The Multiplication of *Dracaena* by Tissue Culture

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INTRODUCTION

The genus *Dracaena* includes many species used as ornamental foliage plants, however, because their growth rates are often slow, the production of saleable plants is a long process. Recently the quality of plants of *Dracaena* available for sale has deteriorated. Tissue culture is a potential method of solving these problems.

In this report we investigate the effects of phytohormones on the production of callus, shoots, and roots from stem explants of *D. deremensis* and *D. concinna.*

MATERIALS AND METHODS

Dracaena deremensis 'Souvenir de Schriever' (syn. 'Warneckii') and *D. concinna* 'Tricolor Rainbow' were used. After washing for a few minutes in running water, the stems were dipped into 70% ethanol for 1 min, sterilized with NaOCl solution (1% active chlorine) for 6 min, and washed with sterilized distilled water. The stems were cut into approximately 1-cm lengths and placed on media containing MS basal medium supplemented with 3% sucrose and various combinations of auxins (1 mg liter^{-1}), IAA, NAA, 2,4-D, and IBA, cytokinins (1 mg liter^{-1}), BA, and kinetin (KI) (Table 1). Explants were cultured at 25C under 3000 lux fluorescent illumination for a 12-h photoperiod. After 58 days of culture the response of the stem explants was recorded.

RESULTS AND DISCUSSION

After 58 days of culture, the stem explants of *D. deremensis* and *D. concinna* showed different reactions to the phytohormones as shown in Table 2 and Table 3. On the MS medium containing NAA, stem explants of *D. deremensis* 'Souvenir de Schriever' produced callus and shoots, while on the medium containing IAA and IBA, they produced roots (Table 2).

On the other hand, on the MS medium containing IBA, NAA, and 2,4-D, stem explants of *D. concinna* 'Tricolor Rainbow' produced callus, shoots, and roots. The media containing NAA and 2,4-D were especially effective for shoot growth (Table 3).

Consequently this method of culturing stem explants on MS medium containing NAA or 2,4 D is considered effective for the micropropagation of *D. deremensis* 'Souvenir de Schriever' and *D.concinna* 'Tricolor Rainbow'. Development of this culture system may contribute to an improvement in the quality of nursery plants of *Dracaena* available on the market.

Table 1. Combination of phytohormone in MS solid medium used for the differentiation in *Dracaena deremensis* 'Souvenir de Schriever' and *D. concinna* 'Tricolor Rainbow'.

	Phytohormone	
Medium no.	Cytokinin	Auxin
1	BA	IAA
2	BA	NAA
3	BA	2,4-D
4	BA	IBA
5	KI	-
6	KI	IAA
7	KI	NAA
8	KI	2,4-D
9	KI	IBA
10	KI	-
11	-	IAA
12	-	NAA
13	-	2,4-D
14	-	IBA
15	-	-

Table 2. Effect of phytohormone on differentiation in *Dracaena deremensis* 'Souvenir de Schriever'.

			Explants producing (no.)		
Medium no.	Explants cultured (no.)	Explant survival (no.)	Callus	Shoots	Roots
1	2	1	0	1	0
2	2	2	0	1	0
3	3	3	0	0	0
4	4	4	1	4	0
5	3	3	0	1	0
6	3	2	0	2	0
7	4	3	0	3	0
8	2	2	2	0	0
9	2	2	0	2	0
10	3	3	0	3	0
11	3	3	0	2	1
12	3	3	1	2	0
13	2	1	1	0	0
14	4	4	0	4	2
15	3	3	0	3	0

Table 3. *Effect of phytohormone on differentiation in* *Dracaena concinna* 'Tricolor Rainbow'.

			Explants producing (no.)		
Medium no.	Explants cultured (no.)	Explant survival (no.)	Callus	Shoots	Roots
1	3	2	0	2	0
2	3	2	2	0	0
3	3	3	2	1	0
4	3	3	2	3	1
5	3	3	2	1	0
6	3	3	0	1	0
7	3	3	2	1	0
8	3	2	2	0	0
9	3	3	1	2	0
10	3	3	0	0	0
11	3	1	0	0	0
12	3	3	2	2	2
13	3	3	2	2	2
14	3	3	3	2	3
15	3	1	0	0	0