

1 **Supplementary materials (Tables 1S – 3S, Figure 4S)**

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3 **Table 1S – Composition of standard ST1 diet (Velaz Ltd. Czech Republic)**

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Feed component	Propotrion (%)
Wheat coarse meal	50
Soybean meal	14
Fish meal	13
Oatmeal	10
Yeast	7.5
Wheat germ	4.5
Alfalfa hay	4
limestone	1.12
CaHPO ₄	0.28
Mineral additives*	1

5 * (AMINOVITAN STER PLUS, Biofaktory Ltd., Czech Republic)

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7 **Table 2S - The ICP-MS conditions**

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Parameter	Value
RF power	1500 W
Sample depth	8 mm
Plasma gas flow	15 ml min ⁻¹
Auxiliary flow	0.9 ml min ⁻¹
He flow	8ml min ⁻¹

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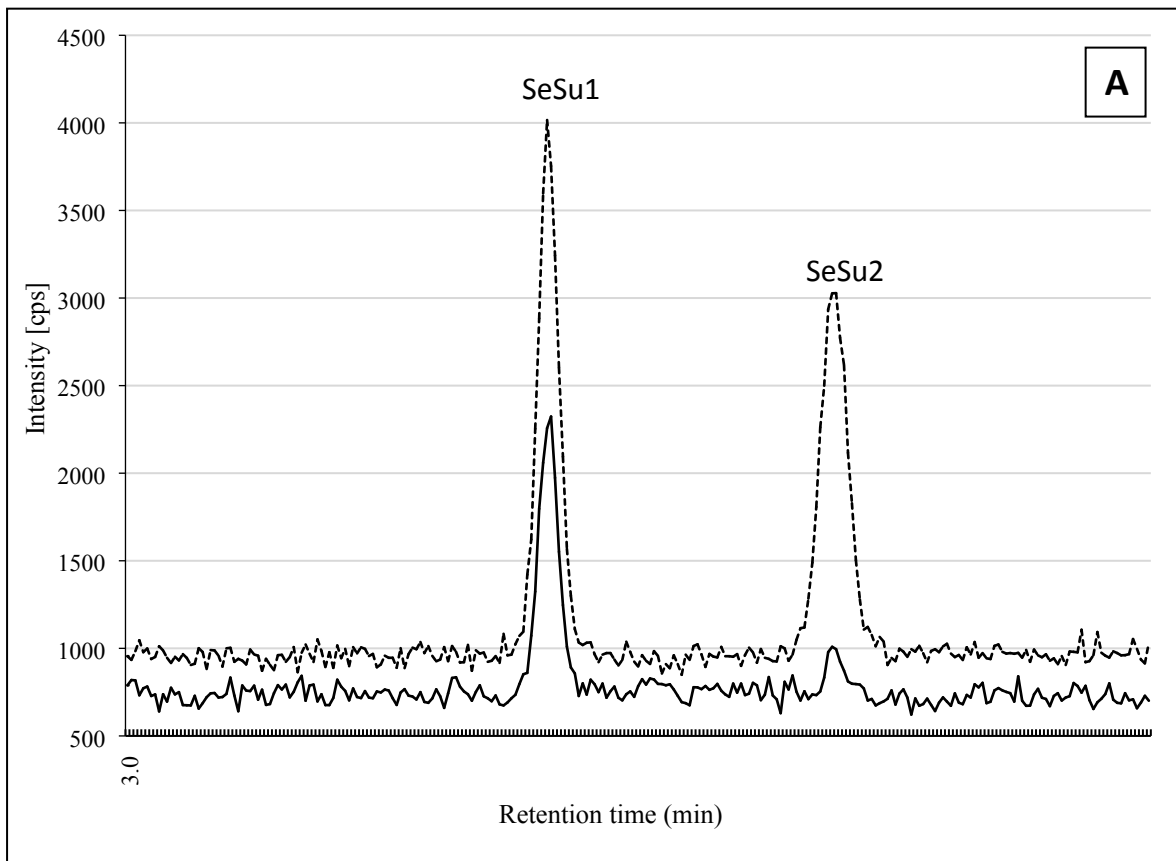
10 **Table 3S - Types of columns and chromatographic condition involved in Se-**
11 **speciation analysis**

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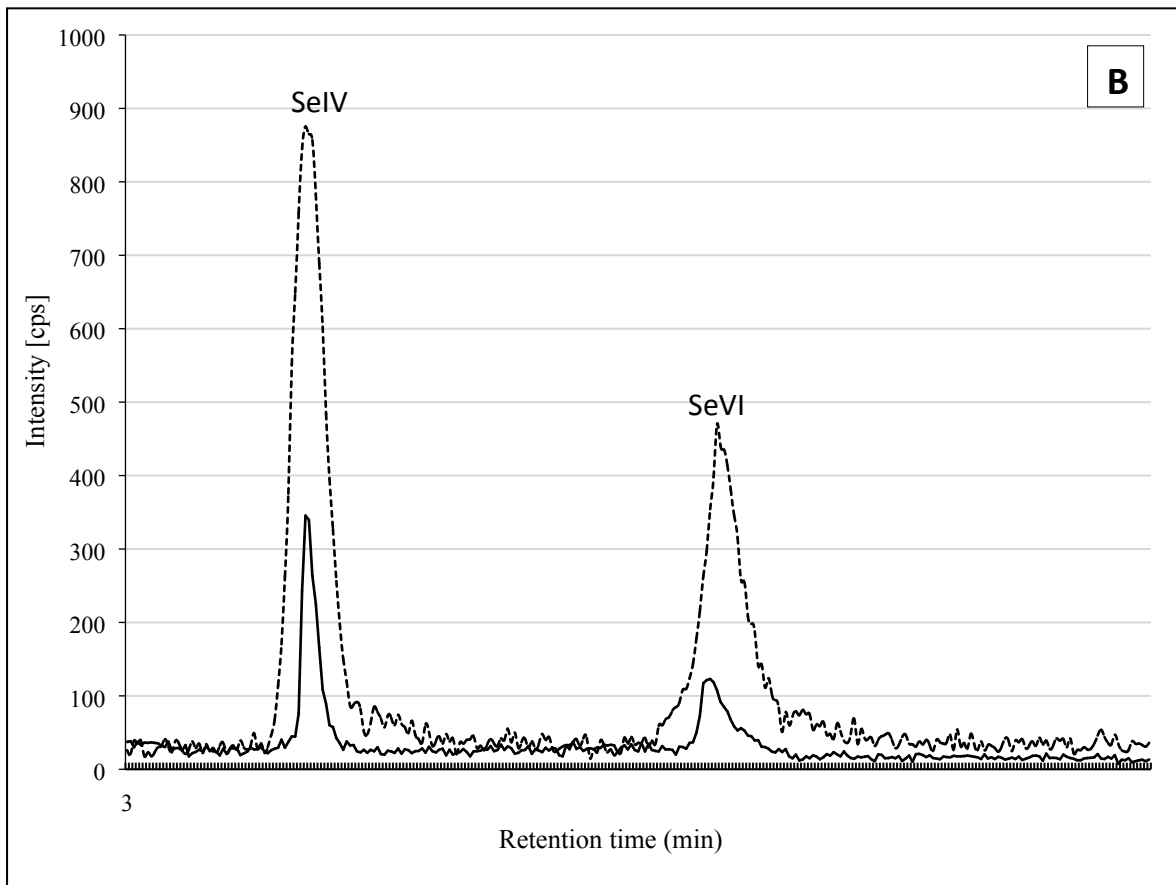
Columns	Atlantis - C18	PRX - 100	PRX - 200
Specification	4.6 x, 150 mm, 5 μm	4.6 x, 150 mm, 10 μm	4.1 x, 250 mm, 10 μm
Determined	Se-Sugar 1	Selenite	MeSeCys
Se-forms	Se-Sugar 2	Selenate	TMSe SeMet Se-Sugar 3
Column temperature	30 °C	30 °C	30 °C
Mobile phase	20 mM ammonium formate	20 mM malonate	20 mM ammonium formate
pH	3.0	9.5	3.1
Flow rate	1 ml min ⁻¹	1 ml min ⁻¹	1 ml min ⁻¹
Sample diluted	1+49 v/v	-	-
Injection volume	20 μl	20 μl	20 μl
Methanol	3 %	-	-

13 Total Se recovery 87-103 %.

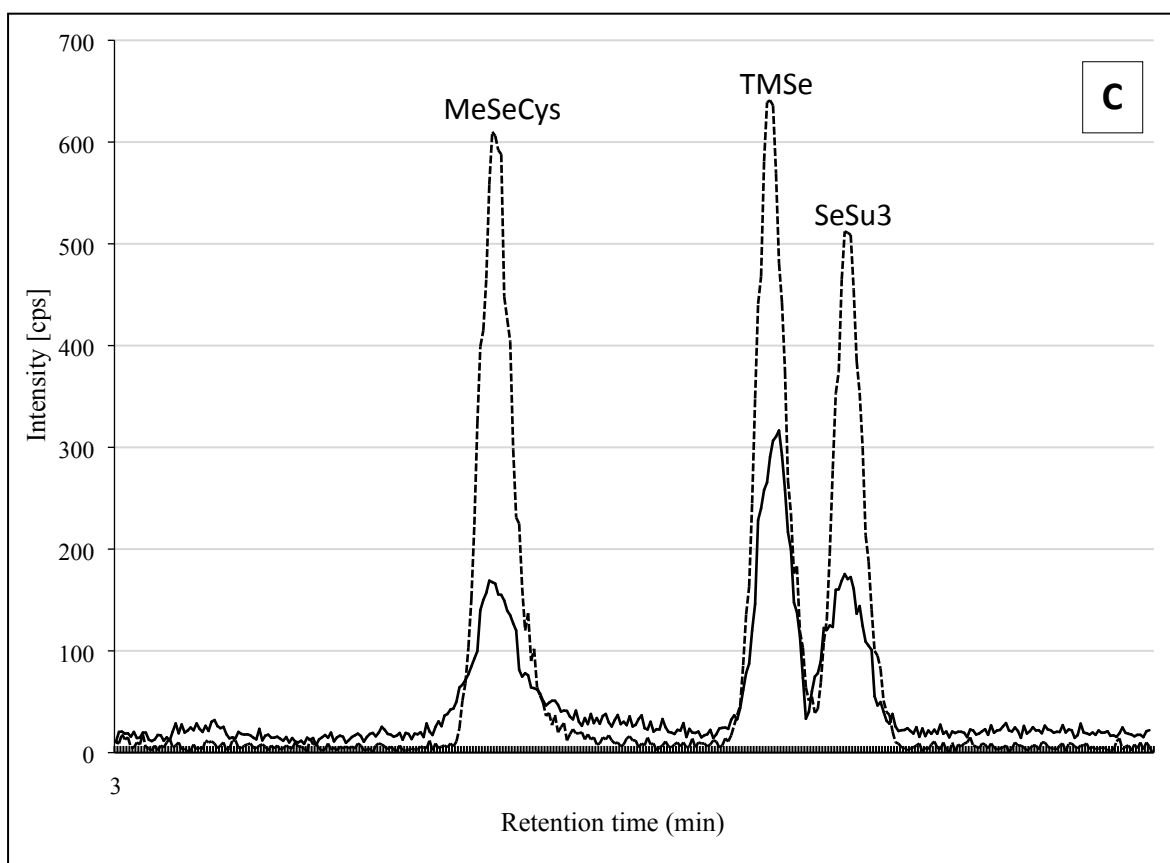
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21 **Figure 4S: An example of typical chromatograms of selenium species in standards**
 22 **(dashed lines) and rat urine samples (solid lines).** A - reverse phase column (Atlantis
 23 C18, 4.6 x 150 mm, 5 μ m), dilution factor for urine samples = 45; B - anion exchange
 24 column (PRPX-100, 4.6 x 150 mm, 10 μ m); C - cation exchange column (PRPX-200, 4.1
 25 x 250 mm, 10 μ m)

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