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In vitro propagation and rapid multiplication of *Tylophora indica* (Burm.f.) Merrill

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Abstract
The purpose of this study is *in vitro* regeneration of *Tylophora indica* from leaf explants collected from two year old healthy plant and it place on MS medium with BAP (1 mg/l) and NAA (2 mg/l) induce shoots and roots. MS media combination with BAP (0.5 mg/l) and 2, 4- D (2 mg/l) explant show high callus induction. Root initiation observed BAP (2 mg/l) and 2, 4- D (2.5 mg/l).

Keywords: multiple shoot induction, callus induction, rooting

1. Introduction
Tylophora indica (Burm. f) Merr. belonging to family Asclepidaceae, is a perennial climber found in restricted localities in India. The plant traditionally used for curing asthma, cough, diarrhoea, ulcer, bronchitis. The conventional propagation method is very tedious because of varying agro-climatic conditions and seasonal dormancy. This plant has been traditionally used by tribes in certain regions of India for various diseases (Anonymous, 1976) [1]. The *in vitro* propagation of *T. indica* by axillary shoot induction and adventitious shoot production (Sharma and Chandel, 1992) [7]. The large scale production of this plant is very necessary because the destruction of plant caused by harvesting the roots. Presently marketing the *T. indica* as anti-asthmatic herbal drugs (Chaudhuri *et al*., 2004) [4]. *In vitro* propagation methods used to conserve *T. indica* and the multiplication of shoots from the explants like leaf (Bera and Roy, 1993; Manjula *et al;* 2000: Chandrasekhar *et al*; 2006) [2, 5, 3].

2. Materials and Methods
The leaf. explant of *T.indica* were collected from medicinal garden of Sree Narayana College, Kollam. Murashige and Skoog's (MS) medium containing 0.8% agar and 30 mg/l sucrose. The PH of MS basal medium was adjusted to 5.8. Plant hormones were supplemented at various concentrations. After that it is sterilized by autoclaving at 121 ºC. and 15 lb pressure for 20 minutes. 100 µmol m^{-2} s^{-1} light (18 hours) provided by cool-white fluorescent tubes at 25 ± 2 ºC. leaf explants collected from two year old healthy plant and it place on MS medium. The MS medium with BAP and NAA at different concentrations induce shoots and roots. The response of explant varies in different concentrations of plant growth regulators in MS medium are represented in Table 1,

3. Result and Discussion
The study reveals that the high frequency of shoot and root induction from leafy explants of *Tylophora indica* in the MS medium contains BAP (1 mg/L) with NAA (2 mg/L). The response of this explant was 96 %. The MS medium contains BAP (0.5 mg/L) and 2, 4- D (2 mg/L) explants show high callus induction and BAP (2.0 mg/L) and 2, 4- D (2.5 mg/L) show high rate of root initiation (Table 1).

Table 1: Effect of PGR's on shoot induction from leaf explants of *Tylophora indica*

Sl. No.	Plant growth regulators used in MS medium			Percentage of Response (%)
	BAP (mg/L)	NAA(mg/ L)	2,4- D (mg/ L)	
1	0.5	-		40%
2	0.5	1.0		60%
3	0.5	-	1.5	55%
4	0.5	-	2.0	89%
5	0.5	-	2.5	55%
6	1.0	-		76%
7	1.0	1.0		70%
8	1.0	1.5		73%
9	1.0	-	1.5	44%
10	1.0	2.0	-	96%
11	1.5	0.5		64%
12	1.5	1.0		35%
13	1.5	1.5		80%
14	-	-	-	-
15	-	-	-	-
16	2.0	-		82%

17	2.0	1.0		49%
18	2.0		1.5	59%
19	2.0		2.0	45%
20	2.0		2.5	91%
21	3.0	-	0.5	66%
22	3.0	-	1.0	67%
23	3.0	-	1.5	78%
24	3.0	-	-	-
25	3.0	2.0	-	-

The results of the present work revealed that the concentration of growth regulators constituted an important factor affecting the rate of callus formation, shoot and root formation etc. The leaf explant was selected and tried for the best possible responses in the present study.

4. Conclusion

In the current investigation, BAP and NAA combination shows high shoot and root induction in MS medium. Very low BAP and high 2, 4-D combination shows high rate of callus induction. BAP and 2, 4-D concentration also shows high root initiation. The calli obtained from the combination of BAP and 2, 4-D in the leaf explant was green colour and it later became compact nature. This work described here for the micropropagation of *Tylophora indica* through multiplication and rapid propagation of this valuable medicinal plant.

5. References

1. Anonymous Wealth of India, vol.10. Raw materials CSIR, New Delhi, 1976, pp. 398-399.
2. Bera TK, Roy SC. Micropropagation of *Tylophora indica* (Burm. F.) Merril. By multiple bud formation from mature leaf explants without callus intervention. Bot. Bull. Acad. Sci. 1993; 34:83-87.
3. Chandrasekhar T, Hussain TM, Rama Gopal G, Srinivasa Rao JV. Somatic embryogenesis of *Tylophora indica* (Bum. f.) Merrill. An important medicinal plant. International J. of Applied Science and Engineering. 2006; 4(1):33-40.
4. Chaudhuri KN, Ghosh B, Jha S. The root: a potential new source of competent cells for high frequency regeneration in *Tylophora indica*, Plant Cell Reports. 2004; 22:731-740.
5. Manjula S, Job A, Nair GM. Somatic embryogenesis from leaf derived callus of *Tylophora indica* (Brum. f.) Merrill. Indian J. Exp. Biol. 2000; 38(10):1069-1072.
6. Murashige T, Skoog F. A revised medium for rapid growth and bioassays with tobacco tissue culture Physiol Plant. 1962; 15:473-497.
7. Sharma N, Chandel KPS. Effect of ascorbic acid on axillary shoot induction in *Tylophora indica* (Burm. f.) Merrill. Plant Cell Tissue Organ Cult. 1992; 29:109-113.