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Effect of phytohormones (2,4-D & KN) in callus induction of *Lawsonia inermis* L.

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Abstract-Different concentration of phytohormones affected callus formation of *Lawsonia inermis* L. explant was cultured in Ms medium supplemented with different concentration of 2, 4-D and KN. Cultures were kept on 25±2ºC temperature and 16 hr photoperiod while callus was observed on different concentration of auxin and cytokinien in combination. Most suitable medium of callus formation from shoot tips was that 2, 4-D (2.5mg/L) + KN (0.5mg/L).

Key words: *Lawsonia inermis*, auxin, cytokinien, callus

INTRODUCTION

Lawsonia inermis is glabrous branched shrub of small tree (2 to 6 mts in height). *Lawsonia inermis* L. belongs to family lythraceae is much branched shrub and small tree that grows in Middle East Africa. Leaves are small, opposite, entire margin elliptical to broadly lanceolate sub-sessile, about 1.5 to 5 cm long, 0.5 to 2 cm wide greenish brown to dull green, petiole short and glabrous acute or obtuse apex with tapering base. *L. inermis* contains lawsone, a red orange pigment, chemically, the molecule known as lawsone in 2- hydroxyl-1, 4- napthoquinone.[1] Henna flowers have four sepals and 2 mm calyx tube , with 3 mm spread lobes. Its petals are ovate, with white or red stamens found in pairs on the rim of the calyx tube. The ovary is four called, 5 mm long, and erect. Henna fruits are small, brownish capsules, 4-8 mm in diameter, with 32 – 49 seeds per fruit and open irregularly into four splits.[2] The seeds are blue black angular and small.[3] It produces the most dye when grown in temperatures between 35 and 45 degree Centigrade.[4]

Medicinal properties include the cure of renal lithiases, jaundice, wound healing, prevent skin inflammation. The bark is traditionally used in treatment of jaundice and enlargement of the Spleen; renal calculus, leprosy and obstinate skin diseases.

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MATERIAL & METHODS

In the present analysis shoot tips were used for experiments. The segments of shoot tip were inoculated in Ms medium supplemented with different phyto hormones and combinations.

Culture media

Ms medium with varying concentration of phytohormones was employed for callus initiation.

Culture condition

The cultures were maintained and controlled environment at 25±2ºC with 16 hours photoperiod. All experiments were conducted under sterile conditions.

RESULTS & DISCUSSION

In *Lawsonia inermis* L. inductions of callus was achieved by supplementing low concentration of auxin and cytokinin. In Ms+2,4-D (2.0mg/L) + KN (0.5mg/L) 65%, Ms+2,4-D (5.0mg/L) +KN (0.5mg/L) 71% Ms+2,4-D (2.5mg/L) + KN (0.5mg/L). 90% callus was observed.

After 4-5 weeks when callus was transferred. Some works reported that young stem of *Lawsonia inermis* were responsive in Ms media supplemented with NAA also.[5] Callus which shows stable characteristics under specific condition after subculture through many successive passages, is a suitable material for cytodifferentiation. The advantage of using such callus is that it is composed of a fairly homogeneous mass of cells and can be proliferated in large amounts under known culture condition. The vascular strands in Syringa callus derived from the cambial region of the stem or grafted apices of shoots.[6]

Table 1- Different concentration of 2, 4-D (0.5 to 10 mg/l), kinetin (0.5mg/l) in Ms Medium callus induction was maximum

Ms+2, 4-D (0.5 to 10mg/L) + KN (0.5mg/L)	% culture showing callus induction				
	1st	2nd	3rd	4th	5th
2,4-D (0.5mg/l) + KN (0.5mg/l)	00	07	10	15	20
2,4-D (1.0.mg/l) + KN (0.5mg/l)	00	08	12	18	22
2,4-D (2.0mg/l) + KN (0.5mg/l)	00	09	17	37	65
2,4-D (2.5mg/l) + KN (0.5mg/l)	00	20	38	59	90
2,4-D (5.0mg/l) + KN (0.5mg/l)	00	15	17	33	71
2,4-D (7.5mg/l) + KN (0.5mg/l)	00	13	15	20	23
2,4-D (10.mg/l) + KN (0.5mg/l)	00	10	10	15	21

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