Lindemann Orchid Microelements (100X) TS1061

Composition :

Ingredients	milligrams/litre
Manganese sulphate.H_2O	0.05
Boric acid	1.01
Potassium iodide	0.10
Zinc sulphate.$7H_2O$	0.57
Copper sulphate.$5H_2O$	0.02
Aluminium chloride.$6H_2O$	0.56
Nickel chloride.$6H_2O$	0.03
Ferric citrate	4.40
TOTAL gm/litre	**0.01**

Directions :

Suspend 0.006 grams of dehydrated microelements powder# in 600ml of distilled water. Apply constant gentle stirring to the solution till the powder dissolves completely. Add desired heat stable supplements prior to autoclaving. Adjust the medium to the desired pH using 1N HCl/NaOH. Make up the final volume to 1000ml with distilled water. Sterilize the medium by autoclaving at 15 lbs or 121ºC for 15 minutes. Cool the autoclaved medium to 45ºC before adding the filter sterilized heat labile supplements. Dispense the desired amount of medium aseptically in sterile culture vessels.

Weight after vacuum drying to remove all water

Principle and Interpretation :

Lindemann orchid microelements (100X) powder has been specially formulated for the in vitro culture of orchids. The powder contains inorganic microelements and iron source. The vial contains 0.62 grams of dehydrated microelements that is sufficient for making 100 litres of complete medium.

Quality Control :

Appearance	: Reddish brown to brown, homogeneous, free flowing powder.
Solubility	: 0.62 gm/litre soluble in distilled water.
Colour and Clarity	: Yellow to dark yellow, clear solution.
pH at 25°C	: 4.0 ±0.5 of 0.062% w/v dehydrated microelements powder.

Cultural Response :

Cultural condition :

- Incubation period : 5 weeks
- Relative humidity : 60% ± 2%
- Temperature : 22°C ± 2°C
- Photoperiod (D:N) in hours : 16:8

Cell Line	Type of Culture	Results
Vanda species	Shoot culture	No structural deformity observed No necrotic tissues, Actively growing shoots, No toxicity to shoots

[The medium is prepared as per direction. The growth promoting activity of this dehydrated microelements is evaluated using plant species viz. *Vanda* species through three passages. Plant growth hormones (e.g. 2,4-D, NAA, Kinetin and 6-BAP) are added in suitable combinations and concentrations.]

Storage and shelf life :

Dehydrated microelements powder is extremely hygroscopic and should be protected from atmospheric moisture. If possible, the entire content of each bottle should be used immediately after opening or else the unused portion should be stored in a desiccator and refrigerated at 2-8°C. Use before the expiry date.

Reference :

1. Lindemann E.G.P., Gunckel J.E. & Davidson O.W., Amer. Orchid Soc. Bull., (1970), 39, 1002 - 1004