Transcriptomic analysis Reveals complex regulatory network of cadmium tolerance in mangrove plant *Kandelia obovata* (S., L.) Yong

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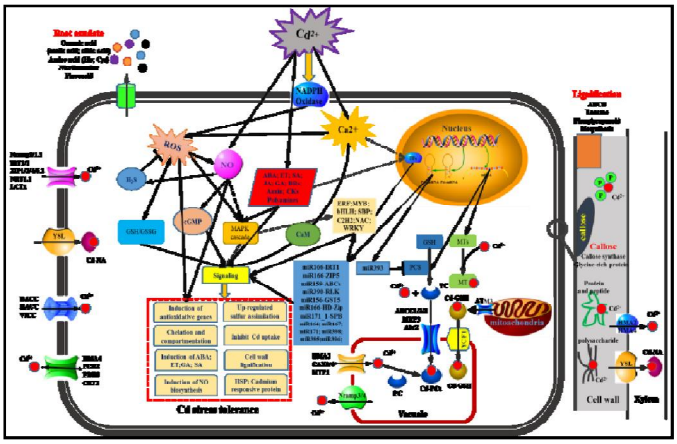
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Mangrove ecosystem, a bushy woody plant communitiy in the intertidal shores, mainly distributes in tropic and subtropic estuaries and plays an important role in estuarine ecosystems. Meanwhile, mangrove is severely polluted by heavy metals in consequence of human activities, notably cadmium. In this study, transcriptome sequencing was performed and the complex regulatory network of cadmium tolerance in *K.obovata* were revealed.



K.obovata was selected as research materials and treated with 5mg/L cadmium for 5 days, then the total RNA of six samples (namely Ctrl-root, Ctrl-stem, Ctrl-leaf, Cd-root, Cd-stem, Cd-leaf) was extracted and prepared for RNA-seq and sRNA-seq base on Illumina HiSeq 2500 sequencing platform. Clean data obtained from sequencing was used for de novo assembly, differential expre-ssion analysis, function annotation, pathway enrichment analysis and other personalized analysis.

Comprehensive dissection of molecular regulatory network of Cd tolerance involving Cd transport, chelation, plant hormone signaling, transcriptional regulation, phenylpropanoid metabolism, lignification and miRNA regulation was achieved in*K.obovata*. Notably this research is great important and may help in elucidating the gene networks involved in plant responses to various kinds of stress.



A hypothetical model of cadmium tolerant networks in *K.obovata*

Yan Chongling has his expertise on the biogeochemical process of heavy metals and organic pollutants (POPs) in wetland ecosystem（water/sediment/plant）. He has made some progress in distribution of heavy metals and the relationship between them and plants, environmental conditions and chemical-physical properties in estuary sediments, speciation distribution of heavy metal in the mangrove sediment，the influence of mangrove roots on bio-availability of heavy metals.

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