Table 1 Suppl. Summary of thin cell layer (TCL) studies in *Dendrobium* species. 2,4-D - 2,4- dichlorophenoxy acetic acid; BA - 6-benzyladenine; CH - casein hydrolysate; CM - coconut milk; CW - coconut water; IAA - indole-3-acetic acid; KC - Knudson's C medium (Knudson 1946); KN - kinetin; MS - Murashige and Skoog (1962) medium; NAA - 1-naphthaleneacetic acid; PLB - protocorm like body; TCL - thin cell layer; TCS - thin cross section; TDZ - thiadiazuron; TRIA - triacontanol; ZR - zeatin riboside. All % values on a m/m basis for solids and a v/v basis for liquids.

Dendrobium species	Explant source and explant size	Culture medium	Response of cultures		References
Dendrobium gratiosissimum Rchb.f.	TCLs taken from protocorms (cut into two halves) and young stems (0.3 - 0.5 mm)	MS medium + 20 mg dm^{-3} sucrose with different combinations of BA, KN, and NAA.	Direct PLBs	PGR-free MS medium failed to induce PLBs from stem explants. Highest percentage of PLB TCLs (83 %) formed highest number of PLBs (18) on 2 mg dm^{-3} KN compared to stem TCLs (66 %; 9 PLBs/TCL) on 5 mg dm^{-3} KN + 1.0 mg dm^{-3} NAA. Plantlet conversion from PLBs was possible on PGR-free medium.	Jaiphet and Rangsayatorn, 2010
D. draconis Rchb. f.	TCSs (0.3 - 0.5 mm) from seedlings (6-month-old)	MS + 20 g dm^{-3} sucrose with BA (1.0, 2.0, 5.0, and 10.0 mg dm^{-3}), KN (1.0, 2.0, 5.0, and 10.0 mg dm^{-3}) and NAA (0.5 and 1.0 mg dm^{-3}), either individually or in combination.	Direct PLBs	PLBs induced directly on MS medium supplemented with cytokinin alone or in combination with auxin without an intermediate callus phase. 68 % of TCSs produced a maximum of 11 PLBs on the optimal concentration of 2 mg dm^{-3} BA + 1.0 mg dm^{-3} NAA. However, an average of 15.6 PLBs formed on 5.0 mg dm^{-3} BA alone but with a lower frequency (32.8 %) for TCSs.	Rangsayatorn, 2009
D. candidum Wall *ex* Lindl.	Transverse stem sections (0.5 mm) with a node, from seedlings	*1*) Half strength MS + 0.6 % agar + 2 % sucrose with NAA (0.2 - 3.0 mg dm^{-3}), BA (0.5 - 5.0 mg dm^{-3}) and KN (0.5 - 3.0 mg dm^{-3}) alone or in combination. *2*) Two orientations: upright (basal proximal end cut surface touching on the medium) and inverted (the apical, i.e., distal end cut surface touching on the medium).	Direct shoots	Half MS medium + 1.2 mg dm^{-3} NAA and 1.2 mg dm^{-3} BA was optimal for shoot regeneration (24.5 shoots forming on 78 % of TCSs). Upon this medium, the youngest explant (node 1) in an upright orientation formed most (24.5) adventitious buds/TCS.	Zhao *et al*. 2007
Dendrobium species, D16 and D36	1, 3, 5 mm long sections of seedlings	*1*) MS + 3 % sucrose + 7 g dm^{-3} agar with BA 1.0 mg dm^{-3} + NAA 1 mg dm^{-3}. *2*) For shoot formation 5 mm long sections cultured on BA and NAA at 0 to 2 mg dm^{-3}, alone or in combination.	Direct PLBs	PLBs (after 3 - 4 weeks) followed by shoots formed on all explants, after 8 weeks of culture. Highest response (77.7, 88.7 and 88.7, 100 %) with 4.5 - 6.0 and 6.5 - 7.0 shoots were achieved on 3 and 5 mm explants of both species.	Nhut and Dung, 2006
D. nobile Lindl.	TCSs (1 – 5 mm) taken from shoot tips of wild plants	Mitra *et al*. medium (Mitra *et al*., 1976) + 3.0 % sucrose + 0.7 % agar + 0.5 g dm^{-3} mesoinositol + 1.0 g dm^{-3} CH + 0.5 g dm^{-3} L-glutamine + 250 mg dm^{-3} peptone + 0.2 g dm^{-3} *p*-aminobenzoic acid + 0.1 g dm^{-3} biotin with TRIA at 1, 2, 5, 7, 10, 15, 20, 25 and 30 µg dm^{-3}.	Direct PLBs with callus	93.5% of explants produced 21.0 PLBs/TCS in response to 4 mg dm^{-3} TRIA. PLBs on the same medium formed most (16.3) shoot buds/PLB. About 91.5 % of these shoots rooted on 2.0 mg dm^{-3} TRIA.	Malabadi *et al*. 2005
D. nobile Lindl.	TCS (0.5 mm) from PLBs derived from shoot culture	*1*) MS + 30 g dm^{-3} sucrose with 2.8 - 54.0 µM BA, KN, ZR and NAA, either individually or in combinations. *2*) MS liquid culture + 11.0 µM BA.	Direct PLBs	Highest average (34.0 PLBs/TCS) induced in 87.85 % of TCSs on MS medium + 11.0 µM BA. Suspension culture increased the frequency of response to 92 % and the number of PLBs/TCS to 37.8.	Nayak *et al*., 2002
D. Madame Thong-In (a hybrid of *D.* Somsak × *D.* Suzie Wong	Thin sections (1 mm) from 0.5 cm long protocorms	Modified liquid KC medium with 2 % sucrose, 15 % CW and 5 µM BA.	Direct PLBs	About 80 % of the thin sections produced about 0.5 cm long PLBs within 1 month and continued to develop into shoots.	Yu *et al*. 2000
D. moschatum (Buch.-Ham)	TCSs (1 - 1.5 mm) taken from seedlings of 6 to 8-week-old	*1*) Modified KC medium both in liquid and semi solid forms + CM (15 %) with IAA (0.5 - 3.0 mg dm^{-3}), 2,4-D (0.5 - 3.0 mg dm^{-3}), NAA (0.5 - 3.0 mg dm^{-3}) and BA (0.5 - 3.0 mg dm^{-3}), either individually or in combination. *2*) Developed PLBs sub culture on KC + CM (15 %) and BA (3 mg dm^{-3}) and NAA (2 mg dm^{-3}).	Direct PLBs	The highest number of TCSs from liquid and semisolid medium (92 % and 89 %) produced an average of 13.6 and 8.4 PLBs/TCS in response to 2.0 mg dm^{-3} NAA + 3.0 mg dm^{-3} BA.	Kanjilal *et al*. 1999

Table 2 Suppl. Features of inter simple sequence repeat (ISSR) primers used for ISSR-PCR of *in vitro* plantlets of *Dendrobium aqueum*.

Primer	Sequence (5'- 3')	T_m	No. of bands amplified	No. of monomorphic bands	No. of polymorphic bands	Size of band amplified [bp]
UBC 812	(AC)8C	52.16	8	8	0	575 - 1300
UBC 826	(GA)8YC	54.59	9	9	0	575 - 1650
UBC 866	(AC)8AT	61.86	4	4	0	325 - 1300
I2	(AC)8AG	52.74	11	10	1	650 - 1700
I4	(AC)8TG	55.02	13	13	0	375 - 1900

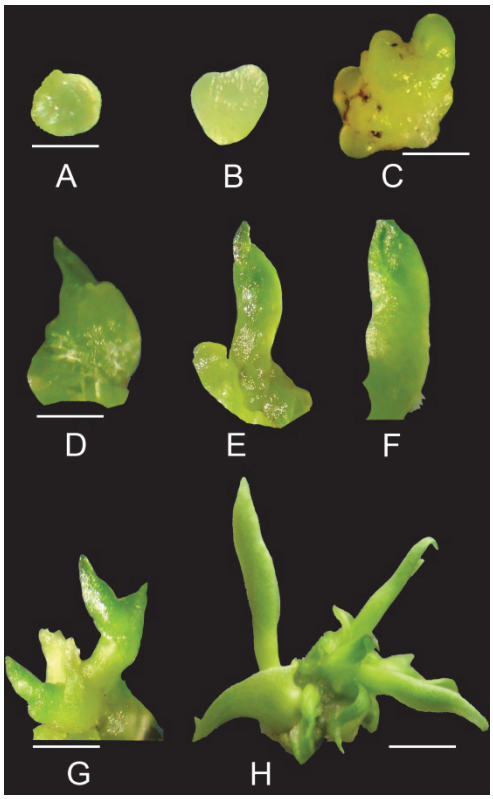

Fig. 1 Suppl. Enlarged views of somatic embryogenic stages that developed on the embryogenic callus (Fig. 1*B* and *C*) of *Dendrobium aqueum*: *A* - globular somatic embryo (SE); *B* and *C* - early and late heart-shape SEs; *D* and *E* - protocorm-like body (PLB) with rhizoidal hairs (*arrows*) and torpedo-shaped SE with a cotyledon; *F* and *G* - late torpedo-like SEs with a developing leaf primordium and rhizoids; *H* - SEs formed plantlets with a root initial. *Scale bars*: 250 µm (*A* and *B*); 320 µm (*C*); 540 µm (*D-F*); 1 000 µm (*G* and *H*).

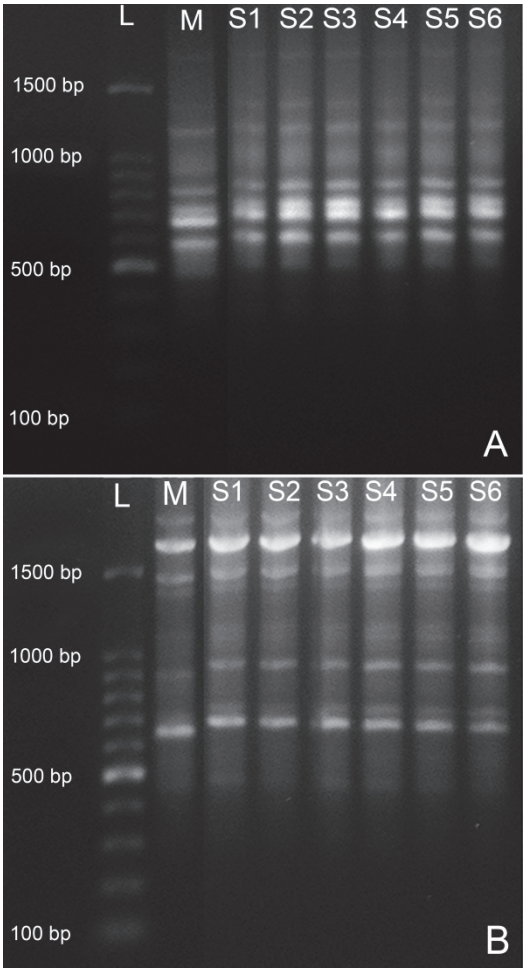

Fig. 2 Suppl. The inter simple sequence repeat (ISSR) fingerprinting of *in vitro* somatic embryo (SE) derived plantlets of *D. aqueum*: *A* - band profile of primer UBC 826; *B* - band profile of primer I2. (L - 100 bp DNA ladder, M - mother plant, S1 to S6 - plantlets derived from SEs. L and M lanes derived from the same gel as S1 - S6, and spliced together for easier band comparison.