<i>A. flavicollis</i>	118	14.6	16	10.4	9	1.6	97.0	4.4	5	3.2	3	<LOQ	29.5
<i>M. arvalis</i>	30	15.4	12	14.0	7	1.6	52.6	4.7	4	4.3	2	<LOQ	16.0
<i>M. glareolus</i>	3	35.2	33	30.4	38	4.9	70.2	10.7	10	9.2	12	1.5	21.4
Study site													
DAB	12	48.0	33	40.9	25	10.2	119.7	14.6	10	12.5	8	3.1	36.4
GLW	13	22.7	19	18.7	11	6.2	72.0	6.9	6	5.7	3	1.9	21.9
LUB	8	6.5	4	6.2	5	2.3	11.2	2.0	1	1.9	2	<LOQ	3.4
NIS	20	10.0	7	8.4	4	2.6	28.6	3.0	2	2.6	1	<LOQ	8.7
OSW	24	11.1	10	7.7	5	3.3	52.6	3.4	3	2.4	2	1.0	16.0
PRZ	20	9.3	7	6.7	5	1.6	24.3	2.8	2	2.1	2	<LOQ	7.4
RAW	24	12.5	8	10.2	7	3.3	31.6	3.8	2	3.1	2	1.0	9.6
SRD	23	10.8	8	9.5	7	2.3	39.4	3.3	2	2.9	2	<LOQ	12.0
STA	17	5.0	4	3.9	3	1.6	16.1	1.5	1	1.2	1	<LOQ	4.9
SWI	17	28.4	23	17.5	19	1.6	74.5	8.6	7	5.3	6	<LOQ	22.7
TOM	29	19.6	14	13.3	12	3.8	52.4	5.9	4	4.0	4	1.2	15.9
WLO	14	20.9	21	14.1	8	1.6	66.7	6.4	6	4.3	2	<LOQ	20.3
Sex													
Female	125	13.8	13	10.2	8	1.6	72.0	4.2	4	3.1	3	<LOQ	21.9
Male	96	19.0	21	12.1	10	1.6	119.7	5.8	6	3.7	3	<LOQ	36.4

Supplementary Table S4. Differences in liver Hg concentrations in rodents between study sites. The results are expressed as marginal means with standard error and confidence intervals calculated based on the GLM model and averaged by species and sex, and back-transformed from the log scale (in µg/kg of wet weight). Differences between estimated marginal means were verified using the Tukey test on log scale values.

County	Mean ± SE	CI	p-value											
			DAB	GLW	LUB	NIS	OSW	PRZ	RAW	SRD	STA	SWI	TOM	WLO
DAB	15 ± 4	9.3–24.3	-	ns	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	ns	<0.01	<0.01
GLW	7.9 ± 2	5–12.6	ns	-	<0.01	<0.01	<0.01	<0.001	ns	ns	<0.0001	ns	ns	ns
LUB	2.2 ± 1	1.2–3.8	<0.0001	<0.01	-	ns	ns	ns	ns	ns	ns	ns	ns	ns
NIS	2.7 ± 1	1.8–4	<0.0001	<0.01	ns	-	ns	ns	ns	ns	ns	ns	ns	ns
OSW	3.3 ± 1	2.2–4.8	<0.0001	<0.01	ns	ns	-	ns	ns	ns	<0.05	ns	ns	ns
PRZ	2.4 ± 1	1.6–3.5	<0.0001	<0.001	ns	ns	ns	-	ns	ns	ns	<0.05	ns	ns
RAW	3.8 ± 1	2.7–5.5	<0.0001	ns	ns	ns	ns	ns	-	ns	<0.01	ns	ns	ns
SRD	3.7 ± 1	2.5–5.4	<0.0001	ns	ns	ns	ns	ns	ns	-	<0.01	ns	ns	ns
STA	1.5 ± 0	1–2.3	<0.0001	<0.0001	ns	ns	<0.05	ns	<0.01	<0.01	-	<0.0001	<0.0001	<0.0001
SWI	6.1 ± 1	4.2–9	ns	ns	ns	ns	ns	<0.05	ns	ns	<0.0001	-	ns	ns
TOM	4.9 ± 1	3.4–6.8	<0.01	ns	ns	ns	ns	ns	ns	ns	<0.0001	ns	-	ns
WLO	4.9 ± 1	3.1–7.6	<0.01	ns	ns	ns	ns	ns	ns	ns	<0.0001	ns	ns	-

ns—not significant.

Supplementary Table S5. Differences in liver Hg concentrations in rodents between species of rodents. The results are expressed as marginal means with standard error and confidence intervals calculated based on the GLM model and averaged by study site and sex, and back-transformed from the log scale (in µg/kg of wet weight). Differences between estimated marginal means were verified using the Tukey test on log scale values.

Species	Mean ± SE	CI	p-value			
			<i>A. agrarius</i>	<i>A. flavicollis</i>	<i>M. arvalis</i>	<i>M. glareolus</i>
<i>A. agrarius</i>	4.3 ± 0	3.5–5.3	-	0.0022	ns	ns
<i>A. flavicollis</i>	2.7 ± 0	2.3–3.1	0.0022	-	0.0045	ns
<i>M. arvalis</i>	4.6 ± 1	3.6–6.2	ns	0.0045	-	ns
<i>M. glareolus</i>	4.7 ± 2	2–11.2	ns	ns	ns	-

ns—not significant.

Supplementary Table S6. Differences in liver Hg concentrations in rodents between females and males. The results are expressed as marginal means with standard error and confidence intervals calculated based on the GLM model and averaged by site and species, and back-transformed from the log scale (in $\mu\text{g/kg}$ of wet wt.). Differences between estimated marginal means were verified using the Tukey test on log scale values.

Sex	Mean $\pm$ SE	CI	<i>p</i> -value	
			Females	Males
Females	3.4 $\pm$ 0	2.7–4.4	-	0.0017
Males	4.7 $\pm$ 1	3.6–6.1	0.0017	-