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Studies on callus induction of *Murraya koenigii* Spreng in auxin and cytokinin

Nazra Paiker & Kunul Kandir

University Department of Botany, Ranchi University, Ranchi, Jharkhand

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Abstract : Different concentration of phyto-hormones affected callus formation of *Murraya koenigii* Spreng was cultured in MS Medium supplemented with different concentration of 2, 4-D, IAA, IBA, NAA, KN and coconut water. Cultures were kept on 25 ± 2^{0}C temperature and 16 hour photoperiod while callus was observed on different counteraction of auxin or cytokinin alone or in combination. Most suitable medium for callus formation from shoot tip, leaf internode was that 2,4-D (2.0mg/l), IAA (2.0mg/l), IBA (2.0mg/l), NAA (2.5 mg/l), 2,4-D (2.5mg/l) + IBA (1.5mg/l) + 20% CW, 2, 4-D (1.5mg/l) + KN (0.5mg/l).

Key words: *Murraya koenigii*, auxin, cytokinin, culture

INTRODUCTION

Murraya koenigii Spreng is commonly known as "curry leaf" belongs to the family Rutaseae. It is found in outer Himalayas, from the Rasi eastwards, ascending to 5,000 feet in Assam, Chittagong upper and lower Burma. It is evergreen deciduous small shrub. It reaches a maximum height 2.5 meters high. The main stem is dark green to brownish, with numerous dots on it. The girth of the main stem in 16cm. leaves estipulate, bipinnately compound 30cm long. Each bearing 24 leaflets, having veticulate venation, lanceolate, 4.9 cm long, 1.8 cm broad, having 0.5 cm long petiole. Plant tisane culture technique provides a system for rapid production of large number of genetically uniform disease resistant plantlets during the past few decades. Soon it was discovered that this new area of plant biology had practical value for commercial, medicinal and agricultural plant propagators as well as in conservation of valuable plans[1,2].

Culture Media: MS Medium with varying concentration of phytohormones was employed for callus initiation.

Culture Condition: The cultures were maintained under controlled environment at 25 ± 2^{0}C with 16 hours photoperiod and 8 hours dark. All experiments were conducted under sterile conditions.

MATERIALAND METHODS

In the present analysis leaf and leaflets were used for experiments. The segments of leaves were inoculated in MS medium supplemented with different phyto hormones and combinations.

The combination and concentrations of hormones were used Table – I.

*Corresponding author :
Phone : 7070457082
E-mail : systemlink.rnc@gmail.com

RESULT AND DISCUSSION

In *Murraya koenigii* Spreng, induction of callus was achieved by supplementing low concentration of auxin. In MS + 2, 4-D (2.0mg/l) 80%, MS + IAA (2.0mg/l) 65% callus, MS+IBA (2.0mg/l) 75% callus, MS + NAA (2.5mg/l) 55% callus, MS+2, 4-D (2.5mg/l) + IBA (1.5mg/l) 20% CW 91% callus, MS + 2, 4-D (1.5mg/l) + KN (0.5mg/l) 81% callus was observed.

After 4-5 weeks in when callus was transferred. Some works reported on high frequency shoot regeneration from *in vitro* raised seeding of *Murraya koenigii* Spreng. The cotyledonary node explants were cultured on MS medium alone or supplemented with IBA, KN and 20% coconut water.

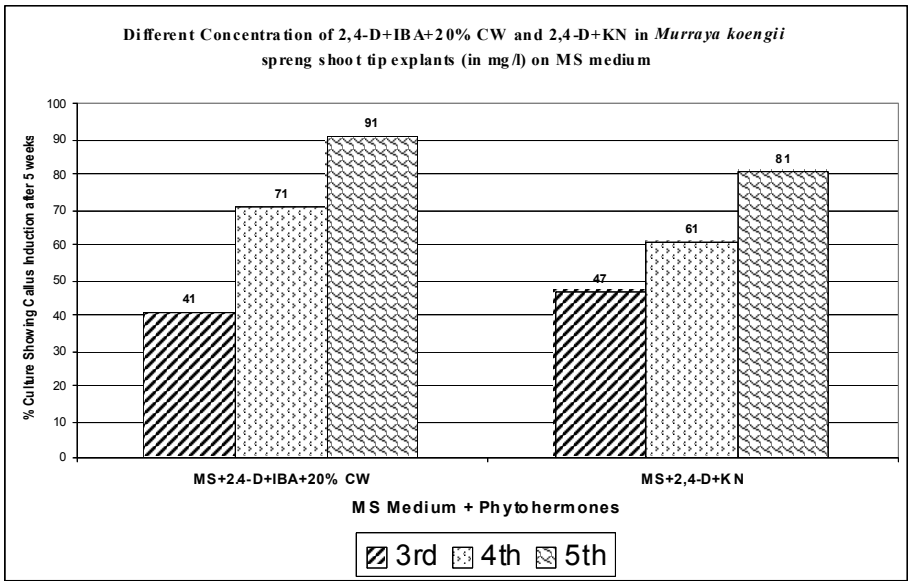
In other plant of family Rutaceae tissue culture studies and regeneration of shoot tip and leaf internode explants via organogenic callus culture were achieved.

The callus formation when basal median was supplemented with 2, 4-D ranging from 0.5mg/l to 5.0mg/l for sugarcane.[3] He also stated that callus formed at lower concentration of 2, 4-D was whitish and loose while higher concentration was brownish.

The multiple shoot bud originated directly from epidermal and sub-epidermal layers of apical bud explants similar results have been reported in *Capsicum annuum* L. and *Acalpha wilkesiana* 'Dwarf'.[4,5] There are several reports of regeneration of *Albizzia lebbeck*.[6] It has been reported regeneration of complete plants by inducing adventitious shoots in the cultures of immature embryos.[7] Several attempts have been made to utilize the *in–vitro* micropropagation method for rapid clonal multiplication of many tropical subtropical and temperate fruit.[8]

Table 1. Callus initiation (*Murraya koenigii* Spreng.) in different phytohormones incorporated in MS median.

Phytohormones concentration (in mg/l)	Name of explants	% initiation of the callus of *Murraya koenigii* Spreng.		
		3rd week	4th week	5th week
MS + 2,4-D (2.0mg/l)	Shoot tip, leaf internode	20%	45%	30%
MS + IAA (2.0mg/l)	Shoot tip, leaf internode	35%	45%	65%
MS + IBA (2.0mg/l)	Shoot tip, leaf internode	35%	46%	75%
MS + NAA (2.5mg/l)	Shoot tip, leaf internode	25%	35%	53%
MS + 2,4-D (2.5mg/l) + IBA (1.5mg/l) + 20% CW	Shoot tip, leaf internode	41%	71%	91%
MS + 2,4-D (1.5mg/l) + KN (0.5mg/l)	Shoot tip, leaf internode	47%	61%	81%



Regeneration of adventitious shoot buds only noted in case of if the leaf explants are collected from the vegetative phase i.e. prior to flowering leaf explants of *Echeveria* species that are collected from young leaves produced only root.

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