PRODUCT INFORMATION

Date Palm Callus Initiation Medium

With Vitamins, Sucrose, 2,4 -D, 2iP, Activated charcoal and Agar

Product Code: PT084

Product Description :

Date Palm Callus Initiation Medium has been developed on the basis of Murashige and Skoog medium for the *in vitro* callus initiation of *Phoenix dactylifera*, commonly known as date palm, family *Arecaceae*. The formulation is a nutrient blend of inorganic salts, vitamins, carbohydrate, plant growth regulators and gelling agent.

Date Palm Callus Initiation Medium provides all essential macroelements and microelements. Potassium nitrate and ammonium nitrate serves as source of nitrogen and promotes callus induction. Potassium dihydrogen phosphate and sodium dihydrogen phosphate serves as source of phosphate. Microelements like Boron, Manganese, Molybdenum, Copper, Iron and Zinc play vital role in the plant metabolism. Vitamins like thiamine and inositol act as enzymatic cofactors in universal pathways including glycolysis and TCA cycle along with primary and secondary metabolism in the plants. Activated charcoal adsorbs inhibitory compounds, toxic metabolites, phenolic exudation and prevents browning of the media. 2,4-D promotes callus induction and proliferation while 2iP helps in differentiation of embryonic callus.

The product is plant tissue culture tested but it is the sole responsibility of the user to ensure the suitability of the medium for individual species.

Composition :

Ingredients	mg/L
MACROELEMENTS	
Ammonium nitrate	1650.000
Calcium chloride	332.200
Magnesium sulphate	180.690
Potassium nitrate	1900.000
Potassium phosphate monobasic	170.000
MICROELEMENTS	
Boric acid	6.200
Cobalt chloride hexahydrate	0.025
Copper sulphate pentahydrate	0.025
EDTA disodium salt dihydrate	37.300
Ferrous sulphate heptahydrate	27.800
Manganese sulphate monohydrate	16.900
Molybdic acid (sodium salt)	0.213
Potassium Iodide	0.830
Sodium phosphate monobasic	117.204
Zinc sulphate heptahydrate	8.600
VITAMINS	
myo-Inositol	100.000
Thiamine hydrochloride	0.400
CARBOHYDRATE	
Sucrose	30000.000
GELLING AGENT	
Agar	8000.000
OTHERS	
2,4-Dichloro phenoxy acetic acid	100.000
2ip	3.000
Activated charcoal	3000.000
Total(gms/litre)	45.7

Material required but not provided :

- Autoclaved distilled water
- 1N NaOH/HCl

Precautions :

- Ensure appropriate pH of the medium before addition of gelling agent as acidic pH will lead to decreased gelation resulting in semi solid flowing gel while alkaline pH will lead to formation of hardened gel.
- Use of Distilled water/Tissue culture grade water is recommended for media preparation as tap water or lower grade water may lead to salt precipitation and improper gelation.
- Avoid preparation of concentrated solutions, as it will lead to precipitation of salts.

Directions :

• Reconstitute medium by adding required quantity of powder in two-third of total volume with constant, gentle stirring till the medium gets completely dissolved.
• Add heat stable supplements prior to autoclaving.
• Make up the final volume with distilled water.
• Adjust the pH of the medium to 5.75 ± 0.5 using 1N NaOH/ HCl.
• Heat the medium to boiling till complete dissolution of gelling agent.
• Sterilize the medium by autoclaving at 15 lbs and 121°C for 15 min.
• Cool the autoclaved medium to about 45°C before adding heat labile supplements.
• Aseptically dispense the desired amount of medium under a laminar airflow unit in sterile culture vessels.

Quality Control:

Appearance
Grey to black, homogenous, free flowing powder

Solubility
45.7 gms/litre soluble after boiling in distilled water

Colour and Clarity
Grey to black solution, opaque gel is formed on cooling

Gelling
Firm gel formed at pH: 5.75 ± 0.5

pH at 25ºC
4.70 - 5.70

Plant Tissue Culture Test
The growth promoting properties of medium is assessed by providing plant cultures with relative humidity of about 60%±2%, temperature 22ºC±2ºC and photoperiod of about 16:8. The plant species showed actively growing callus and shoots with no structural, necrotic and toxic deformity.

Storage and Shelf Life:

• The plant tissue culture medium powder is extremely hygroscopic and must be stored at 2-8°C in air tight containers.
• Preferably, entire content of each package should be used immediately after opening.
• Use before the expiry date.

Revision : 01 / 2017