

### Technical Information

#### Mitra Orchid Medium With Vitamins, Sucrose Without Agar

#### Product Code: PT1106

**Application:** 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.

It is a nutrient blend of inorganic salts, vitamins and carbohydrate. 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/Litre    |
|--------------------------------|-------------|
| <b>MACROELEMENTS</b>           |             |
| Ammonium sulphate              | 100.000     |
| Calcium nitrate tetrahydrate   | 200.000     |
| Magnesium sulphate             | 250.000     |
| Potassium nitrate              | 180.000     |
| Sodium phosphate monobasic     | 150.000     |
| <b>MICROELEMENTS</b>           |             |
| 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       |
| <b>VITAMINS</b>                |             |
| Biotin                         | 0.050       |
| Folic acid                     | 0.300       |
| Nicotinic acid (free acid)     | 1.250       |
| Pyridoxine HCl                 | 0.300       |
| Riboflavin                     | 0.050       |
| Thiamine hydrochloride         | 0.300       |
| <b>CARBOHYDRATE</b>            |             |
| Sucrose                        | 20000.000   |
| <b>OTHERS</b>                  |             |
| Activated charcoal             | 2000.000    |
| <b>Total (gms/litre)</b>       | <b>22.9</b> |

### Material required but not provided

- Autoclaved distilled water
- 1N NaOH/HCl
- Gelling agents like Agar (PCT1901) or Clerigel (PCT1903)

### Quality Control

#### Appearance

Grey to black, homogenous, free flowing powder

#### Solubility

22.9 gms/litre soluble in distilled water

#### Colour and Clarity

Grey to black, opaque solution

#### pH at 25°C

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 22°C±2°C and photoperiod of about 16:8. The plant species showed actively growing callus and shoots with no structural, necrotic and toxic deformity.

### 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  $5.75 \pm 0.5$  using 1N NaOH/HCl.
- Add 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

### 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.

### 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.

### Disclaimer

- User must ensure suitability of the product(s) in their application prior to use.
- The product conforms solely to the technical information provided in this booklet and to the best of knowledge research and development work carried at **CDH** is true and accurate.
- **Central Drug House Pvt. Ltd.** reserves the right to make changes to specifications and information related to the products at any time.
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- Do not use the products if it fails to meet specifications for identity and performance parameters.