

Murashige & Skoog (Modification No. 3) Macroelements w/ ½ NH₄NO₃ and ½ KNO₃

TS1071

Composition :

Ingredients	milligrams/litre
Potassium nitrate	950.00
Ammonium nitrate	825.00
Calcium chloride.2H ₂ O	440.00
Magnesium sulphate	180.69
Potassium phosphate monobasic	170.00
TOTAL gm/litre	2.57

Directions :

Suspend 2.46 grams of dehydrated macroelements 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 121°C for 15 minutes. Cool the autoclaved medium to 45°C 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 :

Murashige & Skoog (Modification No. 3) macroelements has been specially formulated for plant cell, tissue and organ cultures. This macroelements powder contains ½ concentrations of NH₄NO₃ and KNO₃ that serves as the sources of nitrate.

Quality Control :

Appearance	: White to off-white, homogeneous, free flowing powder.
Solubility	: 2.46 gm/litre soluble in distilled water.
Colour and Clarity	: Colourless to light yellow, clear solution.
pH at 25°C	: 4.9 ±0.5 of 0.246% w/v dehydrated macroelements 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
<i>Syngonium</i> species	Shoot culture	No structural deformity observed No necrotic tissues, Actively growing shoots, No toxicity to shoots
<i>Daucus</i> species	Callus culture	No necrotic tissues, Actively growing callus, No toxicity to callus

[The medium is prepared as per direction. The growth promoting activity of this dehydrated macroelements is evaluated using two plant species viz. *Syngonium* species and *Daucus* 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 macroelements 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. Murashige T. & Skoog F., *Physiol. Plant.*, (1962), 15, 473 - 497

Disclaimer :

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