

Supplementary data for the article:

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Supplementary material

Biomarkers of oxidative stress and metal accumulation in marsh frog (*Pelophylax ridibundus*)

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Content

Table S1. Pearson correlations for the relationship between the biomarkers SOD, CAT, GSH-Px, GR, GST, GSH, -SH, and AChE, and metals in the liver, skin and muscle of *P. ridibundus*.

DTD**Liver**

	Al	As	Ba	Ca	Cd	Cr	Cu	Fe	Hg	In	Li	Mn	Ni	Pb	Sr	Zn
SOD	-0.1875	0.0158	-0.2220	-0.1348	0.3050	0.0239	0.3697	0.5941	0.6824	0.5974	0.0888	0.1143	-0.0234	-0.2824	0.1113	-0.3549
CAT	-0.0868	0.1632	-0.3588	-0.0750	0.3729	-0.1041	0.1188	0.3405	0.4924	0.0162	-0.3475	0.0174	0.0960	-0.1850	0.1886	-0.7248
GSH-Px	0.2034	0.0557	-0.2179	0.0162	0.2823	0.3343	0.3000	0.2556	0.5018	0.2308	0.0544	0.1131	0.0824	0.1143	0.1350	-0.3378
GR	0.2174	0.0872	-0.0951	0.1065	0.2083	0.1820	0.1077	0.1260	0.3569	-0.1650	-0.2769	0.0561	0.0157	0.0630	0.1597	-0.3866
GST	-0.0809	0.2110	-0.3738	-0.1663	0.3436	-0.0697	0.1830	0.3893	0.5422	0.1788	-0.2165	-0.0311	0.1627	-0.1826	0.1016	-0.6676
GSH	0.1018	-0.5018	0.1075	0.0750	0.3730	0.0871	0.1359	0.4202	0.2611	0.4915	0.3032	0.4770	-0.4411	-0.2903	0.2004	0.1645
SH	-0.1047	0.0103	-0.4812	-0.1157	0.5733	-0.1878	0.0689	0.2072	0.4106	0.0048	-0.3491	0.1009	-0.0536	-0.2692	0.1887	-0.7486
ACHe	-0.0119	0.4883	-0.1764	-0.4828	0.0547	-0.3285	-0.0502	0.2061	0.1644	0.0024	-0.1962	-0.5124	0.5523	-0.0581	-0.4124	-0.5334

Skin

	Al	As	Ba	Ca	Cd	Cr	Cu	Fe	Hg	In	Li	Mn	Ni	Pb	Sr	Zn
SOD	-0.1487	0.0000	0.3069	0.1767	0.4002	0.0555	0.3999	0.3499	0.1844	0.3815	-0.0839	0.2973	0.4030	0.4264	-0.3480	0.3845
CAT	0.3378	0.0000	-0.2469	0.1287	-0.6036	0.2014	-0.6024	-0.3617	0.2430	0.5364	-0.1181	-0.5841	-0.6003	-0.6382	-0.1551	-0.6006
GSH-Px	-0.0102	0.0000	0.1706	0.3638	0.2966	0.3603	0.2913	0.4504	0.3114	-0.3467	0.3179	0.3142	0.2924	0.2835	-0.2693	0.2811
GR	-0.0261	0.0000	-0.0332	0.2223	-0.1746	0.1949	-0.1744	0.0253	0.3259	0.2032	0.0573	-0.2524	-0.1742	-0.0656	-0.0452	-0.1698
GST	-0.0374	0.0000	0.2441	0.3903	0.0175	0.1202	0.0179	0.1470	0.3337	0.4140	0.0792	0.0454	0.0219	0.0039	-0.2395	0.0270
GSH	-0.1283	0.0000	0.5270	0.1067	0.2152	0.0431	0.2217	0.2066	0.0607	0.0652	0.1625	0.2284	0.2189	0.2483	-0.0500	0.2465
SH	-0.1761	0.0000	-0.3231	-0.0805	-0.3125	0.2430	-0.3150	-0.3423	-0.1764	0.3820	-0.2057	-0.2776	-0.3140	-0.2911	-0.0651	-0.3511
ACHe	0.1806	0.0000	0.6815	0.2126	0.9691	0.1247	0.9685	0.8541	0.1347	-0.3250	0.2583	0.9255	0.9694	0.9393	-0.3092	0.9706

Muscle

	Al	As	Ba	Ca	Cd	Cr	Cu	Fe	Hg	In	Li	Mn	Ni	Pb	Sr	Zn
SOD	-0.2620	-0.2683	0.1807	0.2171	0.5396	0.0906	0.2677	0.0616	0.0063	0.4218	-0.0628	0.5413	-0.0626	0.0000	0.0978	0.2136
CAT	0.0739	0.7592	-0.0166	-0.2335	-0.3357	-0.2564	-0.4062	0.5590	0.9042	0.2630	-0.4739	-0.2081	-0.2207	0.0000	0.0302	-0.4620
GSH-Px	0.4122	-0.0157	0.1043	0.0661	0.4063	0.0082	0.5831	0.2574	0.2466	0.5085	-0.0944	0.2076	-0.1905	0.0000	0.0857	0.2604
GR	0.6316	0.3381	-0.2942	-0.2982	0.0620	-0.3546	0.4530	0.1530	0.2656	0.2279	-0.2625	-0.2215	-0.1555	0.0000	-0.2851	-0.0118

GST	0.7162	0.5333	-0.0561	-0.5234	-0.4037	-0.4236	0.4071	0.3112	0.4706	-0.0824	-0.4980	-0.3204	-0.1327	0.0000	-0.3825	-0.3928
GSH	0.4427	0.1477	0.3707	-0.1974	-0.1285	-0.1834	0.5835	0.3625	0.3979	0.1090	-0.4176	0.1218	-0.3026	0.0000	-0.0738	-0.1734
SH	0.3237	0.6321	-0.0899	-0.5460	-0.3885	-0.6164	-0.1649	0.3225	0.6362	-0.1077	-0.0998	-0.5022	-0.7127	0.0000	-0.2832	0.0046
AChE	0.1817	0.0662	0.4890	-0.0876	-0.3960	0.0836	0.1515	0.2015	0.2662	-0.1483	-0.2429	0.0871	-0.0416	0.0000	0.1188	-0.3508

Ponjavica

Skin

	Al	As	Ba	Ca	Cd	Cr	Cu	Fe	Hg	In	Li	Mn	Ni	Pb	Sr	Zn
SOD	0.1325	-0.3702	-0.2821	-0.5638	0.4772	-0.2315	0.4747	-0.2549	0.1377	-0.5397	-0.5592	-0.3842	0.4868	0.5393	-0.6270	-0.2170
CAT	-0.1889	-0.0838	0.0651	-0.2631	0.0345	-0.0073	0.0066	-0.1666	0.5393	-0.0827	-0.2354	-0.1739	-0.0014	0.0049	0.0503	0.6281
GSH-Px	0.1962	-0.0193	-0.0489	-0.1787	0.1773	-0.2237	0.1863	0.0171	0.2377	-0.1134	-0.1146	0.0769	0.1744	0.3524	0.0967	-0.0362
GR	0.3055	-0.0446	-0.2957	-0.4366	0.3176	-0.0528	0.3510	0.0598	0.0232	-0.5511	-0.3168	-0.0484	0.3510	0.3428	-0.4401	-0.2174
GST	0.1629	-0.2280	-0.3301	-0.5977	0.3063	-0.0707	0.3421	-0.0791	0.1935	-0.5303	-0.4698	-0.1868	0.3426	0.3684	-0.5720	-0.4095
GSH	-0.1718	-0.1210	-0.5763	-0.2170	-0.3729	0.1092	-0.2890	-0.0752	-0.5429	-0.3320	-0.0135	0.0580	-0.3015	-0.2722	-0.2503	-0.4242
SH	-0.2211	0.0317	-0.0744	0.2882	-0.1568	-0.1175	-0.1055	-0.2213	-0.1431	0.5637	0.1681	-0.2565	-0.1489	-0.3048	0.5729	0.6845
AChE	-0.1595	-0.4410	-0.0453	0.4851	0.2375	0.0230	0.1971	-0.4546	-0.5351	-0.5281	0.3153	-0.1849	0.2342	0.3728	0.0380	0.1105

Muscle

	Al	As	Ba	Ca	Cd	Cr	Cu	Fe	Hg	In	Li	Mn	Ni	Pb	Sr	Zn
SOD	0.5204	-0.7718	-0.1033	0.3930	0.5789	0.4168	-0.0588	-0.0473	0.5352	0.2346	0.2899	0.0752	0.3183	-0.1568	0.1385	-0.0573
CAT	0.1609	-0.0991	-0.4525	-0.2123	0.0947	0.7471	0.6904	0.1181	0.2159	0.7710	-0.4099	-0.6024	0.8785	-0.3696	-0.3939	-0.6083
GSH-Px	-0.4797	-0.0557	0.4955	-0.1446	0.2850	-0.4880	-0.3055	0.0446	0.0197	-0.4111	-0.2346	0.5748	-0.5323	0.4117	0.2712	0.2566
GR	0.0816	-0.6719	-0.0887	-0.0384	0.1158	-0.1080	0.1075	-0.1884	-0.0663	-0.1594	-0.2114	0.1045	-0.1172	0.6253	-0.0776	-0.0762
GST	0.5606	-0.5082	0.2506	0.5858	0.6294	0.3794	-0.2108	-0.0268	0.8360	0.3136	0.3178	0.3991	0.2254	0.0209	0.3400	0.0064
GSH	0.3698	-0.1914	0.0532	0.2746	-0.3154	0.4130	0.0837	0.3028	0.1754	0.2241	0.6452	-0.0652	0.2574	-0.2337	0.1411	-0.0858
SH	-0.8872	0.2237	0.1044	-0.3754	0.0889	-0.5024	0.1911	0.2567	-0.2864	-0.3950	-0.5564	0.0611	-0.2331	0.1991	0.1091	0.3664
AChE	0.2573	-0.3291	-0.1888	0.0077	-0.2006	0.6610	0.7031	0.3008	0.2103	0.5715	-0.2373	-0.3354	0.7327	-0.1792	-0.1927	-0.4562

Fruska Gora

Liver

	Al	As	Ba	Ca	Cd	Cr	Cu	Fe	Hg	In	Li	Mn	Ni	Pb	Sr	Zn
SOD	-0.4730	0.0135	0.3693	-0.7540	-0.0634	-0.7226	-0.3477	0.2827	0.5679	-0.0211	0.5305	-0.5059	0.0799	0.5117	-0.8494	-0.5405

CAT	-0.3673	0.5403	0.8931	-0.3183	0.2001	-0.6312	0.0387	0.0570	0.4814	-0.5871	0.8076	-0.5149	-0.6379	0.6558	-0.2621	-0.7560
GSH-Px	0.2060	-0.6464	-0.3683	-0.3518	0.8180	0.6634	0.3509	-0.9059	-0.8285	0.5608	0.1116	0.1394	-0.3457	0.2585	0.5631	-0.2205
GR	-0.0693	-0.2154	0.4032	-0.6023	0.7774	-0.2067	0.3643	-0.4371	-0.0060	-0.2019	0.9180	-0.6236	-0.5530	0.9387	-0.0897	-0.9562
GST	-0.1146	-0.0286	0.4429	-0.4203	0.1418	-0.7516	0.1240	0.3794	0.7030	-0.5711	0.8378	-0.8982	0.0420	0.8178	-0.7571	-0.8117
GSH	0.1400	-0.0285	-0.0375	0.1188	0.5693	0.6991	0.3075	-0.8336	-0.8064	0.2831	-0.0884	0.4531	-0.6776	-0.0796	0.9322	0.0458
SH	0.0454	-0.6582	-0.1996	-0.6418	0.6749	0.1557	0.2156	-0.5293	-0.3333	0.3655	0.4236	-0.2891	-0.1142	0.5638	-0.0491	-0.5187
AChE	-0.4001	0.1530	0.2531	-0.4791	0.4773	0.3837	-0.1659	-0.8806	-0.6793	0.6088	0.0292	0.5243	-0.8476	-0.0068	0.5920	-0.0954

Skin

	Al	As	Ba	Ca	Cd	Cr	Cu	Fe	Hg	In	Li	Mn	Ni	Pb	Sr	Zn
SOD	-0.0599	-0.6032	0.0356	-0.0895	-0.2684	-0.4440	-0.2486	0.3399	0.5760	0.3651	-0.5459	-0.4050	-0.0838	0.0822	-0.8457	0.0454
CAT	0.6804	-0.4620	0.2991	0.6119	-0.1465	-0.0208	-0.2378	-0.1533	-0.1574	0.7630	-0.6926	-0.0683	0.2167	-0.2625	-0.4942	0.7755
GSH-Px	-0.6220	0.2626	-0.3023	-0.7286	-0.4929	-0.7770	-0.3710	-0.3137	0.0789	-0.5164	0.1192	-0.3382	-0.6418	-0.0890	-0.2835	-0.3481
GR	-0.1197	-0.6724	0.0467	-0.1625	0.0924	-0.1889	-0.0637	0.3982	0.5965	0.0366	-0.4357	-0.3431	0.2409	0.3750	-0.7328	-0.4203
GST	-0.1368	-0.6762	0.0698	-0.2564	0.0064	-0.2857	-0.2292	0.0782	0.3477	0.0365	-0.4040	-0.3393	0.0703	0.3728	-0.8124	-0.1299
GSH	0.2546	-0.0677	0.4221	0.0261	0.6018	0.1623	0.5788	0.3520	0.0273	0.0136	0.4488	0.6899	0.5793	0.5687	0.3164	0.2166
SH	0.4087	0.6151	0.3187	0.2688	0.2667	0.1998	0.4024	0.0018	-0.4162	0.0941	0.4919	0.7035	0.0975	0.0538	0.6696	0.5129
AChE	0.5023	-0.2618	-0.1568	0.5477	-0.0161	0.2304	-0.0907	0.2550	-0.1490	0.5521	-0.5655	-0.1818	0.3246	0.1319	-0.3868	0.0494

Muscle

	Al	As	Ba	Ca	Cd	Cr	Cu	Fe	Hg	In	Li	Mn	Ni	Pb	Sr	Zn
SOD	0.3024	0.0977	-0.1191	0.0088	-0.5501	-0.4700	0.1899	0.4636	0.4416	0.5063	-0.3394	-0.2245	0.0164	-0.6134	-0.2944	-0.0560
CAT	0.6968	0.1516	0.0877	-0.2757	-0.2099	-0.1845	-0.1345	0.5346	0.6146	0.2754	-0.0732	0.0620	-0.0444	-0.1836	-0.0345	0.2126
GSH-Px	0.5812	-0.0026	0.2840	-0.0605	-0.3230	-0.2837	0.1928	0.1468	0.1528	0.2018	-0.1394	0.0003	0.1344	-0.4367	-0.0786	-0.1064
GR	-0.1237	0.1530	-0.2195	0.5983	0.0070	-0.3958	0.5146	0.3632	0.2060	-0.0609	-0.1104	0.0591	-0.1959	-0.2767	-0.0978	0.1610
GST	0.2118	-0.2222	-0.0114	0.0089	-0.0033	-0.5395	0.2148	-0.0669	-0.1712	0.0739	0.2607	0.2766	0.1619	-0.4286	0.2918	0.0404
GSH	0.3538	0.4502	0.2115	0.1052	-0.4871	-0.6323	0.3553	0.6263	0.6023	0.5729	-0.1228	-0.0367	0.0965	-0.4037	-0.0556	0.1341
SH	-0.0954	-0.5792	-0.2999	-0.2549	0.2003	0.6542	-0.4447	-0.6694	-0.4254	-0.3917	-0.2678	-0.3253	-0.1588	0.0235	-0.3145	-0.5846
AChE	-0.3081	-0.1249	-0.1716	-0.2664	-0.2320	-0.2921	-0.1565	-0.2622	-0.1511	0.3746	-0.1957	-0.4032	0.1061	-0.1511	-0.2067	-0.5525