Supplementary material for the paper:

The impact of the long- term clinoptilolite administration on the concentration profile of metals in rodent organisms

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Sadržaj

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1. Physiological levels of minerals and metals measured in Wister rats

Supplementary Table S1. Physiological levels of metals and minerals determined from rat plasma and organs as a measure of physiological concentrations of metals and minerals. Concentrations of measured elements in plasma are expressed as mg/l or µg/l, and concentrations of measured elements in organs are expressed as mg/kg or µg/kg.

Element								
ORGAN	**Na**	**Mg**	**Al**	**Si**	**p**	**Ca**	**Fe**	**Mn**
Concentration	**mg/l**	**mg/l**	**mg/l**	**mg/l**	**mg/l**	**mg/l**	**mg/l**	**mg/l**
Plasma	3274,08	23,86	7,80	3,73	137,77	105,69	8,02	2,55
Concentration	**mg/kg**	**mg/kg**	**mg/kg**	**mg/kg**	**mg/kg**	**mg/kg**	**mg/kg**	**mg/kg**
Brain	1270,21	199,00	247,00	1,81	3243,51	4602,72	185,89	19,68
Lung	1650,21	104,54	637,06	2,84	1974,49	3257,28	120,60	108,12
Femur	7681,03	5747,96	952,41	6,18	128332,22	2202,11	313003,38	62,28
Liver	622,33	172,96	175,97	2,70	2666,46	4014,76	39,43	450,53
Ovary	1076,82	128,08	128,08	4,93	1520,03	2299,95	56,25	70,78
Kidney	1689,43	224,34	369,14	1,71	2838,43	2989,42	88,51	99,54

Element								
ORGAN	**Na**	**Mg**	**Al**	**Si**	**p**	**Ca**	**Fe**	**Mn**
Concentration	**mg/l**	**mg/l**	**mg/l**	**mg/l**	**mg/l**	**mg/l**	**mg/l**	**mg/l**
Plasma	0,80	1660,90	1620,02	42,25	382,24	0,04	0,67	0,22
Concentration	**mg/kg**	**mg/kg**	**mg/kg**	**mg/kg**	**mg/kg**	**mg/kg**	**mg/kg**	**mg/kg**
Brain	444,85	4,31	2888,26	14112,51	55,27	121,54	0,10	1,60
Lung	223,89	7,98	1925,11	26886,11	936,46	319,85	0,87	4,30
Femur	570,47	215,72	877,26	215596,06	151,66	108,55	0,74	17,74
Liver	2855,95	21,19	5446,44	33970,60	418,85	1429,98	13,20	2,48
Ovary	281,48	5,47	1107,54	13412,21	130,35	197,19	0,94	5,25
Kidney	977,90	320,88	15719,06	27243,05	154,32	1367,15	28,78	11,95

2. Chemical composition and particle size of tested zeolite materials

2.1. Chemical Composition

SiO2: 65,0 - 71,3 %
Fe2O3: 0,7 - 1,9 %
Al2O3: 11,5 - 13,1 %
MgO: 0,6 - 1,2 %
CaO: 2,7 - 5,2 %

Na2O: 0,2 - 1,3 %
K2O: 2,2 - 3,4 %
TiO2: 0,1 - 0,3 %

2.2. Mineralogical Composition

Clinoptilolite 86 %
Quarz 2 %
Cristobalite 6 %
Biotite 5 %
Illite - traces
Feldspar traces
Carbonate-mineral traces

2.3. Ion selectivity

Cs+ > NH4 + > Pb2+ > K+ > Na+ > Ca2+ > Mg2+ > Ba2+ > Cu2+, Zn2

2.4. Heavy metals

Pb, lead ≤ 14mg / kg
Hg, mercury ≤ 3 mg / kg
As, arsenic ≤ 1.5 mg / kg
Cd, cadmium ≤ 0.5 mg / kg
Co, cobalt ≤ 5 mg / kg
Va, vanadium ≤ 10 mg / kg
Ni, nickel ≤ 20 mg / kg

2.5. Particle size

10% of particles = 1,2 µm
50% of particles = 6,8 µm
90% of particles = 24,2 µm

Supplementary Table S2. Particle diameter size of different zeolites assessed by laser light scattering.

Zeolite	Particle diameter /nm
TMAZ	794,2 ± 29,5
PMA	540,4 ± 15,6
PMA-O2	494,1 ± 11,2