PRODUCT INFORMATION

Mitra Orchid Medium

With Vitamins
Without Sucrose and Agar

Product Code: PT139

Product Description :

Mitra Orchid Medium had been developed by G.C. Mitra *et al*., in 1976 for propagation of the epiphytic and tropical terrestrial orchids. It is extensively used for *in vitro* culturing of *Vanda, Dendrobium* and *Cymbidium* species.

The formulation is a nutrient blend of inorganic salts and vitamins. It is supplemented with riboflavin, biotin and folic acid for the enhancement of seed germination. Reduced amount of potassium nitrate and ammonium sulphate as sources of nitrogen aid in early protocorm formation. Microelements like Boron, Copper, Iron, Zinc, manganese and molybdenum enhance metabolism in the plants. Boron plays a key role in the carbohydrate metabolism.Thiamine, pyridoxine, nicotinic acid act as enzymatic cofactors in universal pathways including glycolysis and TCA cycle along with primary and secondary metabolism in the plants. Activated charcoal adsorbs leachouts from the medium.

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 sulphate	100.000
Calcium nitrate tetrahydrate	200.000
Magnesium sulphate	250.000
Potassium nitrate	180.000
Sodium phosphate monobasic	150.000
MICROELEMENTS	
Boric acid	0.600
Cobalt chloride hexahydrate	0.040
Copper sulphate pentahydrate	0.050
EDTA disodium salt dihydrate	22.300
Ferrous sulphate heptahydrate	16.700
Manganese sulphate monohydrate	0.420
Molybdic acid (sodium salt)	0.050
Potassium iodide	0.030
Zinc sulphate heptahydrate	0.050
VITAMINS	
Biotin	0.050
Folic acid	0.300
Nicotinic acid (free acid)	1.250
Pyridoxine HCl	0.300
Riboflavin	0.050
Thiamine hydrochloride	0.300
OTHERS	
Activated charcoal	2000.000
Total(gms/litre)	2.9

Material required but not provided :

- Autoclaved distilled water
- 1N NaOH/HCl
- Sucrose (PCT0607)
- Gelling agents like Agar(PCT0901) or Clerigel™(PCT0903)

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.
- Add the gelling agent and 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
2.9 gms/litre soluble in distilled water

Colour and Clarity
Grey to black solution, opaque solution

pH at 25ºC
3.80 - 4.80

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