

1 **Supplementary Information**

2 **Elucidation of the fate of zinc in model plants using single particle**

3 **ICP-MS and ESI tandem MS**

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27 **Enzymatic digestion of plant tissues**

28 Grounded samples of leaves and roots (0.025 g) were homogenized with 8 mL of 2 mM citrate buffer
29 (pH 4.5) by using an ultrasonic probe. After the end of homogenization, 2 mL of enzyme (Macerozyme
30 R-10) solution (0.01 g of enzyme powder for roots and 0.05 g of enzyme powder for leaves, dissolved
31 in 2 mL of ultrapure water) was added and the samples were shaken in a water bath at 37°C for 24
32 hours. The final conditions of the enzymatic digestion method were chosen according to the
33 optimization described in detail in a previous work¹. After the incubation, the obtained suspensions
34 were filtered with a 0.45 µm syringe filter (Sigma Aldrich) and analyzed by SP-ICP-MS.

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36 **Table S1.** Composition of the culture medium used for plants cultivation

Compound	Weight / L
NH ₄ NO ₃	0,4 g
KH ₂ PO ₄	0,2 g
KCl	0,1 g
CaCl ₂ × 6H ₂ O	0,25 g
MgSO ₄ × 7H ₂ O	0,25 g
FeSO ₄ × 7H ₂ O	0,0015g
MnCl ₂ × 4H ₂ O	0,389 mg
NiSO ₄ × 6H ₂ O	0,056 mg
LiCl	0,028 mg
CuSO ₄ × 5H ₂ O	0,056 mg
Al ₂ (SO ₄) ₃	0,611 mg
H ₃ BO ₃	0,028 mg
KI	0,056 mg
Co(NO ₃) ₂ × 6H ₂ O	0,028 mg
KBr	0,056 mg
NaMoO ₄ × 2H ₂ O	0,055 mg

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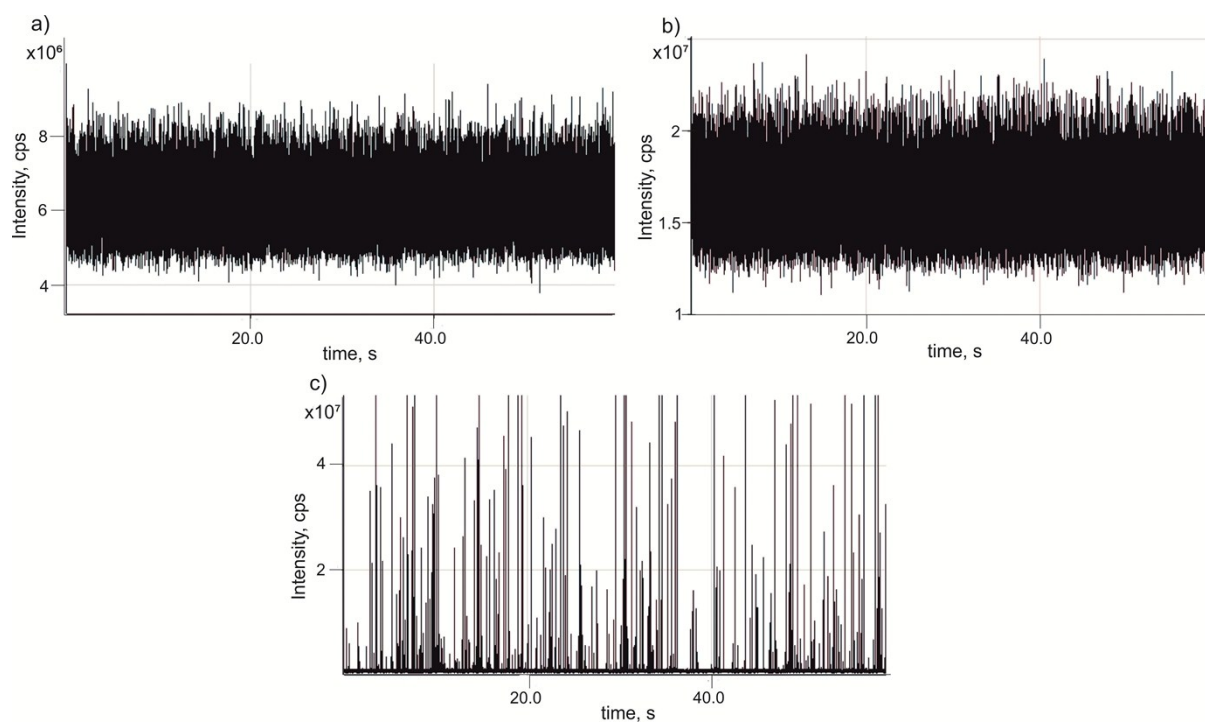
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42 **Fig. S1.** Time scans obtained for a) leaves; b) roots; and stock suspension of ZnO NPs



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45 **References**

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47 *Spectrom.*, 2016, **31**, 2321–2329.