

Dual extraction technique combined with HPLC-ICP-MS for the speciation of seleno-amino acids in rice and yeast samples

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Fig. S1 Effect of extraction time on the adsorption efficiency of seleno-amino acids by MSPE

Conditions: $C_{\text{SeCys2}}, \text{MeSeCys}, \text{SeMet}, \text{SeEt}=25 \text{ ng mL}^{-1}$; sample volume, 10 mL; sample pH, 7.0

Fig. S2 Effect of ethylenediamine concentration on the desorption of target seleno-amino acids

Conditions: $C_{\text{SeCys2}}, \text{MeSeCys}, \text{SeMet}, \text{SeEt}=25 \text{ ng mL}^{-1}$; sample volume, 10 mL; sample pH, 7.0; extraction time, 10 min; desorption time, 10 min; desorption volume, 1 mL; desorption time, 10 min

Fig. S3 Effect of desorption time on the desorption of target seleno-amino acids by stirring mode

Conditions: $C_{\text{SeCys2}}, \text{MeSeCys}, \text{SeMet}, \text{SeEt}=25 \text{ ng mL}^{-1}$; sample volume, 10 mL; sample pH, 7.0; extraction time, 10 min; eluent, 1 mL 0.1 mol L^{-1} ethylenediamine

Fig. S4 Chromatography of seleno-amino acids in the 1st and 2nd desorption solvent

Conditions: $C_{\text{SeCys2}}, \text{MeSeCys}, \text{SeMet}, \text{SeEt}=25 \text{ ng mL}^{-1}$; sample volume, 10 mL; sample pH, 7.0; extraction time, 10 min; desorption time, 5 min; eluent, 1 mL 0.1 mol L^{-1} ethylenediamine

Fig. S5 Effect of extraction solvent on the extraction of target seleno-amino acids

Conditions: $C_{\text{SeCys2}}=2.5 \text{ ng mL}^{-1}$; $C_{\text{MeSeCys}, \text{SeMet}, \text{SeEt}}=10 \text{ ng mL}^{-1}$; carrier concentration, 20% (v/v); acceptor solution, $0.6 \text{ mol L}^{-1} \text{NaNO}_3$; stirring rate, 1100 rpm; extraction time, 30 min

Fig. S6 Effect of sample pH on the extraction of target seleno-amino acids

Conditions: $C_{\text{SeCys2}}, \text{MeSeCys}, \text{SeMet}, \text{SeEt}=10 \text{ ng mL}^{-1}$; extraction phase: 20% (v/v) $[\text{MTOA}]^+[\text{Cl}]^-$ in toluene; acceptor phase, $0.3 \text{ mol L}^{-1} \text{NaNO}_3$; stirring rate, 1000 rpm; extraction time, 20 min

Fig. S7 Effect of stirring speed on the extraction of target seleno-amino acids

Conditions: $C_{\text{SeCys2}}=2.5 \text{ ng mL}^{-1}$; $C_{\text{MeSeCys}, \text{SeMet}, \text{SeEt}}=10 \text{ ng mL}^{-1}$; extraction phase: 15% (v/v) $[\text{MTOA}]^+[\text{Cl}]^-$ in toluene; acceptor phase, $0.6 \text{ mol L}^{-1} \text{NaNO}_3$; extraction time, 30 min

Fig. S8 Effect of extraction time on the extraction of target seleno-amino acids

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Conditions: $C_{\text{SeCys}_2}=2.5 \text{ ng mL}^{-1}$; $C_{\text{MeSeCys, SeMet, SeEt}}=10 \text{ ng mL}^{-1}$; extraction phase: 15% (v/v) $[\text{MTOA}]^+[\text{Cl}]^-$ in toluene; acceptor phase, $0.6 \text{ mol L}^{-1} \text{ NaNO}_3$; stirring speed, 1100 rpm

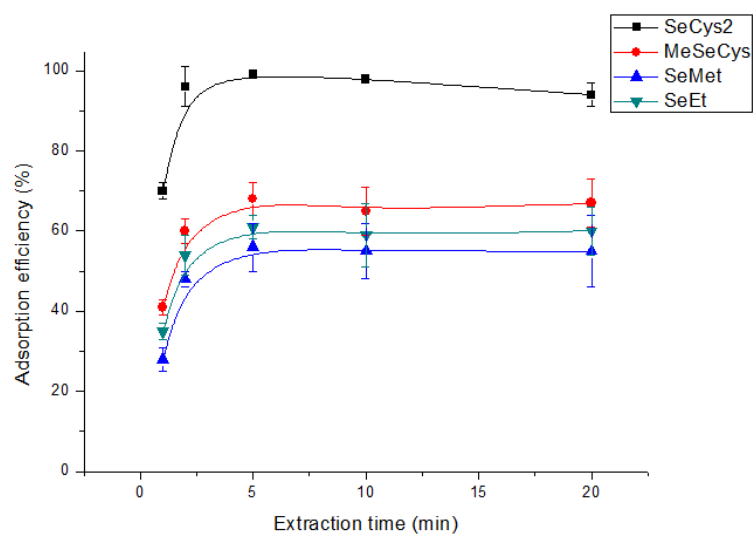


Fig. S1 Effect of extraction time on the adsorption efficiency of seleno-amino acids by MSPE

Conditions: $C_{\text{SeCys2}}, \text{MeSeCys}, \text{SeMet}, \text{SeEt} = 25 \text{ ng mL}^{-1}$; sample volume, 10 mL; sample pH, 7.0

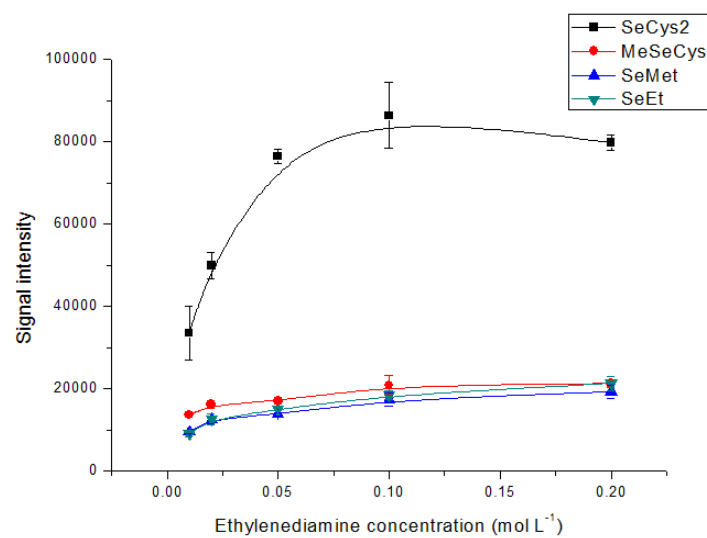


Fig. S2 Effect of ethylenediamine concentration on the desorption of target seleno-amino acids

Conditions: $C_{\text{SeCys2}}, \text{MeSeCys}, \text{SeMet}, \text{SeEt} = 25 \text{ ng mL}^{-1}$; sample volume, 10 mL; sample pH, 7.0; extraction time, 10 min; desorption time, 10 min; desorption volume, 1 mL; desorption time, 10 min

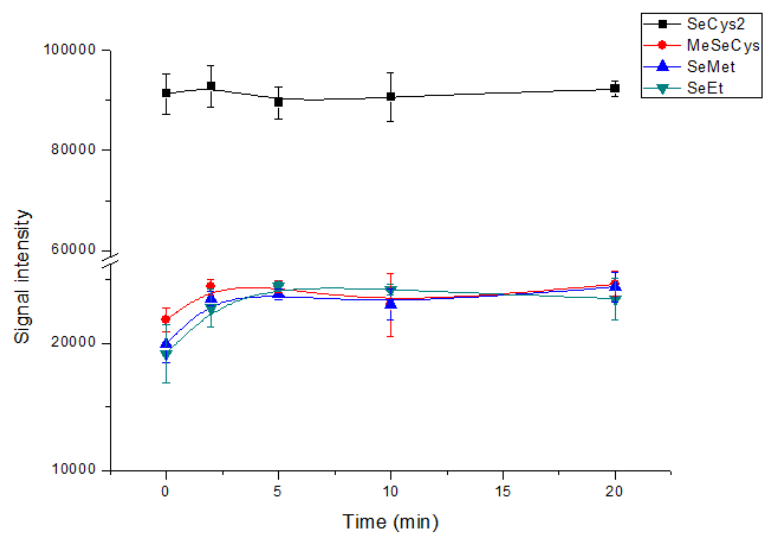


Fig. S3 Effect of desorption time on the desorption of target seleno-amino acids by stirring mode
 Conditions: $C_{\text{SeCys2}}, \text{MeSeCys}, \text{SeMet}, \text{SeEt} = 25 \text{ ng mL}^{-1}$; sample volume, 10 mL; sample pH, 7.0; extraction time, 10 min; eluent, 1 mL 0.1 mol L^{-1} ethylenediamine

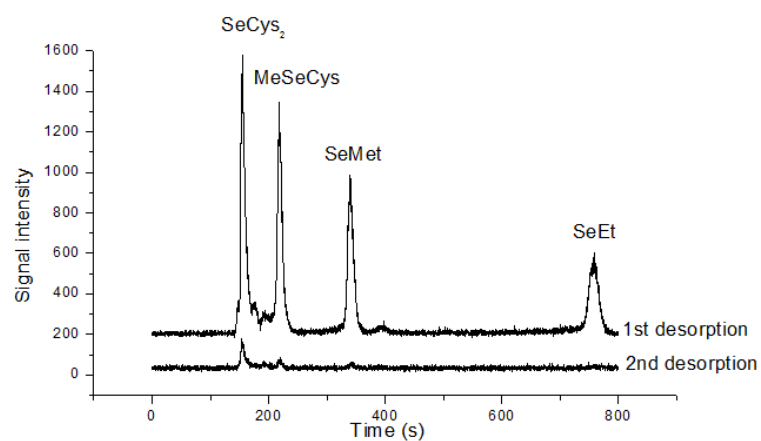


Fig. S4 Chromatography of seleno-amino acids in the 1st and 2nd desorption solvent

Conditions: $C_{\text{SeCys}_2}, C_{\text{MeSeCys}}, C_{\text{SeMet}}, C_{\text{SeEt}} = 25 \text{ ng mL}^{-1}$; sample volume, 10 mL; sample pH, 7.0; extraction time, 10 min; desorption time, 5 min; eluent, 1 mL 0.1 mol L⁻¹ ethylenediamine

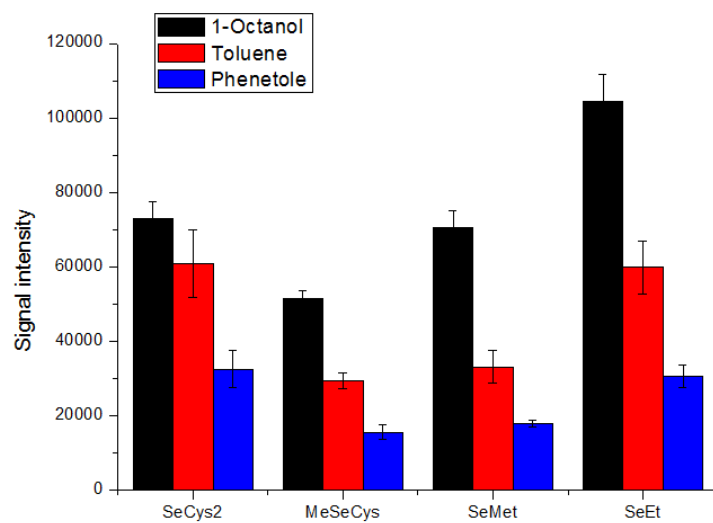


Fig. S5 Effect of extraction solvent on the extraction of target seleno-amino acids

Conditions: $C_{\text{SeCys2}}=2.5 \text{ ng mL}^{-1}$; $C_{\text{MeSeCys, SeMet, SeEt}}=10 \text{ ng mL}^{-1}$; carrier concentration, 20% (v/v); acceptor solution, $0.6 \text{ mol L}^{-1}\text{NaNO}_3$; stirring rate, 1100 rpm; extraction time, 30 min

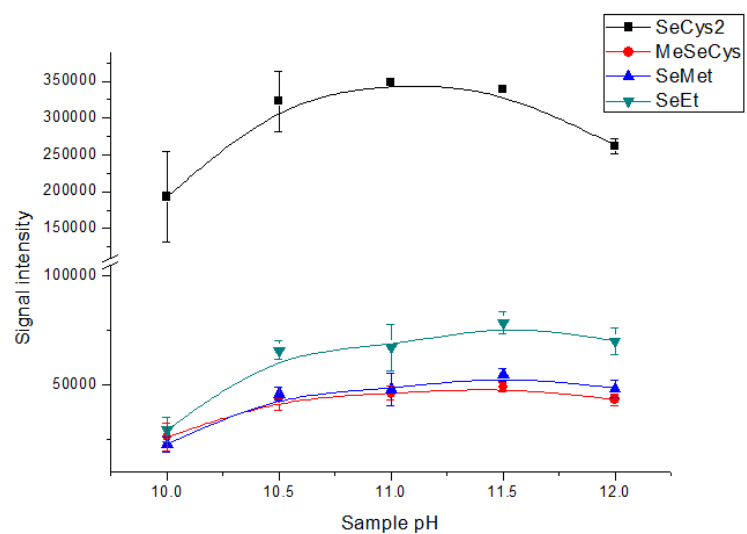


Fig. S6 Effect of sample pH on the extraction of target seleno-amino acids

Conditions: $C_{\text{SeCys2}}, \text{MeSeCys}, \text{SeMet}, \text{SeEt} = 10 \text{ ng mL}^{-1}$; extraction phase: 20% (v/v) $[\text{MTOA}]^+[\text{Cl}]^-$ in toluene; acceptor phase, $0.3 \text{ mol L}^{-1} \text{ NaNO}_3$; stirring rate, 1000 rpm; extraction time, 20 min

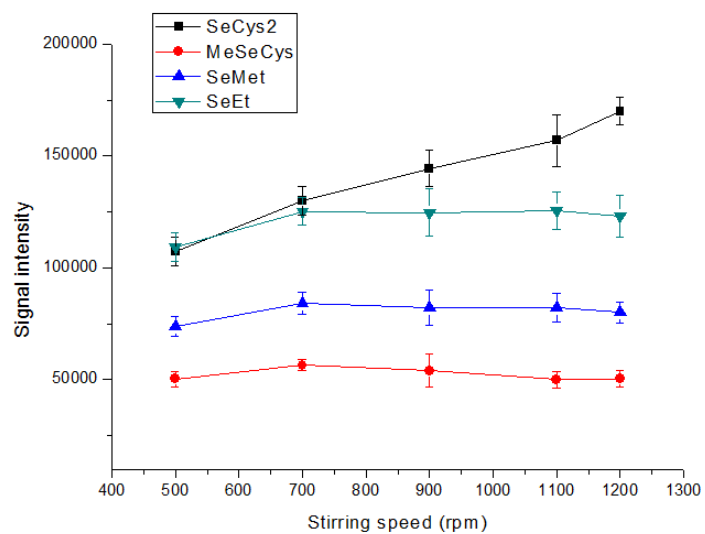


Fig. S7 Effect of stirring speed on the extraction of target seleno-amino acids

Conditions: $C_{\text{SeCys2}}=2.5 \text{ ng mL}^{-1}$; $C_{\text{MeSeCys, SeMet, SeEt}}=10 \text{ ng mL}^{-1}$; extraction phase: 15% (v/v)

[MTOA]⁺[Cl]⁻ in toluene; acceptor phase, 0.6 mol L⁻¹ NaNO₃; extraction time, 30 min

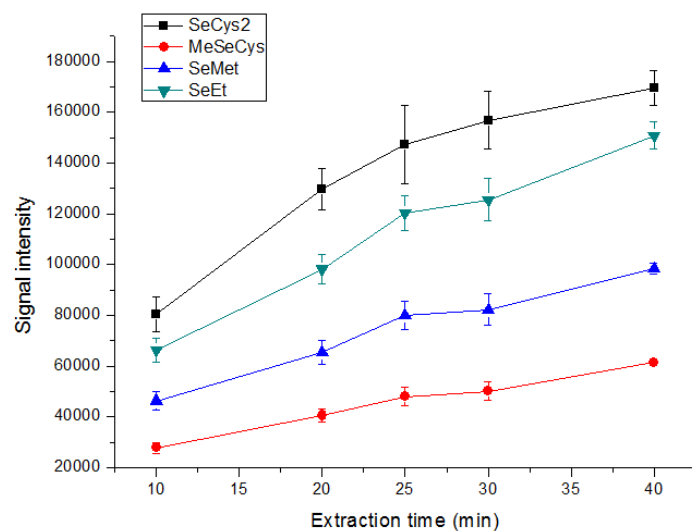


Fig. S8 Effect of extraction time on the extraction of target seleno-amino acids

Conditions: $C_{\text{SeCys2}}=2.5 \text{ ng mL}^{-1}$; $C_{\text{MeSeCys, SeMet, SeEt}}=10 \text{ ng mL}^{-1}$; extraction phase: 15% (v/v)

[MTOA]⁺[Cl]⁻ in toluene; acceptor phase, 0.6 mol L⁻¹ NaNO₃; stirring speed, 1100 rpm