Supplementary Information

For

Assessing the potential of urban trees to accumulate potentially toxic elements: a network approach

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Table S1. Potentially toxic elements concentrations (PTEs) in the leaves of selected urban tree species (mg kg^{-1} d.w.), average and standard deviation (Std Dev).

Tree species	Sampling sites	Al	B	Cr	Cu	Fe	Mn	Ni	Pb	Sr	Zn
A. platanoides	Pancevo	204.30	56.85	1.60	6.42	275.42	92.36	0.54	0.53	30.58	18.47
	Smederevo	124.62	106.55	2.24	7.06	274.36	31.98	0.46	0.29	39.05	16.16
	Obrenovac	124.41	77.80	2.27	6.10	161.87	26.92	0.61	0.32	47.80	18.88
	Belgrade I	155.98	130.66	1.07	6.77	181.24	345.86	0.65	0.37	140.07	22.13
	Belgrade II	124.74	60.93	2.50	6.37	170.66	66.49	0.63	0.47	56.65	30.56
Average	**Study area**	**146.81**	**86.56**	**1.94**	**6.54**	**212.71**	**112.72**	**0.58**	**0.40**	**62.83**	**21.24**
Std Dev		**34.90**	**31.47**	**0.59**	**0.38**	**57.18**	**133.03**	**0.08**	**0.10**	**44.26**	**5.63**
A. pseudoplatanus	Pancevo	130.52	88.35	0.35	5.71	182.35	114.24	0.47	0.39	43.18	27.46
	Smederevo	103.37	143.13	0.66	3.86	216.78	88.76	0.51	0.32	68.48	20.35
	Obrenovac	138.27	93.29	1.47	10.61	163.22	23.12	0.61	0.32	39.87	28.72
	Belgrade I	299.85	73.72	0.88	15.73	488.63	62.43	0.77	0.77	64.09	42.86
	Belgrade II	144.36	81.34	2.01	7.34	220.83	60.93	0.64	0.37	54.56	26.80
Average	**Study area**	**163.28**	**95.97**	**1.07**	**8.65**	**254.36**	**69.89**	**0.60**	**0.43**	**54.04**	**29.24**
Std Dev		**77.94**	**27.38**	**0.66**	**4.67**	**133.15**	**34.08**	**0.12**	**0.19**	**12.54**	**8.28**
B. pendula	Pancevo	112.08	46.78	1.09	4.21	137.05	88.73	< dl	< dl	30.78	31.36
	Smederevo	114.25	144.09	1.25	3.88	253.12	30.11	< dl	< dl	38.39	45.30
	Obrenovac	180.72	65.36	1.53	4.55	196.30	21.67	< dl	< dl	35.76	36.45
	Belgrade I	151.28	238.28	0.93	4.86	168.00	25.72	< dl	< dl	48.74	292.20
	Belgrade II	96.42	73.09	1.82	4.77	125.96	35.05	< dl	< dl	29.19	35.32
Average	**Study area**	**130.95**	**113.52**	**1.32**	**4.45**	**176.09**	**40.25**	**< dl**	**< dl**	**36.57**	**88.12**
Std Dev		**34.35**	**78.91**	**0.35**	**0.41**	**51.10**	**27.55**	**0.00**	**0.00**	**7.75**	**114.19**
Tilia sp.	Pancevo	210.27	51.68	0.96	6.41	265.62	40.91	0.47	0.50	33.72	18.66
	Smederevo	188.29	80.27	1.29	3.15	340.72	38.48	0.46	0.31	46.45	17.93
	Obrenovac	84.77	92.16	0.46	4.20	101.69	15.85	0.65	0.41	67.06	23.16
	Belgrade I	142.75	489.31	0.62	5.46	206.47	25.33	0.64	0.60	77.34	36.15
	Belgrade II	125.77	195.98	0.76	6.32	167.24	48.91	0.68	0.39	61.44	15.56
Average	**Study area**	**150.37**	**181.88**	**0.82**	**5.11**	**216.35**	**33.90**	**0.58**	**0.44**	**57.20**	**22.29**
Std Dev		**49.98**	**180.30**	**0.32**	**1.41**	**91.59**	**13.18**	**0.11**	**0.11**	**17.23**	**8.22**
J. regia	Pancevo	115.99	196.50	0.99	4.54	155.02	45.03	0.52	0.43	36.67	17.12
	Smederevo	135.66	248.25	1.13	4.16	327.99	24.13	0.49	0.27	52.90	18.49
	Obrenovac	115.58	178.65	0.66	5.65	192.95	56.21	0.70	0.44	62.72	23.92
	Belgrade I	103.26	138.30	0.45	4.78	131.35	122.38	0.77	0.43	112.98	39.03
	Belgrade II	107.41	139.35	0.72	9.12	157.42	33.30	1.04	0.47	48.33	21.05
Average	**Study area**	**115.58**	**180.21**	**0.79**	**5.65**	**192.95**	**56.21**	**0.70**	**0.41**	**62.72**	**23.92**
Std Dev		**12.47**	**45.61**	**0.27**	**2.01**	**78.63**	**38.91**	**0.22**	**0.08**	**29.61**	**8.84**
A. hippocastanum	Pancevo	265.58	35.08	0.66	5.34	324.27	66.84	0.71	< dl	35.96	16.10
	Smederevo	203.53	158.44	0.97	2.84	449.16	39.43	< dl	< dl	48.43	15.42
	Obrenovac	141.84	63.67	0.43	4.83	203.52	20.98	< dl	< dl	30.88	14.27
	Belgrade I	293.43	123.42	0.58	16.04	644.07	72.98	0.97	< dl	90.84	42.52
	Belgrade II	153.22	54.29	0.48	10.44	226.58	27.62	0.91	< dl	50.23	18.90
Average	**Study area**	**211.52**	**86.98**	**0.62**	**7.90**	**369.52**	**45.57**	**0.52**	**< dl**	**51.27**	**21.44**
Std Dev		**66.99**	**51.81**	**0.21**	**5.34**	**181.49**	**23.28**	**0.48**	**0.00**	**23.59**	**11.91**
P. acerifolia	Pancevo	121.39	36.17	1.03	4.75	140.07	62.58	0.45	< dl	52.89	9.25
	Smederevo	123.32	87.92	1.00	2.33	280.89	26.11	0.51	< dl	28.74	11.73
	Obrenovac	77.34	72.51	0.83	4.08	104.87	51.37	0.56	< dl	34.54	16.70
	Belgrade I	118.92	59.44	2.14	15.52	211.40	27.36	0.91	< dl	106.23	23.68
	Belgrade II	111.98	53.59	0.73	7.45	161.52	51.66	0.68	< dl	49.05	16.68

	Study area									
Average	**Study area**	**110.59**	**61.92**	**1.15**	**6.83**	**179.75**	**43.81**	**0.62**	**< dl**	**54.29**	**15.61**
Std Dev		**19.08**	**19.54**	**0.57**	**5.19**	**68.46**	**16.24**	**0.18**	**0.00**	**30.70**	**5.54**
P. nigra I	Pancevo	35.66	17.75	0.50	4.49	56.17	16.34	0.47	0.40	8.22	21.33
	Smederevo	54.97	29.51	0.82	2.80	105.05	17.64	0.69	0.26	8.36	24.61
	Obrenovac	39.67	24.06	0.35	3.69	46.25	13.83	0.84	0.32	8.40	21.41
	Belgrade I	53.27	22.77	1.08	3.90	71.82	23.26	0.65	0.37	9.80	26.63
	Belgrade II	51.36	16.23	0.40	5.06	74.11	16.58	0.57	0.79	8.77	29.40
Average	**Study area**	**46.99**	**22.06**	**0.63**	**3.99**	**70.68**	**17.53**	**0.65**	**0.43**	**8.71**	**24.68**
Std Dev		**8.72**	**5.31**	**0.31**	**0.85**	**22.37**	**3.50**	**0.14**	**0.21**	**0.64**	**3.46**
P. nigra II	Pancevo	115.34	25.84	0.94	2.93	170.29	25.57	0.50	0.43	12.49	19.28
	Smederevo	100.10	43.89	1.24	2.56	227.29	24.84	0.49	0.34	11.34	38.85
	Obrenovac	104.70	32.42	0.74	2.52	101.68	17.54	0.57	0.58	11.84	14.80
	Belgrade I	107.59	57.74	1.21	3.12	152.98	45.00	0.59	0.42	18.68	29.09
	Belgrade II	111.43	23.42	0.74	6.53	172.66	19.09	0.56	0.93	11.50	17.09
Average	**Study area**	**107.83**	**36.66**	**0.97**	**3.53**	**164.98**	**26.41**	**0.54**	**0.54**	**13.17**	**23.82**
Std Dev		**5.89**	**14.21**	**0.24**	**1.69**	**45.06**	**10.97**	**0.05**	**0.23**	**3.11**	**10.01**

Table S2. Pearson's correlations between the content of PTEs in leaves and the ecophysiological response of the studied species.

		Chl a	Chl b	Chl a+b	Chl a/b	Tot Carot	Fv/Fm
Study area	Al	0.677**	0.650**	0.673**	-0.142	0.680**	0,399**
	B	0.237	0.207	0.229	-0.094	0.344*	0.252
	Cr	0.219	0.254	0.232	-0.107	0.202	0.279
	Cu	0.383**	0.382**	0.385**	-0.088	0.437**	0.365*
	Fe	0.621**	0.604**	0.320**	-0.164	0.603**	0.289
	Mn	0.169	0.201	0.181	-0.230	0.229	0.236
	Ni	-0.121	-0.060	-0.102	-0.176	-0.072	-0.092
	Pb	-0.244	-0.163	-0.219	-0.286	-0.215	-0.380**
	Sr	0.401**	0.371*	0.394**	-0.101	0.485**	0.560**
	Zn	-0.049	-0.095	-0.064	0.279	-0.034	0.056

** Correlation is significant at the 0.01 level (2-tailed), * Correlation is significant at the 0.05 level (2-tailed)

Table S3. Content of Chl a, Chl b, Chl a+b, Chl a/b and Tot Carot (mg g⁻¹ d.w.) and photosynthetic efficiency (Fv/Fm) of selected urban tree species, average and standard deviation (Std Dev).

Tree species	Sampling sites	Chl a	Chl b	Chl a+b	Chl a/b	Tot carot	Fv/Fm
A. platanoides	Pancevo	6.46	3.19	9.66	2.29	1.84	0.77
	Smederevo	4.81	2.84	7.65	1.88	1.47	0.78
	Obrenovac	6.76	3.48	10.25	2.05	1.66	0.78
	Belgrade I	3.04	1.51	4.55	2.28	1.04	0.77
	Belgrade II	3.59	1.50	5.09	2.63	1.18	0.80
Average	**Study area**	**4.93**	**2.50**	**7.44**	**2.23**	**1.44**	**0.77**
Std Dev		**1.66**	**0.94**	**2.58**	**0.28**	**0.33**	**0.02**
A. pseudoplatanus	Pancevo	6.25	3.12	9.38	2.27	1.62	0.71
	Smederevo	6.60	2.90	9.50	2.67	1.61	0.69
	Obrenovac	4.83	2.45	7.29	2.22	1.48	0.72
	Belgrade I	6.42	3.15	9.57	2.25	1.90	0.75
	Belgrade II	3.84	1.91	5.75	2.11	1.35	0.78
Average	**Study area**	**5.59**	**2.71**	**8.30**	**2.30**	**1.59**	**0.73**
Std Dev		**1.20**	**0.53**	**1.71**	**0.21**	**0.21**	**0.03**
B. pendula	Pancevo	4.58	1.74	6.31	2.72	1.38	0.79
	Smederevo	3.60	1.76	5.36	2.38	1.14	0.78
	Obrenovac	5.18	2.00	7.19	2.65	1.29	0.78
	Belgrade I	3.03	1.07	4.10	3.14	0.95	0.76
	Belgrade II	4.34	1.80	6.15	2.81	1.20	0.82
Average	**Study area**	**4.15**	**1.67**	**5.82**	**2.74**	**1.19**	**0.79**
Std Dev		**0.84**	**0.36**	**1.16**	**0.28**	**0.17**	**0.02**
Tilia sp.	Pancevo	4.90	1.88	6.78	2.85	1.49	0.80
	Smederevo	7.94	3.36	11.30	2.70	1.47	0.79
	Obrenovac	2.89	1.07	3.96	3.15	0.93	0.77
	Belgrade I	3.76	1.46	5.22	2.65	1.22	0.69
	Belgrade II	5.09	2.00	7.10	2.80	1.37	0.81
Average	**Study area**	**4.92**	**1.95**	**6.87**	**2.83**	**1.30**	**0.77**
Std Dev		**1.91**	**0.87**	**2.78**	**0.19**	**0.23**	**0.05**
J. regia	Pancevo	3.03	1.42	4.46	2.30	1.18	0.75
	Smederevo	4.60	2.13	6.73	2.05	1.54	0.76
	Obrenovac	3.56	1.74	5.23	2.09	1.33	0.76
	Belgrade I	2.58	1.36	3.95	1.88	1.10	0.77
	Belgrade II	4.02	2.04	6.06	2.11	1.50	0.77
Average	**Study area**	**3.56**	**1.74**	**5.30**	**2.09**	**1.33**	**0.76**
Std Dev		**0.79**	**0.35**	**1.13**	**0.15**	**0.19**	**0.01**
A. hippocastanum	Pancevo	4.92	2.47	7.39	2.18	1.47	0.77
	Smederevo	6.16	2.71	8.87	2.33	1.71	0.76
	Obrenovac	5.02	2.11	7.13	2.68	1.46	0.74
	Belgrade I	6.63	2.71	9.34	2.76	1.76	0.76
	Belgrade II	4.80	2.25	7.06	2.35	1.40	0.76

Average	**Study area**	**5.51**	**2.45**	**7.96**	**2.46**	**1.56**	**0.76**
Std Dev		**0.83**	**0.27**	**1.07**	**0.24**	**0.16**	**0.01**
P. acerifolia	Pancevo	3.61	1.43	5.04	2.67	1.14	0.78
	Smederevo	2.16	1.07	3.23	2.60	0.70	0.73
	Obrenovac	2.72	1.27	3.99	2.54	0.93	0.76
	Belgrade I	3.74	1.35	5.09	3.14	1.00	0.82
	Belgrade II	3.13	1.10	4.23	2.81	0.82	0.79
Average	**Study area**	**3.07**	**1.25**	**4.32**	**2.75**	**0.92**	**0.78**
Std Dev		**0.65**	**0.15**	**0.78**	**0.24**	**0.17**	**0.03**
P. nigra I	Pancevo	0.79	0.30	1.08	2.85	0.26	0.54
	Smederevo	0.96	0.38	1.34	2.69	0.31	0.61
	Obrenovac	1.16	0.43	1.59	2.76	0.37	0.63
	Belgrade I	1.02	0.45	1.47	2.44	0.32	0.59
	Belgrade II	1.06	0.54	1.60	2.28	0.33	0.69
Average	**Study area**	**1.00**	**0.42**	**1.42**	**2.60**	**0.32**	**0.61**
Std Dev		**0.14**	**0.09**	**0.21**	**0.24**	**0.04**	**0.05**
P. nigra II	Pancevo	0.77	0.32	1.10	2.62	0.25	0.49
	Smederevo	1.05	0.43	1.48	2.82	0.34	0.49
	Obrenovac	1.05	0.36	1.41	2.99	0.33	0.55
	Belgrade I	0.82	0.34	1.16	2.60	0.25	0.55
	Belgrade II	0.87	0.46	1.33	2.12	0.28	0.62
Average	**Study area**	**0.91**	**0.38**	**1.29**	**2.63**	**0.29**	**0.54**
Std Dev		**0.13**	**0.06**	**0.16**	**0.33**	**0.04**	**0.05**