

Tables

Table 1 Media, plant growth regulators and carbon source used to induce callus from immature embryos

Medium	Basal salt and composition	Plant growth regulators	Concentration (mg L ⁻¹)	Carbon Source
IM1	WPM	2,4-D	1	3% sucrose
IM2	WPM	2,4 D	1	1.5% lactose+ 1.5% galactose
IM 3	MS	2,4 D	1	3% sucrose
IM 4	WPM	2,4 D	1	3% sucrose
IM 5	MS	BAP 2,4 D	1 1	3% sucrose
IM 6	WPM	BAP	1	3% sucrose
IM 7	DKW	BAP	1	3% sucrose
IM 8	DKW	2,4 D	2	3% sucrose
IM 9	MS	BAP	2	3% sucrose
IM 10	MS	2,4 D BAP	2 0.5	2% maltose
IM 11	SH +1 mgL ⁻¹ casein + 500 mgL ⁻¹ glutamine	BAP NAA	1 1	2% sucrose

Table 2 Media, plant growth regulators and origin of explants used in callus induction from mature embryos

Medium	Basal salt	Plant growth regulators	IN of donor trees
T1(control)	MS	Hormone free	IN: 6, 7, 8, 10, 12, 13, 21, 22, 29
T2	MS	BAP (1 mg L ⁻¹)	IN: 6, 7, 8, 10, 12, 13, 21, 22, 29
T3	SH	BAP (1 mg L ⁻¹)	IN: 6, 7, 8, 10, 12, 13, 21, 22, 29
T4 (control)	SH	Hormone free	IN: 6, 7, 8, 10, 12, 13, 21, 22, 29

Table 3 Media and plant growth regulators used to test the effect of PGR on somatic embryogenesis

Medium	Basal salt	Plant growth regulators
M0 (control)	SH	Hormone free
M1	SH	BAP (1 mgL ⁻¹)
M2	SH	2,4 D (1 mgL ⁻¹)
M3	SH	BAP (1 mgL ⁻¹) + 2,4 D (1 mgL ⁻¹)

Table 4. Percentage of full seeds varied among all tested *A. nebrodensis* adult trees via X-Ray test

Adult trees IN	Embryo presence via X-Ray test (%)
6	13
7	54
8	37
10	36
12	25
13	15
19	0
21	44
22	31
27	19

Table 5 The effect of medium on embryogenic callus induction (%)

	IN7	IN8	IN10	IN13	IN21	Means of media
T1	0.0 (c)	0.0 (c)	0.0 (c)	0.0 (c)	0.0 (c)	0.0
T2	0.0 (c)	0.0 (c)	0.0 (c)	0.0 (c)	0.0 (c)	0.0
T3	40.0 (a)	0.0 (c)	5.0 (bc)	10.0 (bc)	15.0 (b)	14
T4	0.0 (c)	0.0 (c)	0.0 (c)	0.0 (c)	0.0 (c)	0.0

Letters a, b, and c showed the difference between means after the LSD test ($\alpha < 0.001$).

Table 6. Effect of PGRs on the type of EC and NEC induction rate from *Abies nebrodensis* mature zygotic embryos (%)

Medium	EC	NEC	Globular green callus
M0	0.0 (0.0) b	0.0 (0.0) b	0.0 (0.0) b
M1	4.6 (10.58) a	80.1 (124.22) a	30.6 (51.54) a
M2	0 (0.0) b	76.7 (121.69) a	0.0 (0.0) b
M3	3.5 (7.54) ab	77.8 (123.03) a	21.7 (37.93) a
Significance	***	***	***

All the percentage were subjected to arcsine transformation. Value of arcsine were presented in the table in parenthesis. Then, every parameter submits one way ANOVA analyses separately; results present after LSD test ($\alpha < 0.001$).

Table 7. Pre-cotyledonary and cotyledonary somatic embryo formed on maturation medium (Only numbers of embryos were counted)

Cell line	Pre-cotyledonary embryos	Cotyledonary embryos	SE achieve cotyledonary stage (%)
Ab1 (donor tree IN7)	85	10	12%
Ab2 (donor tree IN7)	50	12	24%
Ab3 (donor tree IN7)	20	12	60%
Ab4 (donor tree IN21)	60	35	58%
Total	215	69	32 %