

Murashige and Tucker Medium

With Calcium Chloride, Vitamins, Sucrose and Agar

Product Code: PT151

Product Description :

Murashige and Tucker Medium (MT) was originally formulated by Murashige and Tucker in 1969 for the propagation of citrus species. It is a nutrient blend of inorganic salts which comprises macroelements, microelements, vitamins, amino acid, carbohydrate and gelling agent.

Murashige and Tucker Medium (MT) is a modification of Murashige and skoog medium which contains increased level of vitamins like thiamine, pyridoxine, nicotinic acid responsible for favourable *in vitro* growth of citrus species and also acts as enzymatic cofactors in the universal pathways including glycolysis and TCA cycle along with the primary and secondary metabolism in plants. High sucrose content enhances shoot proliferation. Potassium dihydrogen phosphate serves as a source of phosphate and potassium nitrate provides nitrogen and stimulates the morphogenesis. Microelements like Boron, Manganese, Molybdenum, Copper, Iron and Zinc play a vital role in plant metabolism. Glycine serves as a 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 nitrate	1650.000
Calcium chloride	332.200
Magnesium sulphate	180.690
Potassium nitrate	1900.000
Potassium phosphate monobasic	170.000
MICROELEMENTS	
Boric acid	6.200
Cobalt chloride hexahydrate	0.025
Copper sulphate pentahydrate	0.025
EDTA disodium salt dihydrate	37.300
Ferrous sulphate heptahydrate	27.800

Manganese sulphate monohydrate	16.900
Molybdic acid (sodium salt)	0.213
Potassium Iodide	0.830
Zinc sulphate heptahydrate	8.600
VITAMINS	
myo-Inositol	100.000
Nicotinic acid (free acid)	5.000
Pyridoxine HCl	10.000
Thiamine hydrochloride	10.000
AMINO ACID	
Glycine	2.000
CARBOHYDRATE	
Sucrose	50000.000
GELLING AGENT	
Agar	7000.000
Total(gms/litre)	61.5

Material required but not provided :

- Autoclaved distilled water
- Plant growth regulators
- 1N NaOH/HCl

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

White to off-white, homogenous, free flowing powder

Solubility

61.5 gms/litre soluble after boiling in distilled water

Colour and Clarity

Colourless to light yellow solution, hazy gel is formed on cooling

Gelling

Firm gel formed at pH: 5.75 ± 0.5

pH at 25°C

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 $60\% \pm 2\%$, temperature $22^\circ\text{C} \pm 2^\circ\text{C}$ 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 $2-8^\circ\text{C}$ 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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Disclaimer :

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