A) Functional Clusters of the MF GO in cacao Roots 48h after Cd treatment 2 5 6 7 binding dna heme binding sequencespecific sequence-specific DNA binding RNA polymerase II cis-regulatory region sequence-specific DNA binding peroxidase activity activity oxygen oxidoreductase activity molecular acting monooxygenase activity N incorporation oxidoreductase activity, acting on paired donors, with incorporation or reduction of molecular oxygen oxidoreductase oxidoreductase activity, acting on paired donors, with incorporation or reduction of molecular oxygen, NAD(P)H as one donor, and incorporation of one atom of oxygen reduction electron transfer activity manganese ion binding paired calcium ion binding GO term က ion binding FAD binding present iron ion binding no symporter activity yes dipeptide transmembrane transporter activity 4 channel activity calcium channel activity GO water channel activity semantic glutathione transferase activity 2 similarity protein serine kinase activity protein homodimerization activity 9 protein protein dimerization activity hydrolase activity, hydrolyzing O-glycosyl compounds 0.5

8 7		hydrolase activity protein serine/threonine phosphatase activity chitinase activity chitinase activity carboxylic ester hydrolase activity opolysaccharide binding carbohydrate binding
	deg0 deg1 deg3 deg4	GO:0000456 GO:0004976 GO:000497 GO:000497 GO:000504 GO:000504 GO:000506 GO:000771918 GO:000771918 GO:0004722 GO:0004722 GO:0004728 GO:0004728 GO:0004728 GO:0004728 GO:0004728 GO:0004728 GO:0004728 GO:0004728 GO:0004728 GO:0004728 GO:0004728 GO:0004728
	B) Names	of Clusters of the MF GO in cacao Roots 48h after Cd treatment
	Cluster	Name
	1	Sequence specific DNA binding
	2	Paired molecular oxygen reduction is facilitated by the activity of donors, incorporating them into the oxidoreductase process
	3	lon binding

Channel Activity

Hydrolase activity

Unnamed

Protein

Binding

4

5

6 7

8