

Supplementary material:

Table 1: Functional annotation of drought responsive proteins and their identified *MICA* terms

Spot	Protein name	Gene Ontology	Protein family	MICA term
S1	Putative uncharacterized protein (Sb02g009790)	[calcium ion binding (GO:0005509)] [ATP binding (GO:0005524)] [protein serine/threonine kinase activity (GO:0004674)]	Protein kinase, catalytic domain	[M1 (catalytic activity)] [M2 (binding)]
S2	Putative uncharacterized protein (Sb08g020040)	[ATP binding (GO:0005524)] [protein serine/threonine kinase activity (GO:0004674)]	Serine-threonine/tyrosine-protein kinase catalytic domain	[M1 (catalytic activity)] [M2 (binding)]
S3	Putative uncharacterized protein (Sb01g011370)	[Apoplast (GO:0048046)] [manganese ion binding (GO:0030145)] [nutrient reservoir activity (GO:0045735)]	Cupin 1	[M2 (binding)]
S4	Putative uncharacterized protein (Sb01g018400)	[carbohydrate metabolic process (GO:0005975)] [cation binding (GO:0043169)] [hydrolase activity, hydrolyzing O-glycosyl compounds (GO:0004553)]	Glycoside hydrolase	[M1 (catalytic activity)] [M2 (binding)] [M3 (primary metabolic process)]
S5	Putative uncharacterized protein (Sb07g021920)	[trehalose biosynthetic process (GO:0005992)] [catalytic activity (GO:0003824)]	Glycosyl transferase family-20; Trehalose-phosphatase	[M3 (primary metabolic process)]
S6	Putative uncharacterized protein (Sb03g004540)	[carbohydrate metabolic process (GO:0005975)] [galactinol-sucrose galactosyltransferase activity (GO:0047274)]	Raffinose synthase	[M1 (catalytic activity)] [M3 (primary metabolic process)]

Table 2: GO term's semantic similarities and distance values for shortest paths from root terms molecular function (MF), biological process (BP) and cellular component (CC) to their associated terms

(n ₁) GO:0004553	(n ₂) GO:0047274	(n ₃) GO:0004674
GO:0003674-GO:0003824=1.3 GO:0003824-GO:0016787=3.6 GO:0016787-GO:0016798=7.9 GO:0016798-GO:0004553=0.6	GO:0003674-GO:0003824=1.3 GO:0003824-GO:0016740=3.8 GO:0016740-GO:0016757=8.4 GO:0016757-GO:0016758=2.9 GO:0016758-GO:0008378=9.5 GO:0008378-GO:0047274=16.6	GO:0003674-GO:0003824=1.3 GO:0003824-GO:0016740=3.8 GO:0016740-GO:0016772=2.2 GO:0016772-GO:0016773=3.3 GO:0016773-GO:0004672=1.5 GO:0004672-GO:0004674=3.1
arctan= 13.4 distance=arctan×π/2=21.03	arctan= 42.5 distance=arctan×π/2=66.72	arctan=15.2 distance=arctan×π/2=23.86
(n₄) GO:0030145 GO:0003674-GO:0005488=1.6 GO:0005488-GO:0043167=4 GO:0043167-GO:0043169=0.0 GO:0043169-GO:0046872=0.1 GO:0046872-GO:0046914=1.7 GO:0046914-GO:0030145=11.3	(n₅) GO:0043169 GO:0003674-GO:0005488=1.6 GO:0005488-GO:0043167=4 GO:0043167-GO:0043169=0.0	(n₆) GO:0005509 GO:0003674-GO:0005488=1.6 GO:0005488-GO:0043167=4 GO:0043167-GO:0043169=0.0 GO:0043169-GO:0046872=0.1 GO:0046872-GO:0005509=10.7
arctan=18.7 distance=arctan×π/2=29.35	arctan=5.6 distance=arctan×π/2=8.79	arctan=16.4 distance=arctan×π/2=25.74
(n₇) GO:0005524 GO:0003674-GO:0005488=1.6 GO:0005488-GO:0000166=3.7 GO:0000166-GO:0032553=0.7 GO:0032553-GO:0032555=0.0 GO:0032555-GO:0032559=0.4 GO:0032559-GO:0005524=0.0	(n₈) GO:0045735 GO:0003674-GO:0045735=23.9	(n₉) GO:0005975 GO:0008150-GO:0008152=0.9 GO:0008152-GO:0044238=1.3 GO:0044238-GO:0005975=6.3
arctan=6.4 distance=arctan×π/2=10.04	arctan=23.9 distance=arctan×π/2=37.52	arctan=8.5 distance=arctan×π/2=13.34
(n₁₀) GO:0005992 GO:0008150-GO:0008152=0.9 GO:0008152-GO:0044238=1.3 GO:0044238-GO:0005975=6.3 GO:0005975-GO:0009311=11.7 GO:0009311-GO:0009312=1.8 GO:0009312-GO:0046351=2.5 GO:0046351-GO:0005992=0.3	(n₁₁) GO:0048046 GO:0005575-GO:0005576=8.4 GO:0005576-GO:0048046=6.6	
arctan=24.8 distance=arctan×π/2=38.93	arctan=15 distance=arctan×π/2=23.55	