

Table S1 Effect of external Se addition on Cd and Se concentration of cucumber seedlings exposed to Cd after 7 days.

Treatment	Leaf		Root	
	Cd (mg kg ⁻¹)	Se (mg kg ⁻¹)	Cd (mg kg ⁻¹)	Se (mg kg ⁻¹)
Control	-	-	-	-
Se	-	53.6 ^a	-	354.7 ^a
Cd	44.5 ^a	-	1452.0 ^a	-
Cd+Se	33.9 ^b	10.4 ^b	922.40 ^b	206.1 ^b

– , not detected.

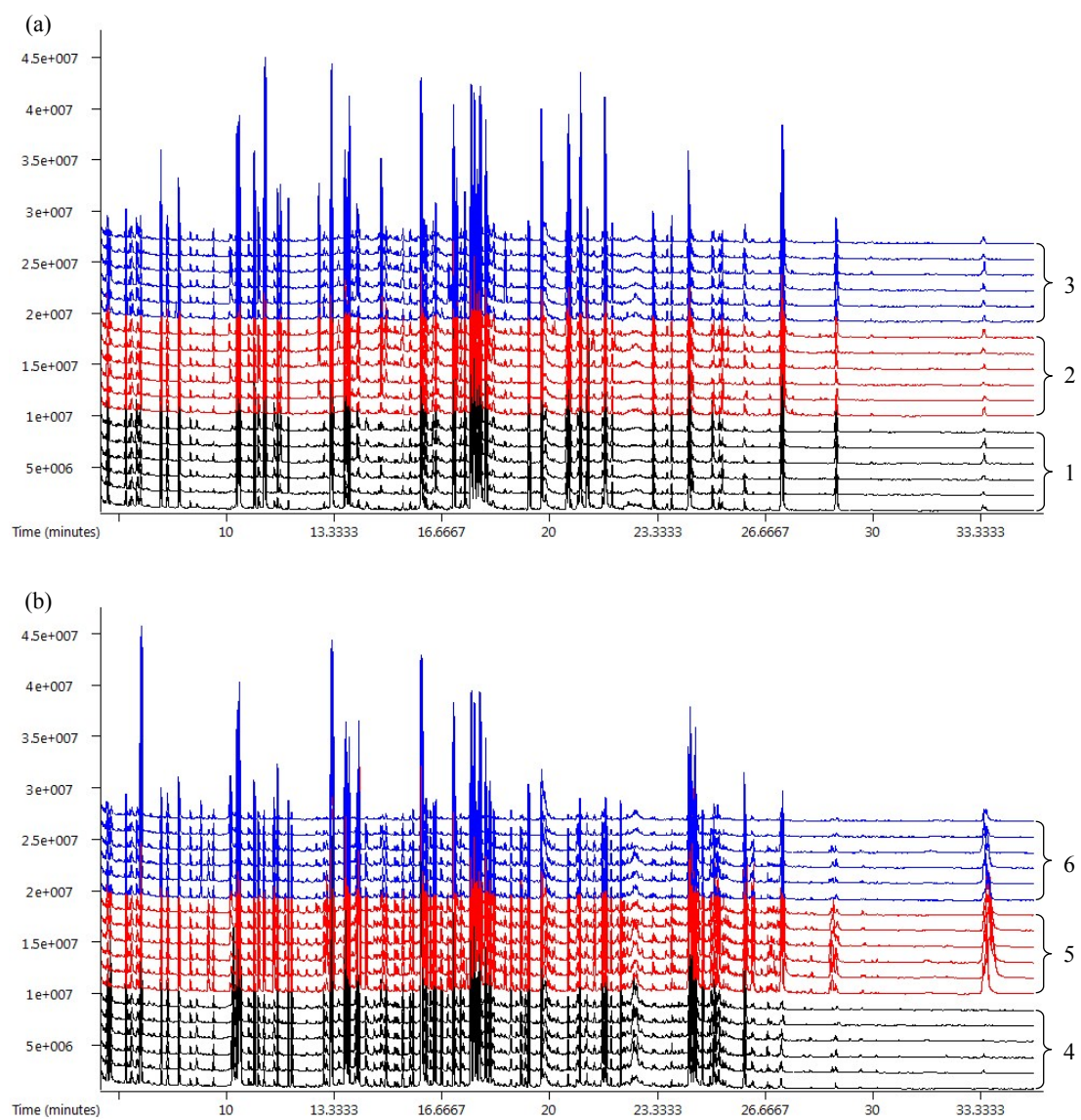
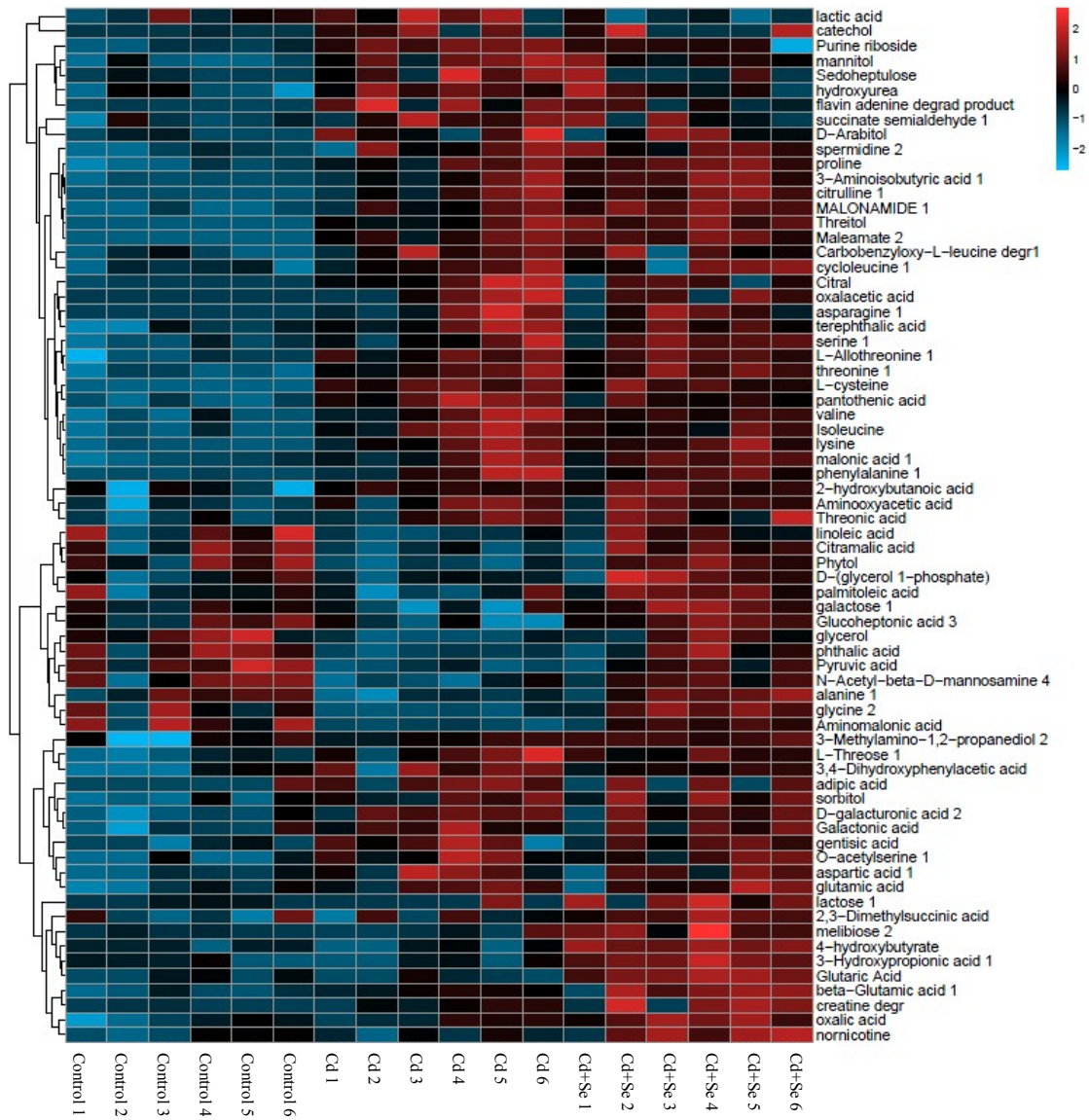


Fig. S1 Total ion chromatogram (TIC) of the thirty-six samples of cucumber scanned based on GC-TOF/MS.

(a): leaves; (b): roots; 1 and 4: control; 2 and 5: Cd; 3 and 6: Cd+Se.

(a)



(b)

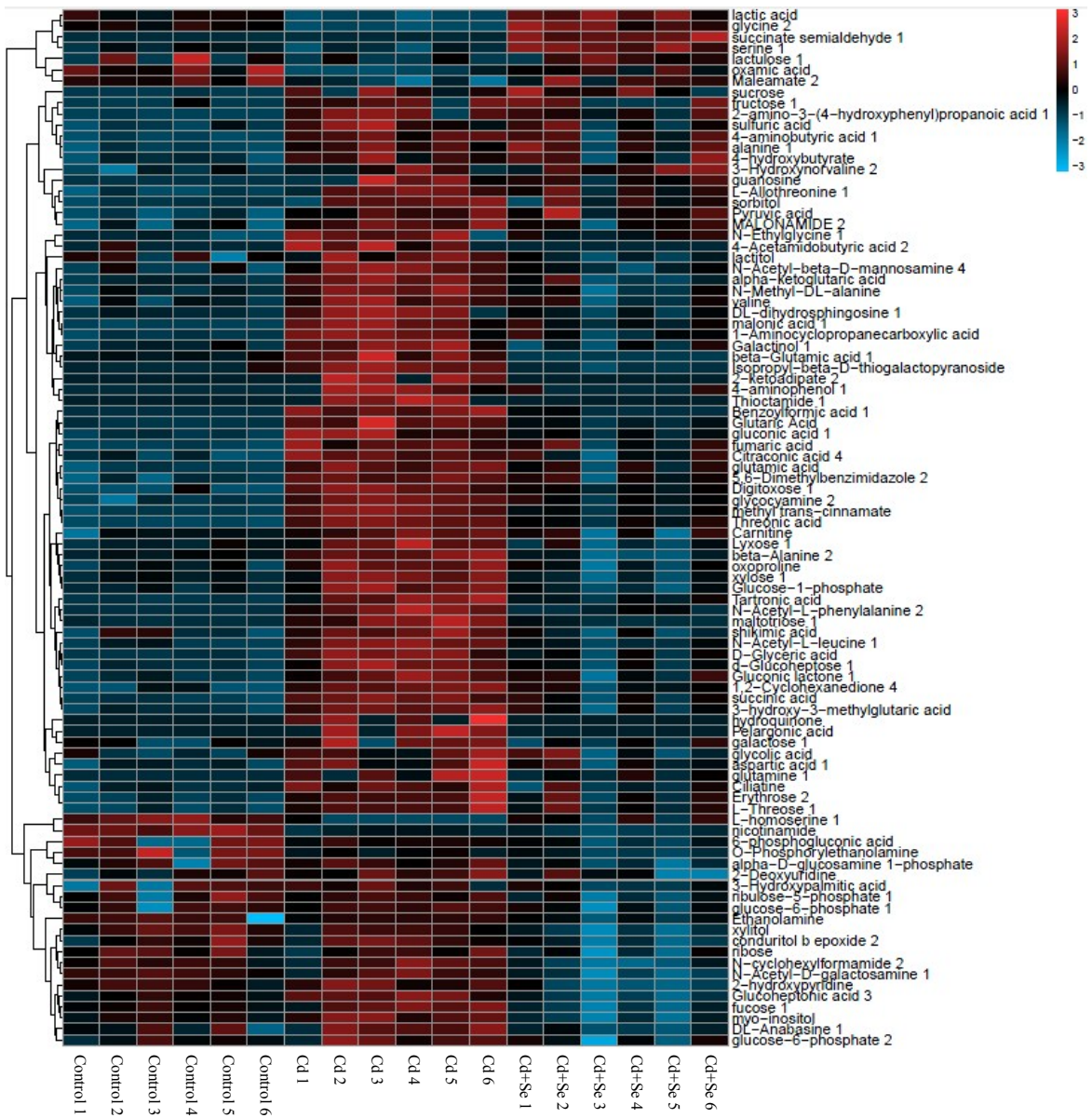


Fig. S2 Heatmap analysis of all significantly changed metabolites under Cd and/or Se treatments.

(a): leaves; (b): roots.

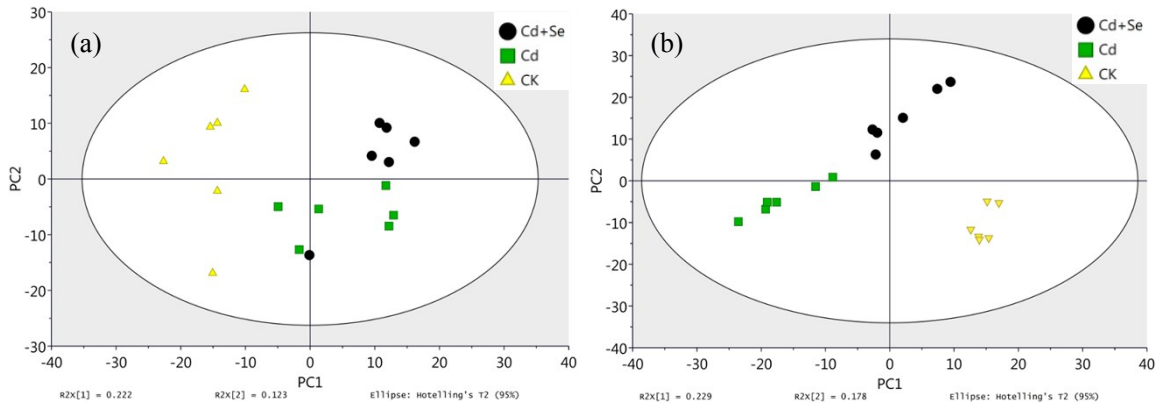


Fig. S3 Principal component analysis (PCA) of metabolic profiles in leaves (a) and roots (b) of cucumber seedlings under control, Cd and Cd+Se conditions (six biological replicates). CK: control; PC1, the first principal component; PC2, the second principal component.

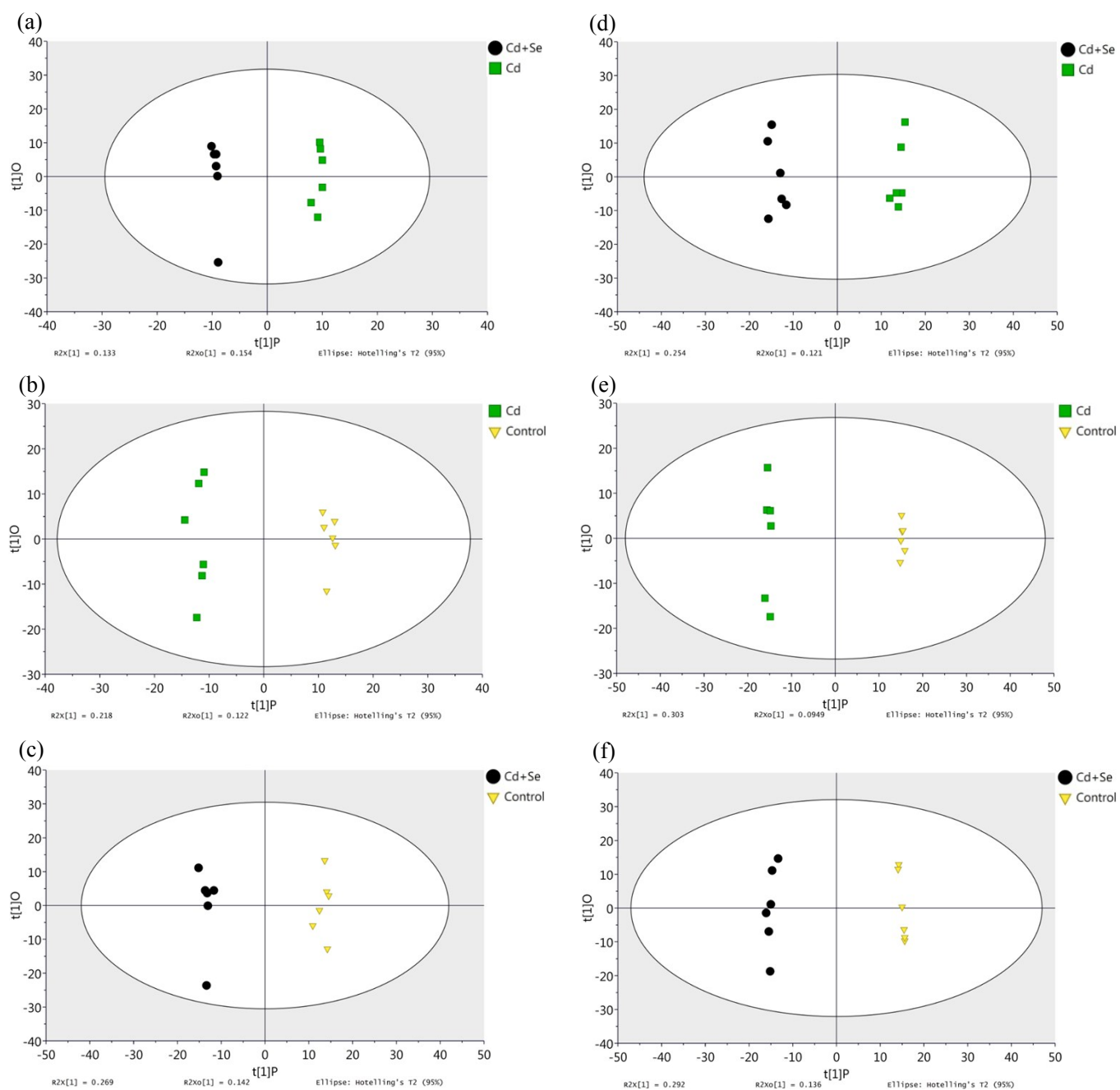


Fig. S4 OPLS-DA score map derived from the GC-TOF/MS metabolite profiles in leaves (a-c) and roots (d-f) of cucumber seedlings.

Black represents contents from control group, green represents contents from Cd treatment group, and yellow represents contents from Cd+Se treatment group (n = 6).

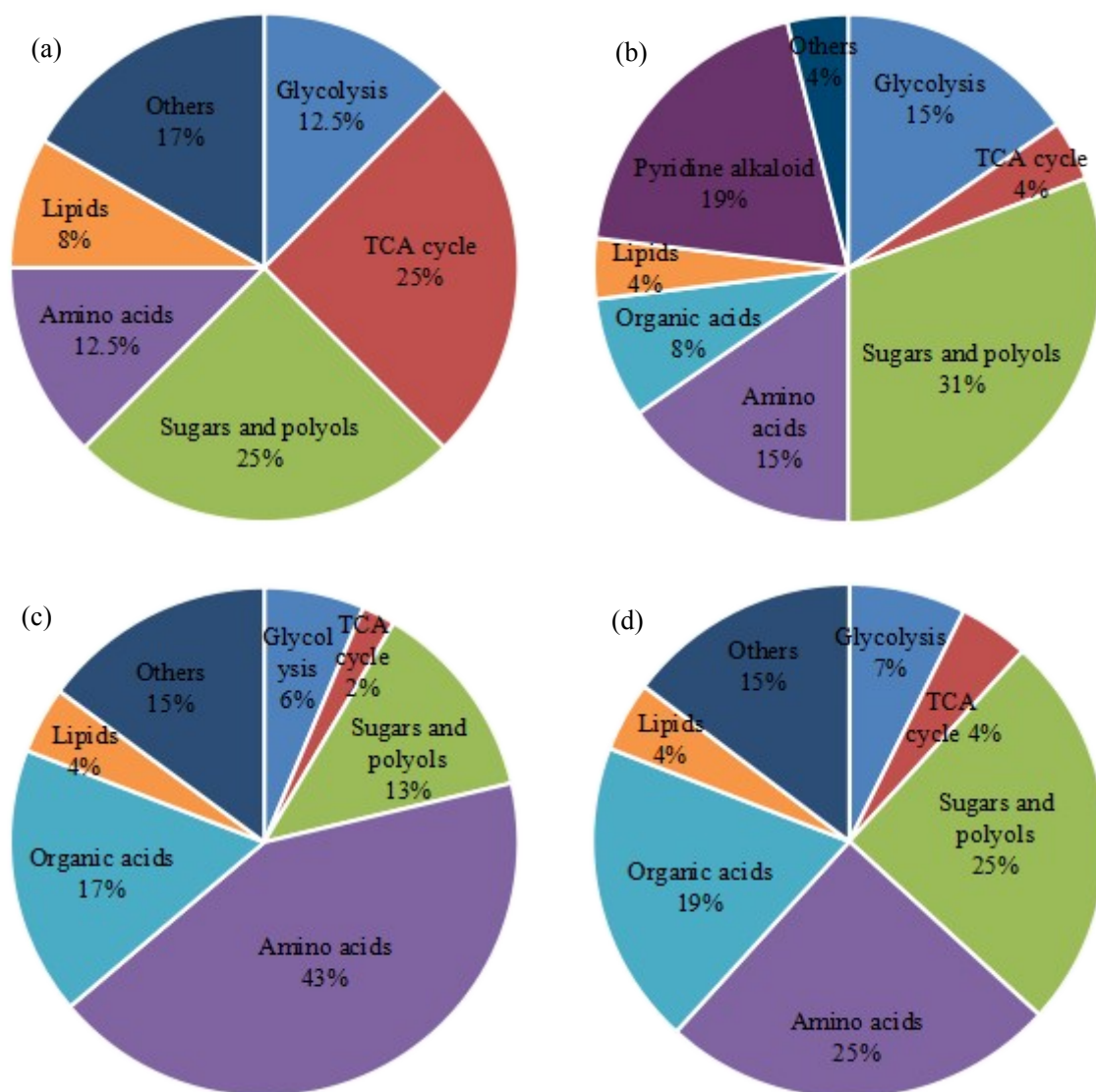


Fig. S5 Functional classification of identified significantly different expression metabolites.

(a) and (b) down-accumulated in Cd-treated and up-accumulated or no-changed in Cd+Se leaves and roots, respectively (as shown in Table 1 and 2), (c) and (d) up-accumulated (≥ 1.5) in Cd-treated leaves and roots, respectively (as shown in Table 3 and 4). The digits in the graphs indicate the percentage of the identified metabolites.