PRODUCT INFORMATION

Malmgren Modified Terrestrial Orchid Medium

With Vitamins, Casein hydrolysate, Pineapple powder, Activated charcoal and Agar Without Sucrose

Product Code: PT068

Product Description :

Malmgren Modified Terrestrial Orchid Medium contains inorganic and organic nutrients as described by Malmgren in 1996. The medium is used for the *in vitro* seed germination of many terrestrial orchid species specially *Cypripedium.*

It is a nutrient blend of inorganic salts, vitamins, amino acid and gelling agent. Calcium phosphate provides phosphate and acts as modulator in enzymatic reactions. Additionally, it is supplemented with casein hydrolysate which serves as a source of organic nitrogen and enhances multiplication of protocorm like bodies. Pineapple powder aids in cell differentiation. Microelements like Boron, Manganese, Molybdenum, Copper, Iron and Zinc enhance metabolism in plants. 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 the inhibitory 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	
Magnesium sulphate	97.690
Potassium phosphate monobasic	75.000
MICROELEMENTS	
Calcium phosphate	75.000
EDTA disodium salt dihydrate	37.300
Ferrous sulphate heptahydrate	27.800
Manganese sulphate monohydrate	1.540
VITAMINS	
Biotin	0.050
Folic acid	0.500
myo-Inositol	100.000
Nicotinic acid (free acid)	5.000
Pyridoxine HCl	5.000
Thiamine hydrochloride	10.000
AMINO ACID	
Glycine	2.000
GELLING AGENT	
Agar	7000.000
OTHERS	
Activated charcoal	1000.000
Casein hydrolysate	400.000
Pineapple powder	20000.000
Total(gms/litre)	28.8

Material required but not provided :

- Autoclaved distilled water
- Plant growth regulators
- 1N NaOH/HCl
- Sucrose (PCT0607)

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
28.8 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
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.

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