Technical Information

Lindemann Orchid Medium
With Macroelements, Microelements
Without Vitamins, Sucrose, Agar

Product Code: PT1039

Application: Lindemann Orchid Medium has been developed originally for the *in vitro* culture of the *cattleya* orchid. Later on, it was used for the propagation of different orchid species.

The medium contains macronutrients and micronutrients as described by Lindemann *et al* in 1970. Ammonium sulphate and calcium nitrate serve as sources of nitrogen that induce differentiation and formation of protocorm like bodies. Potassium dihydrogen phosphate provides phosphate and maintains buffering in the medium. Microelements like Manganese, Molybdenum, Copper, Iron, aluminium and Zinc enhance metabolism in the plants. Boron plays a key role in the carbohydrate metabolism.

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
MACROELEMENTS	
Ammonium sulphate	1000.000
Calcium nitrate hydrate	347.20
Magnesium sulphate	58.620
Potassium phosphate monobasic	135.000
MICROELEMENTS	
Aluminum chloride hexahydrate	0.560
Boric acid	1.010
Copper sulphate pentahydrate	0.020
Ferric citrate	4.400
Manganese sulphate monohydrate	0.050
Nickel chloride hexahydrate	0.030
Potassium chloride	1050.000
Potassium iodide	0.100
Zinc sulphate heptahydrate	0.570
Total(gms/litre)	2.5

Material required but not provided

- Autoclaved distilled water
- Plant growth regulators
- 1N NaOH/HCl
- Sucrose(PCT1607)
- Vitamins
- Gelling agents like Agar (PCT1901) or CleriGel (PCT1903)

Quality Control

CDH

Product Specification

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Appearance
White to off white, homogenous, free flowing powder
Solubility
2.5 gms/litre soluble in distilled water
Colour and Clarity
Colourless to light yellow, clear solution
pH at 25ºC
4.50 - 5.50
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.

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 gelling agent and heat the medium to boiling till complete dissolution of gelling agent.
- Sterilize the medium by autoclaving at 15 lbs and 121°Cfor 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.
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