Product Specification

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Technical Information

Linsmaier and Skoog/Murashige and Skoog Microelements (100X)

Product Code: TS2063

Application: Linsmaier and Skoog Medium (LS) has been developed by Linsmaier and Skoog in 1965 for optimizing the organic requirement of tobacco cultures. The medium is a standard Murashige and Skoog (MS) basal salts supplemented with Linsmaier and Skoog vitamins. It is widely used for micro propagation, organ culture, callus culture and suspension culture. Linsmaier and Skoog Microelements is a nutrient blend of inorganic salts which provides all the essential microelements to the plants. Manganese sulphate serves as a source of manganese that is essential for processes like photosynthesis and respiration. Boron plays a key role in carbohydrate metabolism. Molybdenum, Cobalt, Copper and Zinc enhance metabolism in the plants. Iodine helps to improve growth of the root cells. 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
MICROELEMENTS	
Boric acid	620.000
Copper sulphate pentahydrate	2.500
Cobalt chloride hexahydrate	2.500
EDTA disodium salt dehydrate	3730.000
Ferrous sulphate heptahydrate	2780.000
Manganese sulphate monohydrate	1690.000
Molybdic acid (sodium salt)	21.300
Potassium Iodide	83.000
Zinc sulphate heptahydrate	860.000
Total	**9.8 gms/litre**

For 1X, use 0.10 gms/litre

Material required but not provided

- Autoclaved distilled water
- Sucrose (PCT0607)
- Plant growth regulators
- Gelling agents like Agar (PCT1901) or CleriGel (PCT1903)
- 1N NaOH/HCl
- Linsmaier and Skoog Vitamins (VP1017)
- Linsmaier and Skoog Macroelements (TS2064/PL1009)

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Quality Control

Appearance
Yellow to greenish yellow, homogenous free flowing powder
Solubility
9.80 gms/litre soluble in distilled water
Colour and Clarity
Colourless to light yellow, clear solution
pH at 25ºC
2.30 - 3.30
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.