OXFORD LAB FINE CHEM LLP
ISO 9001-2008 Certified Company

Regd Office: Unit no 12, 1st Floor,
Neminath Industrial Estate No.6,
Navghar, Vasai (East), Palghar - 410210.
Maharashtra, INDIA.

Tel: +91 250 2390032 / 2390989 / 2390990
Email: sales@oxfordlabchem.com /
info@oxfordlabchem.com
Web: www.oxfordlabchem.com

Oxford
Range of
Laboratory Chemicals

TECHNICAL DATA SHEET

Murashige and Skoog Agar Medium (With Calcium Chloride, Vitamins, sucrose & Agar)

Principle

Murashige & Skoog medium has been developed for the in vitro used for micro propagation, organ culture, callus culture and suspension culture. The formulation is composed of macronutrients, micronutrients, carbon sources, amino acid and vitamins. The macronutrients contain essential elements like nitrogen (N), phosphorus (P), potassium (K), calcium (Ca), magnesium (Mg) and sulphur (S) for satisfactory growth and morphogenesis. The micronutrients include iron (Fe), manganese (Mn), zinc (Zn), boron (B), copper (Cu) and molybdenum (Mo) required for the growth of plant tissue and cells. The carbohydrates are used as carbon sources and energy source. Sucrose was reported to act as morphogenetic trigger in the formation of auxiliary buds and branching of adventitious root. Vitamins are required for normal growth and development of plant cells; they are required by plants as catalysts in various metabolic processes. The commonly used vitamins are: thiamin (B1), nicotinic acid and pyridoxine (B6). Thiamin is necessarily required by all cells for growth. Nicotinic acid and pyridoxine, however not essential for cell growth of many species, they are often added to culture media. In some media myo-inositol is added in small quantities to stimulate cell growth of most plant species. Amino acids are used for optimal growth, they are important for establishing cultures of cells and protoplasts. Amino acids provide plant cells with a source of nitrogen that is easily assimilated by tissues and cells faster than inorganic nitrogen sources. Agar is solidifying agent.

Use: Recommendation for micro propagation, organ culture, callus culture and suspension culture.

OXFORD LAB FINE CHEM LLP

ISO 9001-2008 Certified Company

Regd Office: Unit no 12, 1st Floor,
Neminath Industrial Estate No.6,
Navghar, Vasai (East), Palghar - 410210.
Maharashtra, INDIA.

Tel: +91 250 2390032 / 2390989 / 2390990
Email: sales@oxfordlabchem.com /
info@oxfordlabchem.com
Web: www.oxfordlabchem.com

Oxford
Range of
Laboratory Chemicals

Contents* Ingredients

Ingredients	mg/l	Ingredients	mg/l
MACROELEMENTS		**VITAMINS**	
Ammonium nitrate	**1650.000**	**Myo-inositol**	**100.000**
Calcium chloride	**332.200**	**Nicotinic acid**	**0.500**
Magnesium sulphate	**180.000**	**Pyridoxine HCl**	**0.500**
Potassium nitrate	**1900.000**	**Thiamine HCl**	**0.100**
Potassium phosphate monobasic	**170.000**	**CARBOHYDRATE**	
MICROELEMENTS		**Sucrose**	**30000.000**
Boric acid	**6.200**	**AMINO ACID**	
Cobalt chloride	**0.025**	**Glycine**	**2.000**
Copper sulphate	**0.025**	**OTHERS**	
EDTA disodium salt	**37.300**	**Agar**	**7000.000**
Ferrous sulphate	**27.800**	**Total**	**41.00 g/l**
Manganese sulphate	**16.900**		
Molybdic acid	**0.213**		
Potassium iodide	**0.830**		
Zinc sulphate	**8.600**		

*** Formula adjusted for optimum performance and parameters**

Directions: Dissolve 41.40 gram in 750 ml distilled water mix well to dissolve all the ingredients. Add Heat stable ingredients & make up the volume to 1000 ml. Adjust the pH 5.75 ±0.5 using 1N HCl/NaOH. Boil to dissolve the gelling agar completely. Sterilize by autoclaving at 15 lbs. pressure (121 °C) for 15 min. Cool to 40°C for addition of heat labile ingredient. Aseptically dispense the medium in desired.

OXFORD LAB FINE CHEM LLP
ISO 9001-2008 Certified Company

Regd Office: Unit no 12, 1st Floor,
Neminath Industrial Estate No.6,
Navghar, Vasai (East), Palghar - 410210.
Maharashtra, INDIA.

Tel: +91 250 2390032 / 2390989 / 2390990
Email: sales@oxfordlabchem.com /
info@oxfordlabchem.com
Web: www.oxfordlabchem.com

Oxford
Range of
Laboratory Chemicals

Precautions to be taken

These plant tissue culture media are intended for the in-vitro use only. All the handling, experiments, storage, and discarding should be performed with the help of skilled and knowledgeable technicians and as per the established guidelines. The material should be disposed only after proper sterilization by autoclaving. Please go through the MSDS of the media to avoid any accidents or in emergency.

Performance and Evaluation

The expected performance of the medium is liable to use as per the direction on the label when stored at optimum conditions and within expiry date.

Quality Control

Appearance	**Off-white homogenous, free flowing powder.**
Solubility	**41.40 g/l soluble in distilled water**
pH at 25 ˚C	**5.75 ± 0.5**
Gelling	**Firm comparable with 0.7% agar gel**
Color and clarity of ready medium	**Colorless to pale yellow clear gel**
Growth promoting properties	**Assessed by providing plant cultures with relative humidity of about 60%±2%, temperature 22ºC±2ºC and photoperiod of about 16:8.**
Cultural Response	**Plant species showed actively growing callus and shoots with no structural, necrotic and toxic deformity**

Storage and Shelf Life: The product is highly hygroscopic; keep the container tightly closed at all times and store it properly as per the conditions mentioned on the label. The declared expiry is valid only when stored as per the conditions mentioned on the label. Note: Sterilize media immediately after reconstitution.

Disposal: To avoid the contamination or propagation of any hazardous microbes the used, unusable or modified preparation of this product must be disposed after autoclaving after completion of task.

Regd Office: Unit no 12, 1st Floor,
Neminath Industrial Estate No.6,
Navghar, Vasai (East), Palghar - 410210.
Maharashtra, INDIA.

Tel: +91 250 2390032 / 2390989 / 2390990
Email: sales@oxfordlabchem.com /
info@oxfordlabchem.com
Web: www.oxfordlabchem.com

Reference

1. **Kalyan Kumar De (2008),** ***An introduction to Plant Tissue Culture*****,7th Ed., Darjeeling Govt. College, Darjeeling, India. New Central Book Agency (P) Ltd. Kolkata, India.**
2. **Narayanaswamy S (2005).** ***Plant cell and tissue Culture*****, Tata Mc-Graw Hill publishing Co. Ltd. 6th reprint.**
3. **Roberta H. Smith. (2005),** ***Plant Tissue Culture-Techniques and Experiments*****, 2nd Ed., Texas A&M University, College Station, Texas. Academic Press. An Imprint of Elsevier, San Diego California, U.S.A.**

Disclaimer:

****

The information contained herein in good faith but makes no representations as to its comprehensiveness or accuracy. This document is intended only as a guide to the appropriate precautionary handling of the material by a properly trained person using this product. Individuals receiving the information must exercise their independent judgment in determining its appropriateness for a particular purpose.
Oxford Lab Fine Chem LLP makes no representations or warranties, either express or implied, including without limitation any warranties of merchantability, fitness for a particular purpose with respect to the information set forth herein or the product to which the information refers. Accordingly, Oxford Lab Fine Chem LLP will not be responsible for damages resulting from use of or reliance upon this information.