

## *Supplementary materials*

### **Subcellular distribution and chemical forms of cadmium in the medicine food homology plant *Platycodon grandiflorum* (Jacq.) A.DC.**

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## Determination the concentration of Cd

The treatment concentrations of Cd in the experiments are based on the results of pre-experimental studies. By reviewing the relevant literature, several concentrations of Cd were used in the pre-experiments, i.e., 0, 50, 100 and 200  $\mu\text{M}$ . Symptoms of growth defects in plants were not visible at all Cd concentrations tested. For studying the accumulation and transportation mechanisms of Cd in plants, understanding the localization and speciation that under excess Cd accumulation is important. Therefore, we selected the high concentration (200  $\mu\text{M}$ ) of Cd treatment.

**Table S1.** Subcellular concentrations of Cd in different tissues of *Platycodon grandiflorum*

Tissues	Treatments	Cd concentration ( $\text{mg kg}^{-1}$ )			
		Cell wall	Organelle	Soluble fraction	Total
Leaf	Cd0h-CK	0.0674 $\pm$ 0.0003	0.111 $\pm$ 0.0016	0.0192 $\pm$ 0.0003	0.1976 $\pm$ 0.0012
	Cd0h	0.0674 $\pm$ 0.0003	0.111 $\pm$ 0.0016	0.0192 $\pm$ 0.0003	0.1976 $\pm$ 0.0012
	Cd24h-CK	0.0675 $\pm$ 0.0011	0.1113 $\pm$ 0.0026	0.0193 $\pm$ 0.001	0.1981 $\pm$ 0.0022
	Cd24h	0.169 $\pm$ 0.0051	0.32 $\pm$ 0.0028	0.139 $\pm$ 0.0041	0.628 $\pm$ 0.0036
	Cd10d-CK	0.0681 $\pm$ 0.0013	0.112 $\pm$ 0.0024	0.0195 $\pm$ 0.0017	0.1996 $\pm$ 0.0006
	Cd10d	0.4447 $\pm$ 0.016	0.8023 $\pm$ 0.0047	0.164 $\pm$ 0.0014	1.411 $\pm$ 0.0128
Stem	Cd0h-CK	0.2543 $\pm$ 0.0034	0.4383 $\pm$ 0.0005	0.0157 $\pm$ 0.0019	0.7084 $\pm$ 0.0043
	Cd0h	0.2543 $\pm$ 0.0034	0.4383 $\pm$ 0.0005	0.0157 $\pm$ 0.0019	0.7084 $\pm$ 0.0043
	Cd24h-CK	0.2543 $\pm$ 0.0012	0.438 $\pm$ 0.0016	0.0159 $\pm$ 0.0021	0.7082 $\pm$ 0.0043
	Cd24h	0.2073 $\pm$ 0.0039	0.3203 $\pm$ 0.0017	0.0916 $\pm$ 0.0008	0.6193 $\pm$ 0.0029
	Cd10d-CK	0.2577 $\pm$ 0.0021	0.4397 $\pm$ 0.0012	0.0164 $\pm$ 0.0018	0.7138 $\pm$ 0.0027
	Cd10d	1.2167 $\pm$ 0.0236	2.6567 $\pm$ 0.0047	0.506 $\pm$ 0.0014	4.3793 $\pm$ 0.0182
Root	Cd0h-CK	0.0641 $\pm$ 0.0007	0.0986 $\pm$ 0.0028	0.0146 $\pm$ 0.0002	0.1773 $\pm$ 0.003
	Cd0h	0.0641 $\pm$ 0.0007	0.0986 $\pm$ 0.0028	0.0146 $\pm$ 0.0002	0.1773 $\pm$ 0.003
	Cd24h-CK	0.0642 $\pm$ 0.0006	0.0991 $\pm$ 0.0049	0.0147 $\pm$ 0.0013	0.1779 $\pm$ 0.0064
	Cd24h	0.6243 $\pm$ 0.0031	1.13 $\pm$ 0.0141	0.2497 $\pm$ 0.0099	2.004 $\pm$ 0.0078
	Cd10d-CK	0.0646 $\pm$ 0.0018	0.1007 $\pm$ 0.0021	0.0148 $\pm$ 0.0009	0.1801 $\pm$ 0.0019
	Cd10d	2.4667 $\pm$ 0.0464	5.5367 $\pm$ 0.0478	1.0113 $\pm$ 0.0204	9.0147 $\pm$ 0.0888

Mean  $\pm$  standard deviation (replicates = 3). The Cd concentration of each subcellular fraction is equal to the Cd content in each subcellular fraction divided by the tissues weight.

**Table S2** The concentrations of different chemical forms of Cd (mg kg<sup>-1</sup> fresh weight) in different tissues of *Platycodon grandiflorum*

Tissues	Treatments	Cd concentration (mg kg <sup>-1</sup> )						
		80% ethanol	d-H <sub>2</sub> O	1M NaCl	2% HAc	0.6 M HCl	Residual	Total
Leaf	cd 0h-ck	-	-	-	0.0168±0.0004	0.0321±0.0002	0.203±0.0037	0.2519±0.0042
	cd 0h	-	-	-	0.0168±0.0004	0.0321±0.0002	0.203±0.0037	0.2519±0.0042
	cd 24h-ck	-	-	-	0.0169±0.0012	0.0322±0.001	0.2047±0.0045	0.2537±0.0042
	cd 24h	-	-	0.0045±0.0002	0.0673±0.0026	0.1813±0.0012	0.3357±0.0086	0.5888±0.0104
	cd 10d-ck	-	-	-	0.0171±0.0016	0.0324±0.0011	0.2067±0.0087	0.2561±0.0106
	cd 10d	-	-	0.0065±0.0003	0.134±0.0029	0.382±0.0057	0.89±0.0042	1.4125±0.0086
Stem	cd 0h-ck	-	-	0.0029±0.0002	0.0656±0.0004	0.1663±0.0005	0.3447±0.0069	0.5795±0.0072
	cd 0h	-	-	0.0029±0.0002	0.0656±0.0004	0.1663±0.0005	0.3447±0.0069	0.5795±0.0072
	cd 24h-ck	-	-	0.0028±0.0003	0.0657±0.0008	0.1667±0.0042	0.3473±0.0103	0.5825±0.0126
	cd 24h	-	-	0.0043±0.0001	0.0636±0.0017	0.2057±0.0034	0.44±0.0233	0.7135±0.0264
	cd 10d-ck	-	-	0.003±0.0003	0.0659±0.0009	0.1677±0.0039	0.355±0.0079	0.5916±0.0052
	cd 10d	0.0013±0.0002	0.0066±0.0003	0.0789±0.0013	0.377±0.0022	1.1067±0.0125	2.71±0.0698	4.2805±0.0769
Root	cd 0h-ck	-	-	0.0033±0.0001	0.0177±0.0004	0.0289±0.0009	0.1897±0.005	0.2395±0.006
	cd 0h	-	-	0.0033±0.0001	0.0177±0.0004	0.0289±0.0009	0.1897±0.005	0.2395±0.006
	cd 24h-ck	-	-	0.0032±0.0002	0.0178±0.0009	0.0292±0.0013	0.1903±0.0079	0.2405±0.0095
	cd 24h	-	-	0.0108±0.0003	0.1653±0.0024	0.5727±0.0103	1.3233±0.0205	2.0721±0.0082
	cd 10d-ck	-	-	0.0034±0.0002	0.018±0.0011	0.029±0.0015	0.1926±0.006	0.243±0.0085
	cd 10d	0.0123±0.0005	0.0099±0.0002	0.1507±0.0012	0.8993±0.009	3.4±0.0829	4.6767±0.033	9.1504±0.117

Mean ± standard deviation (replicates = 3). The Cd concentration of each chemical form is equal to the Cd content in each chemical form divided by the tissues weight.