Product Specification

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Technical Information

Murashige and Skoog Medium (Modification No. 2)
With ¾ Macroelements and Vitamins Without Sucrose and Agar

Product Code: PT1047

Application: Murashige and Skoog Medium (MS) was originally formulated by Murashige and Skoog in 1962 to optimize tobacco callus bioassay system for facilitating the study of cytokinins. Since then, it is widely used for micro propagation, organ culture, callus culture and suspension culture. The formulation is a nutrient blend of inorganic salts, vitamins and amino acid.

Murashige and Skoog Medium (MS) provides all the essential macroelements and microelements. Potassium dihydrogen phosphate serves as a source of phosphate. Microelements like Boron, Manganese, Molybdenum, Copper, Iron and Zinc play vital role in plant metabolism. Boron plays a key role in carbohydrate metabolism. 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 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/Litre
MACROELEMENTS	
Ammonium nitrate	1237.500
Calcium chloride	249.150
Magnesium sulphate	135.520
Potassium nitrate	1425.000
Sodium phosphate monobasic	127.500
MICROELEMENTS	
Boric acid	6.200
Copper sulphate pentahydrate	0.025
Cobalt chloride hexahydrate	0.025
EDTA disodium salt dehydrate	37.300
Ferrous sulphate heptahydrate	27.800
Manganese sulphate monohydrate	16.000
Molybdic acid (sodium salt)	0.213
Potassium Iodide	0.830
Zinc sulphate heptahydrate	8.600
VITAMINS	
myo-Inositol	100.000
Nicotinic acid (free acid)	0.500
Pyridoxine HCl	0.500
Thiamine hydrochloride	0.100
AMINO ACID	
Glycine	2.000
Total	**3.4 gms/litre**

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Material required but not provided

- Autoclaved distilled water
- Sucrose (PCT1607)
- Plant growth regulators
- Gelling agents like Agar (PCT1901) or CleriGel (PCT1903)
- 1N NaOH/HCl

Quality Control

Appearance
White to off-white, homogenous, free flowing powder
Solubility
3.4 gms/litre soluble in distilled water
Colour and Clarity
Colourless to light yellow, clear solution
pH at 25ºC
3.50 – 4.20
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.

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°Cfor 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

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.

Disclaimer

- User must ensure suitability of the product(s) in their application prior to use.
- The product conforms solely to the technical information provided in this booklet and to the best of knowledge research and development work carried at **CDH** is true and accurate.
- **Central Drug House Pvt. Ltd.** reserves the right to make changes to specifications and information related to the products at any time.
- Products are not intended for human or animal diagnostic or therapeutic use but for laboratory, research or further manufacturing of diagnostic reagents extra.
- Statements contained herein should not be considered as a warranty of any kind, expressed or implied, and no liability is accepted for infringement of any patents.
- Do not use the products if it fails to meet specifications for identity and performance parameters.

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.