



ISSN : 0973-7057

Int. Database Index: 663 www.mjl.clarivate.com

## Effect of callus initiation of *Murraya koenigii* Spreng. of different concentrations of 2,4-D, IBA and IAA

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Received : 15<sup>th</sup> December, 2019 ; Revised : 19<sup>th</sup> February, 2020

**Abstract:** Different concentration of phytohormones affected callus formation of *Murraya koenigii* was cultured in MS medium supplemented with different concentration of IAA, IBA. Medium supplemented with various phytohormones for organogenesis culture were kept on 25+2° temperature and 16 hr photoperiod white callus was observed on different concentration of auxin along in combination. Most suitable medium for callus formation form shoot tips was that MS+2,4-D (0.3mg/l) + IBA (1.5 mg/lt. And Ms+2, 4-D (3.0mg /l) + IAA (1.5mg/l).

**Key words:** *Murraya koenigii*, organogenesis, auxin, IAA, IBM

### INTRODUCTION

*Murraya koenigii* (L.) spreng is known as miracle plant, belongs to family Rutaceae. The main stem is green to brownish, with numerous dots on it. The girth of the main stem is 16 c.m. it is a multifunctional Ayurvedic herb<sup>1</sup> the essential oils form the leaves of *Murraya koenigii* (Spreng), *Murraya exotica* (Linn)<sup>2,3</sup>. Diversity in Australia populations of *Murraya paniculata* (Rutaceae). On the basis of differences in habitat, habit leaf morphology, pedicel length and volatile leaf oils are present<sup>4</sup>. Among 14 global species belongs to the genus of *Murraya* only *Murraya koenigii* (Spreng) and *Murraya Paniculata* (Linn) Jack is available in India.<sup>5</sup>

### Taxonomic Status

Kingdom	:	Plantae
Sub kingdom	:	Tracheobionta
Division	:	Magnoliophyta
Class	:	Magnoliopsida
Sub Class	:	Rosidae
Order	:	Sapindales
Family	:	Rutaceae
Genus	:	<i>Murraya</i>
Species	:	<i>koenigii</i>

### Vernacular names in Indian languages.

Bengali	:	Barsunga
Gujarati	:	Mitho Lindo
Hindi	:	Meetha Neem, Karipatha Kathnim, Bursunga
Kannada	:	Karibevu
Marathi	:	Karhinimb, Jhirang

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Oreya : Bansago  
 Malayalam : Kariveppilei, kareapela, karipat,  
 Karhi

**RESULTS & DISCUSSION**

In this investigation explants taken from young plants gave better response callus was obtained from the shoot tip of the plant parts of *Murraya koenigii* Spreng. The best callus growth from shoot tip of *Murraya koenigii* Spreng was observed in (MS+2,4-D+0.3 mg/l+IBA 1.5 mg/l) Here 80% callus induction was observed. The best callus growth from MS+2,4, D (3.0mg/l) +IAA 1.5 mg/l Here 60% callus induction was observed. As tissue culture technologies may provide methods for large scale propagation of tree species.<sup>6,7,8</sup> This work was undertaken to establish efficient and reproducible methods for *in-vitro* mass propagation of these species from mature trees. Regeneration from adult materials will be useful since the phenotype and desirability of the selected plants are known.

**MATERIAL & METHODS**

Green young explants *Murraya koenigii* were collected from our garden. They were washed with running tap water and 1-2 drop of savlon for 2 minutes, they were surface sterilized in 70% ethanol for 30 seconds and immersed in 0.1% Hgcl for 1/2 minutes. Then rinsed with autoclaved distilled water (5 times). Small parts of plant were inoculated in test tubes containing MS basal medium.

**Culture Medium**

Solid MS Medium containing 4% sucrose with varying concentration of IBA and IAA. The pH of the media was adjusted 5.8 before gelling with agar (0.8% w/V) and autoclaved. The small parts of plant were inoculated into incubated culture room.

**Culture condition**

Callus were incubated and 25± 2°C under cool fluorescent light (1500-2000 Lux) with 16h/ 8h / light dark cycle. Each treatment consisted of minimum 100 explants and all experiments were repeated at least 5 times.

**OBSERVATION**

Callus induction of *Murraya koenigii* Spreng. was achieved.

**ACKNOWLEDGEMENT**

Authors are thankful to Head, University Department of Botany, Ranchi University, Ranchi for providing necessary laboratory facilities.

**Table 1- Effect of different concentrations of 2,4-D with IAA, IBA incorporated in MS medium showing callus induction from shoot tip of *Murraya koenigii* Spreng.**

Concentration of Phytohormones in .mg/l	% culture showing nature of callus after 5 weeks
MS+2,4-D (0.1 mg/l + IBA (0.5mg/l)	27
MS+2,4-D)0.2mg/l+IBA (1.0mg/l	55
MS+2,4-D (0.3mg/l) + IBA (1.5mg/l	<b>80</b>
MS+2,4-D (0.4mg/l + IBA (2.0mg/l)	60
MS+2,4-D(0.5mg/l) +IBA (2.5mg/l)	45
MS+2,4-D(1.0mg/l) +IAA (0.5mg/l)	20
MS+2,4—D (2.0mg/l+ IAA (1.0mg/l)	40
MS+2,4-D (3.0mg/l + IAA (1.5mg/l)	<b>60</b>
MS+2,4-D (4.0mg/l + IAA (2.0mg/l)	55
MS+2,4-D (5.0mg/l +IAA (2.5mg/l)	42

## REFERENCES

1. **P.Gupta, A.Nehata, V.K.Dixit- Zhang Xi Yi Jie-2011** doc. Development durable. Org.
2. **Roa BRR, Rajput DK, Mallavarjee GR. 2011.** Chemical diversity in curry leaf (*Murraya koenigii*) essential oil. *Food chem.* **126 (3):**989-994.
3. **Patil RB, Kale S, Badiyani DM, Yadav AV. 2010.** Determination of *invitro* sun protection Factor SPP of *Murraya koenigii* L. Rutaceae essential oil formation. *Indian Journal of Pharmaceutical Education and research.* **44 (4):**375-379.
4. **JJ Brophy, PI Forster, RJ. 1994.** Gold sack Australian systematic Botany. CSIRO.
5. **Nayak, Mandal S, Banerji A, Banerji. 2010.** Review on chemistry and pharmacology of *Murraya koenigii* Spreng. (Rutaceae), *Journal of chemical and Pharmaceutical research.* **2(2):**286-299.
6. **Bajaj YPS. 1986.** Biotechnology in Agriculture and Forestry, Vol **2.** Springer ver lag. New York.
7. **Dunstan DI & thorpe TA. 1986.** Regeneration in forest trees In ;Cell culture and somatic cell. *Genetic of Plants.* Vol **3** IK Vasil, ed. *Academic press*, Orlando, pp.233-241.
8. **Boulay M. 1987.** *In-vitro* propagation of tree species, In Plant Tissue Cell Culture CE Green DN Sommer, WP Hackett; and DD Blesboer, eds, Attain R. Liss Inc. New York, PP. 367-381.

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