

**Table S1.** Top 100 upregulated genes from nickel treated plants compared to the water controls in *Pinus banksiana*

Rank	Gene ID	Res 1	Res 2	Res 3	Water 1	Water 2	Water 3	logFC	Adj. P. Value	UniProt Description
0	TRINITY_DN2786_c0_g1	767.81	197.57	545.86	0	0	0	13.96	0.00116	Predicted Protein
1	TRINITY_DN5716_c0_g1	2328.59	913.58	3881.87	0	7.03	0.41	13.34	0.00029	Predicted Protein
2	TRINITY_DN57079_c0_g1	339.53	238.75	261.65	0	0	0	13.30	0.00002	Predicted Protein
3	TRINITY_DN5965_c1_g1	1173.34	760.7	1106.06	0.33	0	0	13.28	0.00009	Predicted Protein
4	TRINITY_DN258556_c0_g1	280.75	98.46	494.55	0	0	0	13.09	0.00181	Predicted Protein
5	TRINITY_DN1368_c0_g1	1156.77	736.4	2060.57	0	1.3	0.07	12.99	0.00047	Predicted Protein
6	TRINITY_DN2832_c0_g1	334.2	111.71	258.08	0	0	0	12.93	0.00056	Predicted Protein
7	TRINITY_DN1628_c0_g1	646.38	288.02	710.02	0	0.32	0	12.82	0.00065	Trypsin inhibitor [Cleaved into: Trypsin inhibitor chain A; Trypsin inhibitor chain B ]
8	TRINITY_DN7061_c1_g1	158.35	218.82	172.81	0	0	0	12.69	0.00000	Predicted Protein
9	TRINITY_DN690_c0_g1	494.67	136.83	407.74	0.05	0	0	12.50	0.00181	Predicted Protein
10	TRINITY_DN5795_c0_g1	753.52	420.03	412.9	0	0.84	0	12.43	0.00032	Predicted Protein
11	TRINITY_DN1520_c0_g1	398.05	358.51	936.72	0.02	0.65	0	11.81	0.00043	Trypsin inhibitor [Cleaved into: Trypsin inhibitor chain A; Trypsin inhibitor chain B ]
12	TRINITY_DN3861_c0_g1	179.52	38.1	108.51	0	0	0	11.70	0.00251	Predicted Protein
13	TRINITY_DN40097_c0_g1	440.62	297.68	1698.09	0	3.39	0.69	11.62	0.00080	Predicted Protein
14	TRINITY_DN2463_c0_g1	301.76	196.16	568.86	0	0.04	0.11	11.56	0.00056	Predicted Protein
15	TRINITY_DN4524_c0_g3	64.05	74.91	115.6	0	0	0	11.54	0.00002	Predicted Protein
16	TRINITY_DN792_c0_g1	149.05	126.17	86.37	0	0.03	0	11.54	0.00004	ACT domain-containing protein ACR4 (Protein ACT DOMAIN REPEATS 4)
17	TRINITY_DN792_c0_g1	149.05	126.17	86.37	0	0.03	0	11.54	0.00004	ACT domain-containing protein ACR5 (Protein

										ACT DOMAIN REPEATS 5)
18	TRINITY_DN129489_c0_g1	125.97	40.97	102.59	0	0	0	11.53	0.00085	Predicted Protein
19	TRINITY_DN2914_c0_g1	134.07	79.52	144.69	0	0.03	0	11.51	0.00014	Protein TIFY 10b, OsTIFY10b (Jasmonate ZIM domain-containing protein 7, OsJAZ7) (OsJAZ6)
20	TRINITY_DN2914_c0_g1	134.07	79.52	144.69	0	0.03	0	11.51	0.00014	Protein TIFY 3B (Jasmonate ZIM domain- containing protein 12)
21	TRINITY_DN3536_c0_g1	51.58	119.55	84.19	0	0	0	11.51	0.00001	Predicted Protein
22	TRINITY_DN1537_c0_g1	64.53	90.63	76.46	0	0	0	11.44	0.00000	Predicted Protein
23	TRINITY_DN2075_c1_g1	81.81	56.05	84.87	0	0	0	11.38	0.00005	Predicted Protein
24	TRINITY_DN12750_c0_g1	93.87	62.85	64.95	0	0	0	11.37	0.00005	Predicted Protein
25	TRINITY_DN3685_c0_g2	524.13	169.45	298.36	0.01	0.58	0	11.33	0.00171	Copia protein (Gag-int- pol protein) [Cleaved into: Copia VLP protein; Copia protease, EC 3.4.23.- ]
26	TRINITY_DN3069_c0_g1	310.77	133.21	112.57	0	0.37	0	11.16	0.00120	Predicted Protein
27	TRINITY_DN4477_c1_g1	58.41	73.47	40.83	0	0	0	11.00	0.00002	Predicted Protein
28	TRINITY_DN9955_c0_g1	42.57	42.66	81.29	0	0	0	10.91	0.00007	Predicted Protein
29	TRINITY_DN3861_c0_g2	73.03	22.1	87.52	0	0	0	10.90	0.00200	Predicted Protein
30	TRINITY_DN2496_c0_g1	164.42	56.24	74.78	0	0.08	0	10.89	0.00111	Predicted Protein
31	TRINITY_DN3195_c0_g2	97.14	27.64	44.27	0	0	0	10.82	0.00125	Predicted Protein
32	TRINITY_DN13148_c0_g2	149.44	53.58	71	0.03	0	0	10.80	0.00087	Predicted Protein
33	TRINITY_DN8563_c1_g1	81.63	24.89	51.8	0	0	0	10.76	0.00105	Predicted Protein
34	TRINITY_DN4828_c0_g1	77.75	87.05	75	0	0.07	0	10.73	0.00002	Predicted Protein
35	TRINITY_DN1453_c1_g4	164.09	61.99	144.64	0	0.3	0	10.72	0.00143	Predicted Protein
36	TRINITY_DN1031_c0_g1	92.79	147.67	132.23	0	0.42	0	10.65	0.00004	Putative cysteine-rich repeat secretory protein 17

37	TRINITY_DN17_c0_g2	50.63	58.32	26.97	0	0	0	10.62	0.00006	RING-H2 finger protein ATL60, EC 2.3.2.27 (RING-type E3 ubiquitin transferase ATL60)
38	TRINITY_DN1299_c1_g1	32.6	35.97	67.12	0	0	0	10.60	0.00007	Predicted Protein
39	TRINITY_DN2516_c0_g1	445.31	249.4	199.81	0.02	0.63	0.07	10.58	0.00032	Predicted Protein
40	TRINITY_DN1518_c0_g1	96.36	25.43	28.14	0	0	0	10.56	0.00213	Predicted Protein
41	TRINITY_DN678_c0_g1	132.68	116.88	131.13	0	0.61	0	10.55	0.00012	Cysteine proteinase inhibitor 6, AtCYS-6 (PIP- M) (PRLI-interacting factor M)
42	TRINITY_DN678_c0_g1	132.68	116.88	131.13	0	0.61	0	10.55	0.00012	Cysteine proteinase inhibitor 3, AtCYS-3
43	TRINITY_DN678_c0_g1	132.68	116.88	131.13	0	0.61	0	10.55	0.00012	Multicystatin, MC
44	TRINITY_DN125473_c0_g2	65.02	24.25	42.52	0	0	0	10.54	0.00058	Predicted Protein
45	TRINITY_DN103008_c0_g1	216.81	147.31	109.01	0.08	0.1	0	10.48	0.00022	Predicted Protein
46	TRINITY_DN6089_c0_g1	96.41	139.06	110.48	0	0.52	0	10.47	0.00004	Predicted Protein
47	TRINITY_DN630_c0_g1	70.97	43.91	146.42	0	0.16	0	10.40	0.00127	Protein SRG1, AtSRG1 (Protein SENESCENCE- RELATED GENE 1)
48	TRINITY_DN630_c0_g1	70.97	43.91	146.42	0	0.16	0	10.40	0.00127	Jasmonate-induced oxygenase 4, EC 1.14.11.- (2-oxoglutarate- dependent dioxygenase JOX4) (Anthocyanidin synthase) (Jasmonic acid oxidase 4)
49	TRINITY_DN630_c0_g1	70.97	43.91	146.42	0	0.16	0	10.40	0.00127	Codeine O-demethylase, EC 1.14.11.32
50	TRINITY_DN630_c0_g1	70.97	43.91	146.42	0	0.16	0	10.40	0.00127	S-norococlaurine synthase 1, CjNCS1, EC 4.2.1.78
51	TRINITY_DN1958_c0_g1	34.95	25.92	54.49	0	0	0	10.38	0.00015	Predicted Protein
52	TRINITY_DN3889_c0_g1	414.11	167.54	300.23	0	0.98	0.57	10.37	0.00068	Predicted Protein

53	TRINITY_DN4195_c0_g1	47.94	20.18	47.91	0	0	0	10.36	0.00056	Predicted Protein
54	TRINITY_DN50999_c1_g1	44.58	72.78	14	0	0	0	10.35	0.00092	Predicted Protein
55	TRINITY_DN5723_c0_g1	147.25	109.75	89.9	0.01	0.19	0	10.34	0.00014	Predicted Protein
56	TRINITY_DN4424_c0_g1	47.33	16.14	56.98	0	0	0	10.33	0.00157	Predicted Protein
57	TRINITY_DN1307_c0_g1	16.43	96.5	26.64	0	0	0	10.30	0.00055	Germin-like protein 1-1 (Germin-like protein 4, OsGER4)
58	TRINITY_DN1307_c0_g1	16.43	96.5	26.64	0	0	0	10.30	0.00055	Germin-like protein subfamily 2 member 2
59	TRINITY_DN8008_c0_g1	41.17	24.54	37.72	0	0	0	10.26	0.00013	Predicted Protein
60	TRINITY_DN5391_c1_g1	39.5	79.43	11.5	0	0	0	10.24	0.00179	Predicted Protein
61	TRINITY_DN5136_c0_g1	45.05	28.07	26.97	0	0	0	10.21	0.00012	Predicted Protein
62	TRINITY_DN71807_c0_g1	29.61	23.8	49.04	0	0	0	10.21	0.00014	Predicted Protein
63	TRINITY_DN10435_c0_g1	688.04	977.43	155.25	0.18	0.41	0.11	10.17	0.00093	Glucan endo-1,3-beta- glucosidase, acidic isoform, EC 3.2.1.39 ((1- >3)-beta-glucan endohydrolase, (1->3)- beta-glucanase) (Beta-1,3- endoglucanase)
64	TRINITY_DN1644_c0_g1	42.57	17.5	40.38	0	0	0	10.15	0.00061	NAC transcription factor 47 (NAC domain- containing protein 47, ANAC047) (Protein SPEEDY HYPONASTIC GROWTH)
65	TRINITY_DN1472_c0_g1	212.32	210.54	174.12	0.02	0.16	0.1	10.15	0.00002	Triacylglycerol lipase OBL1, EC 3.1.1.- (Oil body lipase 1, NtOBL1)
66	TRINITY_DN8703_c1_g1	20.94	68.98	20.74	0	0	0	10.14	0.00014	Predicted Protein
67	TRINITY_DN30360_c0_g2	32.32	41.67	19.9	0	0	0	10.09	0.00004	Predicted Protein
68	TRINITY_DN690_c1_g1	36.04	15	46.52	0	0	0	10.06	0.00098	Predicted Protein
69	TRINITY_DN2595_c0_g1	34.43	14.93	48.4	0	0	0	10.06	0.00100	Predicted Protein

70	TRINITY_DN5044_c1_g1	3556.6	1665.8	4959.49	2.92	5.34	0.16	10.06	0.00002	Predicted Protein
71	TRINITY_DN2691_c0_g1	93.28	347.62	74.23	0	0.14	0.33	10.04	0.00108	Predicted Protein
72	TRINITY_DN59057_c0_g1	979.45	270.63	1164.92	0.55	2.6	0	10.03	0.00106	Predicted Protein
73	TRINITY_DN5965_c0_g1	159.21	70.92	203.21	0.07	0.21	0	10.00	0.00161	Predicted Protein
74	TRINITY_DN7685_c0_g1	69.15	75.78	88.19	0	0.41	0	9.99	0.00010	Predicted Protein
75	TRINITY_DN25430_c0_g1	14.61	23.03	66.45	0	0	0	9.99	0.00091	Predicted Protein
76	TRINITY_DN1507_c0_g1	26.74	27.5	28.46	0	0	0	9.97	0.00002	Predicted Protein
77	TRINITY_DN183161_c0_g1	38.89	15.66	33.33	0	0	0	9.96	0.00062	Predicted Protein
78	TRINITY_DN2540_c0_g1	65.96	51.15	17.44	0	0.05	0	9.95	0.00116	Predicted Protein
79	TRINITY_DN257933_c1_g1	22.27	33.69	26.6	0	0	0	9.95	0.00001	Predicted Protein
80	TRINITY_DN15707_c0_g1	40.5	12.74	34.71	0	0	0	9.90	0.00145	Predicted Protein
81	TRINITY_DN122303_c0_g2	43.54	23.48	82.74	0	0	0.06	9.87	0.00149	Predicted Protein
82	TRINITY_DN12875_c0_g1	368	113.74	248.93	0.24	0.34	0	9.86	0.00219	Predicted Protein
83	TRINITY_DN157113_c2_g1	33.92	29.87	15.92	0	0	0	9.85	0.00013	Predicted Protein
84	TRINITY_DN6211_c0_g1	26.02	66.59	9.11	0	0	0	9.84	0.00186	Predicted Protein
85	TRINITY_DN5240_c1_g1	75.64	57.88	47.63	0	0.09	0.03	9.78	0.00014	Predicted Protein
86	TRINITY_DN2454_c0_g2	24.25	22.33	25.85	0	0	0	9.78	0.00003	Predicted Protein
87	TRINITY_DN1456_c0_g1	306.48	253.1	155.47	0.27	0	0.25	9.78	0.00018	Predicted Protein
88	TRINITY_DN26886_c0_g1	61.81	26.91	40.92	0	0.09	0	9.77	0.00069	Predicted Protein
89	TRINITY_DN8619_c0_g1	37.8	12.68	28.14	0	0	0	9.77	0.00109	Predicted Protein
90	TRINITY_DN27427_c0_g1	48.32	16.08	14.95	0	0	0	9.71	0.00155	Predicted Protein
91	TRINITY_DN5616_c1_g1	114.68	86.52	56.74	0	1.17	0	9.70	0.00072	Predicted Protein
92	TRINITY_DN21893_c1_g1	11.63	44.29	22.13	0	0	0	9.67	0.00012	Predicted Protein
93	TRINITY_DN7420_c0_g1	25.09	11.85	36.81	0	0	0	9.66	0.00090	Predicted Protein
94	TRINITY_DN49749_c0_g1	27.49	17.43	20.17	0	0	0	9.61	0.00013	Predicted Protein
95	TRINITY_DN5340_c0_g1	27.6	47.12	22.31	0	0.04	0	9.60	0.00005	Predicted Protein
96	TRINITY_DN3840_c0_g2	40.87	29.93	22.16	0	0.03	0	9.58	0.00017	Predicted Protein
97	TRINITY_DN237688_c0_g1	21.17	36.54	11.77	0	0	0	9.57	0.00015	Predicted Protein
98	TRINITY_DN251401_c0_g1	26.95	28.1	11.66	0	0	0	9.57	0.00020	Predicted Protein
99	TRINITY_DN104547_c0_g1	238.4	83.01	249.46	0.25	0.3	0	9.56	0.00258	Predicted Protein

100	TRINITY_DN395_c0_g1	33.63	33.79	22.39	0.02	0	0	9.54	0.00005	Inositol polyphosphate 5-phosphatase OCRL, EC 3.1.3.36, EC 3.1.3.56 (Inositol polyphosphate 5-phosphatase OCRL-1) (Phosphatidylinositol 3,4,5-triphosphate 5-phosphatase, EC 3.1.3.86)
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**Table S2.** Top 100 downregulated genes from nickel treated plants compared to the control in *Pinus banksiana*

Rank	Gene ID	Res 1	Res 2	Res 3	Water 1	Water 2	Water 3	Adj. P. Value	Protein Description
0	TRINITY_DN1118_c0_g1	0	0	0	27.63	15.12	24.7	4.86E-05	Flavonol synthase/flavanone 3-hydroxylase, FLS, EC 1.14.11.9, EC 1.14.20.6
1	TRINITY_DN26931_c0_g1	0.16	0	0	65.61	45.82	36.39	9.47E-05	Probable aquaporin PIP2-8 (Plasma membrane intrinsic protein 2-8, AtPIP2;8) (Plasma membrane intrinsic protein 3b, PIP3b)
2	TRINITY_DN432_c0_g1	0	0.3	0	77.54	17.58	69.88	0.002533	Predicted Protein
3	TRINITY_DN4059_c0_g1	0	0	0	20.09	12.1	19.58	4.10E-05	Predicted Protein
4	TRINITY_DN30654_c0_g1	0	0	0	14.69	11.78	14.4	1.63E-05	Predicted Protein
5	TRINITY_DN2314_c0_g1	0.03	0.13	0	40.88	14.56	52.04	0.001066	Predicted Protein
6	TRINITY_DN69830_c0_g4	0	0	0	10.13	7.29	18.59	0.000101	Predicted Protein
7	TRINITY_DN129793_c0_g1	0	0	0	8.28	13.37	9.36	9.45E-06	Putative UPF0481 protein At3g02645
8	TRINITY_DN40558_c0_g1	0.04	0	0.05	36.31	14.48	19.64	0.000432	Predicted Protein
9	TRINITY_DN522_c0_g3	0	0	0	8.24	4.71	17.93	0.000408	Predicted Protein
10	TRINITY_DN1550_c0_g1	0	0.07	0	18.5	9.11	17.44	0.000209	Predicted Protein
11	TRINITY_DN113586_c0_g1	0	0	0	7.25	5.74	13.28	8.70E-05	Predicted Protein
12	TRINITY_DN25689_c0_g1	0.06	0.09	0	26.01	16.36	31.07	0.000136	Predicted Protein

13	TRINITY_DN26605_c0_g1	0	0	0	6.61	7.11	10.35	2.28E-05	Predicted Protein
14	TRINITY_DN31123_c0_g2	0	0	0	6.35	8.14	8.67	1.28E-05	Predicted Protein
15	TRINITY_DN4890_c0_g1	0	0	0.17	15.59	12.05	25.46	0.000174	Predicted Protein
16	TRINITY_DN5062_c0_g2	0	0	0	10.4	7.97	3.99	0.000193	Predicted Protein
17	TRINITY_DN3390_c0_g1	0	0	0	9.96	3.94	7.77	0.000273	Predicted Protein
18	TRINITY_DN6314_c0_g1	0	0	0	7.61	6.68	5.98	2.86E-05	Predicted Protein
19	TRINITY_DN2507_c0_g1	0	0	0.61	32.43	13.12	23.67	0.000952	Predicted Protein
20	TRINITY_DN53932_c0_g1	0.01	0	0.2	17.81	11.58	17.09	0.00016	Predicted Protein
21	TRINITY_DN20386_c0_g1	0	0	0	7.77	6	5.13	5.04E-05	Predicted Protein
22	TRINITY_DN17540_c0_g1	0	0	0	10.32	6.62	3.33	0.000363	Predicted Protein
23	TRINITY_DN51950_c1_g1	0	0	0	6.24	5.15	7.26	3.46E-05	Predicted Protein
24	TRINITY_DN59077_c1_g1	0	0.2	0	11.37	9.17	20.15	0.000196	Predicted Protein
25	TRINITY_DN26_c1_g1	0	0	0	5.86	4.64	7.86	5.04E-05	Alpha-galactosidase, EC 3.2.1.22 (Alpha-D-galactoside galactohydrolase) (Melibiase)
26	TRINITY_DN3304_c0_g1	0	0	0	9.07	9.08	2.36	0.000767	Predicted Protein
27	TRINITY_DN229927_c0_g1	0	0	0	7.04	3.93	6.56	0.000106	Predicted Protein
28	TRINITY_DN44526_c0_g2	0	0	0	8.45	2.63	7.68	0.000697	Predicted Protein
29	TRINITY_DN185135_c0_g1	0.01	0.04	0	10.52	6.31	8.09	0.00011	Predicted Protein
30	TRINITY_DN69346_c0_g1	0	0	0.11	8.89	9.05	16.12	0.000102	Predicted Protein
31	TRINITY_DN61932_c0_g1	0	0	0	4.25	10.03	4.53	4.75E-05	Predicted Protein
32	TRINITY_DN1400_c0_g1	0.03	0.03	0.07	24.93	11.67	26.83	0.000432	Subtilisin-like protease SBT5.6, EC 3.4.21.- (Subtilase subfamily 5 member 6, AtSBT5.6)
33	TRINITY_DN6996_c0_g5	0	0.12	0	12.87	8.76	10.4	0.000112	Predicted Protein
34	TRINITY_DN28592_c2_g1	0	1.27	0	25.1	13.73	26.65	0.000766	Predicted Protein
35	TRINITY_DN63981_c0_g2	0	0	0	4.48	4.77	7.31	3.70E-05	Predicted Protein
36	TRINITY_DN129749_c0_g1	0	0.12	0	9.6	9.98	11.12	4.47E-05	Predicted Protein
37	TRINITY_DN800_c0_g2	0	0	0	8	2.45	6.55	0.000689	Predicted Protein
38	TRINITY_DN1269_c0_g1	0.15	0.2	0	32.25	13.5	37.33	0.001037	Predicted Protein
39	TRINITY_DN11362_c0_g1	0	0.89	0.23	39.53	30.88	57.71	0.000201	Predicted Protein

40	TRINITY_DN20766_c0_g1	0	0.07	0	10.17	5.57	10.32	0.000218	Subtilisin-like protease SBT1.7, EC 3.4.21.- (Cucumisin-like serine protease) (Subtilase subfamily 1 member 7, AtSBT1.7) (Subtilisin-like serine protease 1, At-SLP1)
41	TRINITY_DN15047_c0_g1	0	0	0	4.32	5.55	5.12	1.96E-05	Predicted Protein
42	TRINITY_DN26605_c0_g2	0	0	0	2.45	6.9	7.85	0.00015	Predicted Protein
43	TRINITY_DN104952_c0_g1	0	0	0	6.71	2.45	6.55	0.000484	Predicted Protein
44	TRINITY_DN4176_c0_g1	0.02	0.33	0.26	61.56	18.42	66.16	0.001525	Chalcone synthase, EC 2.3.1.74 (Naringenin-chalcone synthase)
45	TRINITY_DN24969_c0_g1	0.12	0	0	15.57	5.1	13.9	0.00131	Predicted Protein
46	TRINITY_DN24626_c0_g1	0.12	0.13	0	21.48	21.87	17.99	6.53E-05	Predicted Protein
47	TRINITY_DN121_c0_g3	0.09	0.02	0.11	16.6	18.32	21.49	5.20E-05	Cellulose synthase A catalytic subunit 4 [UDP-forming], AtCesA4, EC 2.4.1.12 (Protein IRREGULAR XYLEM 5, AtIRX5)
48	TRINITY_DN20218_c0_g1	0.02	0.04	0	9.8	8.24	11.28	5.62E-05	Predicted Protein
49	TRINITY_DN5372_c0_g1	0	0	0	7.25	1.67	7.18	0.001777	Predicted Protein
50	TRINITY_DN3173_c0_g2	0	0	0	5.65	2.3	7.09	0.000497	Predicted Protein
51	TRINITY_DN15841_c0_g1	0	0	0	5.23	2.71	6.29	0.000214	Predicted Protein
52	TRINITY_DN1891_c0_g3	0	0	0	6.76	3.67	3.42	0.000191	Predicted Protein
53	TRINITY_DN15910_c0_g1	0.1	0.24	0.09	49.33	33.41	37.21	4.83E-05	Predicted Protein
54	TRINITY_DN7784_c1_g1	0	0	0	8.87	2.18	3.94	0.001207	Predicted Protein
55	TRINITY_DN8038_c0_g1	0.62	0.26	0.25	122.65	81.13	105.38	4.77E-06	Probable aquaporin PIP2-8 (Plasma membrane intrinsic protein 2-8, AtPIP2;8) (Plasma membrane intrinsic protein 3b, PIP3b)
56	TRINITY_DN12836_c0_g1	0	0	0	7	3.29	3.35	0.00028	Alpha carbonic anhydrase 7, AtCA7, AtalphaCA7, EC 4.2.1.1 (Alpha carbonate dehydratase 7)
57	TRINITY_DN6386_c0_g2	0	0	0	4.88	3.66	4.48	5.51E-05	Predicted Protein
58	TRINITY_DN7751_c0_g1	0	0	0	5.77	2.52	5.12	0.000267	Predicted Protein
59	TRINITY_DN159567_c0_g1	0	0.32	0	11.89	6.31	15.47	0.000621	WAT1-related protein At5g07050
60	TRINITY_DN293_c0_g1	0.59	0.32	0.44	83.3	131.42	164.86	4.44E-07	Delta-selinene-like synthase, chloroplastic, PsTPS-Sell, EC 4.2.3.76



61	TRINITY_DN293_c0_g1	0.59	0.32	0.44	83.3	131.42	164.86	4.44E-07	Alpha-humulene synthase, EC 4.2.3.104 (Terpene synthase TPS-Hum, PgTPS-Hum)
62	TRINITY_DN293_c0_g1	0.59	0.32	0.44	83.3	131.42	164.86	4.44E-07	Delta-selinene synthase, EC 4.2.3.71, EC 4.2.3.76 (Agfdse1)
63	TRINITY_DN44886_c0_g1	0	0.04	0	6.47	4.31	7.89	0.000134	Predicted Protein
64	TRINITY_DN71967_c0_g1	0	0	0	6.52	2.32	4.44	0.00046	Predicted Protein
65	TRINITY_DN87537_c1_g2	0	0	0	4.36	1.76	7.92	0.000982	Predicted Protein
66	TRINITY_DN63391_c0_g1	0	0	0	6.17	1.74	5.13	0.000994	Predicted Protein
67	TRINITY_DN50988_c0_g1	0.05	0	0	8.96	3.64	8.45	0.000593	Predicted Protein
68	TRINITY_DN36314_c0_g2	0	0	0	7.73	4.68	1.42	0.001863	Putative anthocyanidin reductase, GbANR, EC 1.3.1.-
69	TRINITY_DN647_c0_g2	0	0.07	0.06	15.17	6.47	13.72	0.00068	Purple acid phosphatase 3, EC 3.1.3.2
70	TRINITY_DN256198_c0_g1	0	0	0	7.86	4.47	1.34	0.002153	Predicted Protein
71	TRINITY_DN125084_c0_g3	0.03	0	0	5.87	7.75	3.36	0.000138	Delta-selinene synthase, EC 4.2.3.71, EC 4.2.3.76 (Agfdse1)
72	TRINITY_DN22583_c0_g1	0	0	0	4.49	3.11	3.47	8.47E-05	Predicted Protein
73	TRINITY_DN98979_c0_g4	0	0	0	3.3	4.07	3.81	2.91E-05	Probable galactinol--sucrose galactosyltransferase 6, EC 2.4.1.82 (Protein DARK INDUCIBLE 10) (Raffinose synthase 6)
74	TRINITY_DN9649_c1_g3	0	0	0	2.73	10.46	1.9	0.000761	Predicted Protein
75	TRINITY_DN11419_c0_g1	0	0	0	5.05	1.36	6.38	0.001738	Predicted Protein
76	TRINITY_DN1911_c0_g1	0	0.03	0.03	7.9	7.77	6.89	5.67E-05	Predicted Protein
77	TRINITY_DN2236_c0_g1	0.2	0	0.25	39.44	18.18	16.02	0.001027	Predicted Protein
78	TRINITY_DN250708_c0_g1	0	0	0	7.84	2	2.38	0.001663	Predicted Protein
79	TRINITY_DN18490_c0_g1	0	0	0	3.72	1.31	8	0.002018	Predicted Protein
80	TRINITY_DN7878_c0_g1	0.25	1.75	0.46	124.44	78.86	175.53	2.73E-06	Predicted Protein
81	TRINITY_DN3227_c0_g1	0	0	0	3.03	2.62	5.23	0.000109	Predicted Protein
82	TRINITY_DN83526_c0_g3	0	0	0	2.83	5.13	3	4.20E-05	Predicted Protein
83	TRINITY_DN1934_c0_g1	0.02	0.03	0.06	16.23	6.2	17.34	0.001139	Predicted Protein
84	TRINITY_DN121_c0_g1	0.18	0.1	0.03	20.19	22.8	24.32	2.97E-05	Cellulose synthase A catalytic subunit 8 [UDP-forming], AtCesA8, EC 2.4.1.12

									(Protein IRREGULAR XYLEM 1, AtIRX1) (Protein LEAF WILTING 2)
85	TRINITY_DN121_c0_g1	0.18	0.1	0.03	20.19	22.8	24.32	2.97E-05	Cellulose synthase A catalytic subunit 9 [UDP-forming], EC 2.4.1.12 (OsCesA9)
86	TRINITY_DN2085_c0_g1	0.34	0.57	0.14	100.49	52.63	54.79	3.54E-05	Predicted Protein
87	TRINITY_DN41388_c0_g2	0	0	0.04	3.85	3.14	9.7	0.000494	Predicted Protein
88	TRINITY_DN17036_c0_g1	0.06	0.77	0.19	41.49	43.27	52.52	1.13E-05	Predicted Protein
89	TRINITY_DN19058_c0_g1	0	0	0	2.83	3.41	3.9	3.74E-05	Predicted Protein
90	TRINITY_DN5226_c2_g1	0	0	0	3.04	1.9	6.31	0.000435	Predicted Protein
91	TRINITY_DN61279_c2_g1	0	0	0	5.99	1.98	2.71	0.000712	Probable LRR receptor-like serine/threonine-protein kinase At5g48740, EC 2.7.11.1
92	TRINITY_DN1794_c0_g3	0	0	0	2.16	2.75	6.48	0.000243	Predicted Protein
93	TRINITY_DN31192_c0_g2	0	0	0	3.24	3.3	3.39	4.09E-05	Predicted Protein
94	TRINITY_DN260195_c2_g2	0	0	0	3.29	3.18	3.44	4.45E-05	Predicted Protein
95	TRINITY_DN304016_c0_g1	0	0	0	3.72	2.27	4.05	0.000138	Predicted Protein
96	TRINITY_DN4245_c0_g1	0.06	0.24	0	6.69	11.32	27.52	0.00114	Predicted Protein
97	TRINITY_DN16676_c0_g2	0	0	0	3.9	2.93	2.89	8.31E-05	Predicted Protein
98	TRINITY_DN1794_c0_g1	0	0	0	3.92	2.16	3.82	0.000175	Predicted Protein
99	TRINITY_DN180254_c0_g1	0.01	0	0	4.85	4.11	5.09	7.03E-05	Predicted Protein
100	TRINITY_DN30545_c1_g1	0.08	0.08	0.06	16.07	11.96	18.36	0.000123	Predicted Protein



**Figure S1.** *Pinus banksiana* seedlings water growing in a growth chamber after treatments with nickel sulfate, potassium sulfate, and water.