PRODUCT INFORMATION

Lindemann Orchid Medium

With Vitamins and Sucrose
Without Agar

Product Code: PT067

Product Description :

Lindemann Orchid Medium has been developed 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 microelements as described by Lindemann *et al* in 1970. It is a nutrient blend of inorganic salts, vitamins, amino acid and carbohydrate. Ammonium sulphate and calcium nitrate serve as sources of nitrogen that induce differentiation and protocorm like bodies formation. Potassium dihydrogen phosphate provides phosphate and maintains buffering in the medium. Microelements like Manganese, Molybdenum, Copper, Iron and Zinc enhance metabolism in plants. Boron plays a key role in the carbohydrate metabolism. Inositol, 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. Glycine serves as source of amino acid.

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	1000.000
Calcium nitrate hydrate	347.200
Magnesium sulphate	58.620
Potassium phosphate monobasic	135.000
MICROELEMENTS	
Aluminium 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
VITAMINS	
myo-Inositol	100.000
Nicotinic acid	1.000
Pyridoxine HCl	1.000
Thiamine hydrochloride	10.000
AMINO ACID	
Glycine	2.000
CARBOHYDRATE	
Sucrose	20000.000
Total(gms/litre)	22.7

Material required but not provided :

- Autoclaved distilled water
- Plant growth regulators
- 1N NaOH/HCl
- 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 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
White to off-white, homogenous, free flowing powder

Solubility
22.7 gms/litre soluble in distilled water

Colour and Clarity
Colourless to light yellow, clear solution

pH at 25ºC
4.30 - 5.30

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