

Table 1: Effect of light conditions on proliferation of cluster somatic embryos, and mean of germination and elongation of cluster somatic embryos.

Light condition	Mean cluster embryos number after 3 subcultures	Mean number of somatic embryos germination per cluster embryo explant.	Mean elongation of cluster embryo stem (cm) during conversion to plantlet
Light (16 h light/8 h dark)	62.6±6.5 ^b	1.6±0.5 ^c	3±1 ^c
Continuous dark	127.6±15.5 ^a	3.3±0.5 ^a	11±2 ^a
3 weeks of dark followed by light	-----	3±1 ^{ab}	9±1 ^{ab}

Values followed by the same letters (a to c) for each column are not significantly different at $p = 0.05$ level according to the SNK test.

Light condition	Proliferation of somatic embryos number after 3 subcultures			Mean number of somatic embryos germination per cluster embryo explant.			Mean elongation of cluster embryo stem (cm) during conversion to plantlet		
	R1	R2	R3	R1	R2	R3	R1	R2	R3
Light (16 h light / 8 h dark)	58	67	63	2	2	1	4	3	2
Continuous dark	121	138	124	4	4	3	13	11	9
Dark for 3 weeks followed by light				4	3	2	10	9	8

Table 2: Effect of light conditions on the number of micropropagation stages and time taken for somatic embryos multiplication, germination and conversion into plants.

Light condition	Micropropagation stages and time for cluster somatic embryo multiplication, germination and conversion into plants.				
	Stage 1 (weeks)	Stage 2 (weeks)	Stage 3 (weeks)	Stage 4 (weeks)	N. of stages (weeks)
Light (16 h light / 8 h dark)	Multiplication (18)	Germination (12)	Elongation (8)	Rooting (8)	4 stages (46 ^a)
Continuous dark	Multiplication (18)	Germination and elongation (7)	Rooting (8)	NA	3 stages (33 ^{bc})
Dark for 3 weeks followed by light	Multiplication (18)	Germination and elongation (10)	Rooting (8)	NA	3 stages (36 ^b)

Values followed by the same letters (a to c) for each column are not significantly different at $p = 0.05$ level according to SNK test.

Table 3: The effect of light conditions on protein and phenolic compounds content of somatic embryos.

Light conditions	Total protein $\mu\text{g} / \text{g FW}$	Phenolic compounds $\text{mg} / \text{g FW}$
Light (16 h light / 8 h dark)	48.21 ± 9.3^c	0.26 ± 0.07^a
Continuous dark	96.78 ± 8.5^a	0.19 ± 0.06^{cb}
Dark for 3 weeks followed by light	80.83 ± 8.6^b	0.20 ± 0.02^b

Values are means $\pm$ standard error of three replicates. Values followed by the same letters (a to c) for each column are not significantly different at $p = 0.05$ level according to the SNK test.

Light conditions	Total protein µg / g FW			Phenolic compounds mg / g FW		
	R1	R2	R3	R1	R2	R3
Light (16 h light / 8 h dark)	41.56	54.43	48.65	0.25	0.31	0.22
Continuous dark	91.23	102.45	96.67	0.19	0.23	0.15
Dark for 3 weeks followed by light	72.13	86.62	83.74	0.21	0.22	0.19

Table 4: Effect of light conditions on the plants rooting

Light conditions	Rooting (%)	Number of roots	Length of roots (cm)
Light (16 h light/8 h dark)	78.7±5 ^c	1.7±0.5 ^c	3.8±0.95 ^c
Continuous dark	93±3 ^a	2.7±0.5 ^a	5.7±0.7 ^a
Dark for 3 weeks followed by light	90.4±2.5 ^{ab}	2.4±1 ^{ab}	4.7±1 ^{ab}

Values followed by the same letters (a to c) for each column are not significantly different at p = 0.05 level according to SNK test.

Light conditions	Rooting (%)			Number of roots			Length of roots (cm)		
	R1	R2	R3	R1	R2	R3	R1	R2	R3
Light (16 h light/8 h dark)	78	82	76	1	2	2	3.5	4.4	3.4
Continuous dark	91	95	93	2	3	3	5.6	6.1	5.2
Dark for 3 weeks followed by light	90	92	89	2	3	2	4.6	5.4	4.2

Table 5: Effect of light conditions on in vitro plants acclimatization.

Light conditions	Plants survival rate	Plant length (cm)	Plant growth vigor
Light (16 h light/8 h dark)	72±6% ^c	7±1.5 ^c	3.3 ^c
Continuous dark	87±7.5% ^a	15.7±3.5 ^a	4.7 ^a
Dark for 3 weeks followed by light	82.3±5.5% ^{ab}	11±3 ^b	4 ^b

Values followed by the same letters (a to c) for each column are not significantly different at $p = 0.05$ level according to SNK test.

Light conditions	Plants survival rate			Plant length (cm)			Plant growth vigor			Leaves N. per plant		
	R1	R2	R3	R1	R2	R3	R1	R2	R3	R1	R2	R3
Light (16 h light/8 h dark)	67	76	73	6	8	7	3	4	3	1	2	2
Continuous dark	83	92	86	15	18	14	4	5	5	2	3	3
Dark for 3 weeks followed by light	77	86	84	9	13	11	3	5	4	2	3	2