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Handbook on Plants and Cell Tissue Culture

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Description

Plants cell tissue culture is a rapidly developing technology which holds promise of restructuring agricultural and forestry practices. During the last two decades cell culture have made considerable advanced in the field of agriculture, horticulture, plant breeding, forestry, somatic cell genetics, phytopathology etc. Plant cells can be grown in isolation from intact plants in tissue culture systems. The cells have the characteristics of callus cells, rather than other plant cell types. These are the cells that appear on cut surfaces when a plant is wounded and which gradually cover and seal the damaged area. Plant cells and tissue culture are often used for the production of primary and secondary metabolites. Plant tissue cultures can be initiated from almost any part of a plant. The physiological state of the plant does have an influence on its response to attempts to initiate tissue culture. The parent plant must be healthy and free from obvious signs of disease or decay. The source, termed explant, may be dictated by the reason for carrying out the tissue culture. Younger tissue contains a higher proportion of actively dividing cells and is more responsive to a callus initiation programme. The plants themselves must be actively growing, and not about to enter a period of dormancy. Plant tissue culture is used widely in plant science; it also has a number of commercial applications. Tissue culture is employed in; micropropagation, elimination of pathogens from plant materials, germoplasm storage, production of somaclonal variants, embryo rescue, production of haploids, production of artificial seeds, production of secondary metabolities, production of transgenic plants etc. Some of the fundamentals of the book are plant tissue culture, basic requirements for tissue culture laboratory, surface sterilization of explant materials, development of tissue culture techniques, principles of cell culture cell, special factors influencing growth and metabolism, media for culturing cells and tissues, sterilisation procedures, design and equipment of a tissue culture laboratory, isolation method for

microorganisms for culture, culture preservation and stability, genetic modification of industrial microorganisms mutation etc.

The present book discuss about the methods, culture preservation and stability procedures, storage and transportation of plant cell tissue culture. This book is an invaluable resource for research workers, students, technocrats, entrepreneurs, institutional libraries etc.

Content

1. PLANT TISSUE CULTURE

Historical Events in Plant Tissue Culture

Basic Requirements for Tissue Culture Laboratory

1. Area for Medium Preparation

2. A Sterile Room

3. Glasswares and Other Instruments

4. A Constant Temperature Room

5. A Shaker System

Formulation of Tissue Culture Medium

1. Composition of M.S. Medium

2. Preparation of M.S. Medium

Collection of Explant Materials

Surface Sterilization of Explant Materials

Preparation of Explants and inculcation

Incubation of Culture Flasks

2. SUBCULTURE OF CALLUS

Regeneration of Plants from Callus

Organogenic Method

Embryogenesis Method

3. NUCELLUS CULTURE

4. EMBRYO CULTURE

Uses of Embryo Culture

5. MERISTEM CULTURE

Uses of Meristem Culture

6. ANTHER CULTURE

Procedure For Anther Culture

Uses of Anther Culture

7. SUSPENSION CULTURE

Methods For Growth Measurement

Experiments to Assess the Cell Viability

Uses of Suspension Culture

8. DEVELOPMENT OF TISSUE CULTURE TECHNIQUES

9. PRINCIPLES OF CELL CULTURE

CELL

Fine Cell Structure

Nuclearcytoplasmic Relationships

Cellular Activity

CELL DIVISION

CELLTYPES AND TISSUES

BEHAVIOUR OF CELLS IN CULTURE GROWTH,

DIFFERENTIATION AND METABOLISM

Primary And Established Cell Lines

The Nature Of Cell Alteration Or Transformation

Do Cultured Cells Differentiate?

KINETICS OF CELL GROWTH

(a) Established cell lines

(b) Primary cell lines

The cell cycle

Interaction among cells

Genetics of cultured cells

METABOLISM

Carbohydrate metabolism

Synthetic mechanisms

Protein Metabolism

Lipid metabolism

Nucleic acids

Structural elements

Relation of metabolism to growth

SPECIAL FACTORS INFLUENCING GROWTH AND METABOLISM

THE CELL AND ITS ENVIRONMENT PRESUMABLY

Temperature

Osmotic pressure

Hydrogen ion concentration

Other inorganic ions

Carbohydrates

Gases

Amino acids

Vitamins

Proteins and peptides

Supplementary metabolites

Hormones

Other specific factors

The matrix

Balance among factors

MEDIA FOR CULTURING CELLS AND TISSUES

I. NATURAL MEDIA

PLASMA

BLEEDING FROM THE WING

BLEEDING FROM THE HEART

BLEEDING FROM THE CAROTID ARTERY

COLLAGEN

BIOLOGICAL FLUIDS

Preparation of serum

Placental cord serum

Aminiotic fluid

Ascitic and pleural fluid

Aqueous humour

Serum ultrafiltrates

Dialysed serum

Insect haemolymph

Coconut water (coconut milk)

TISSUE EXTRACTS

The preparation of embryo extract

Preparation of chick embryo extract

Preparation of embryo extract from young embryos

The preparation of bovine embryo extract

Ultrafiltrates of embryo extract

Other tissue extracts

Other media of biological origin

MEDIA FOR CULTURING CELLS AND TISSUES

II. DEFINED MEDIA

MEDIA FOR TISSUES FROM WARMBLOODED VERTEBRATES

Solubility of materials.

Compatibility of components

Purity of materials.

Chemical instability

Stock solutions.

BALANCED SALT SOLUTIONS

Materials

Preparing a balanced salt solution

PARTIALLY COMPLETE SYNTHETIC AND COMPLETE MEDIA

Preparation of Eagles Medium

MEDIA FOR CULTURE OF TISSUES FROM COLD

BLOODED VERTEBRATES

MEDIA FOR INVERTEBRATE TISSUES

MEDIA FOR PLANT TISSUES

10. PREPARATION OF MATERIALS

PREPARATION OF APPARATUS

Glassware

Plastic vessels

Stoppers for culture vessels

Rubber tubing

Instruments, etc

CLEANING PROCEDURES GLASSWARE

Detergents

Alkalies

Oxidising acids

Ultrasonics

Special problems

Automatic washing machines

PREVENTION OF CONTAMINATION

I. STERILISATION PROCEDURES

Sterilisation by dry heat

Sterilisation by moist heat

Radiations

Antiseptics

Antibiotics

Filtration

Storage of sterile materials

Chronic contamination (especially PPLO and L forms)

Sterility testing

Elimination of contamination

Outbreaks of contamination

PREVENTION OF CONTAMINATION

II. ASEPTIC TECHNIQUE

Contamination from tissue

Contamination from the air

Contamination from the operator

DESIGN AND EQUIPMENT OF A TISSUE CULTURE LABORATORY

Sterilisation and cleaning facilities

Sterile working area

Storage for media

Incubator facilities

Special glassware and apparatus

General equipment

Special apparatus

Coverslip techniques

Rollertube techniques

Organ culture

Handling of strains

Sources of materials

LABORATORY DESIGN

A singleroom unit

Laboratory suite for tissue culture

Sterilisation room

The preparation room

The aseptic room

Aseptic cubicle

Hot room

General facilities

11. PRIMARY EXPLANATION TECHNIQUES

I. TISSUE CULTURES

SLIDE CULTURES

THE PREPRATION OF SLIDE CULTURE

Single coverslip with plasma clot

Maximow double coverslip method with plasma clot

Single coverslip with liquid medium. Laying and hanging drop cultures

AFTERCARE OF SLIDE CULTURES

Washing and feeding double coverslip cultures

Patching

Transferring coverslips cultures

CARREL FLASK TECHNIQUE

PREPARATION OF CULTURES

Renewal of medium

The transfer of tissue

TESTTUBE CULTURES

Plasma clot technique

Feeding testtube cultures.

Patching testtube cultures

Transfer of cultures from testtube

Culture of primary explants in roller tubes without plasma.

Flying coverslips in test tubes

THREEDIMENSIONAL SUBSTRATES

PRIMARY EXPLANTATION TECHNIQUES

II. ORGAN AND EMBRYO CULTURE

Organ cultures on plasma clots

Cultures on agar

Fluid media

PREPARING AN ORGAN CULTURE ON A CELLULOSE ACETATE RAFT

SETTING UP AN ORGAN CULTURE OF EMBRYONIC LIMB BONES ON A GRID

Set up apparatus

Prepare dishes

Prepare explants

Set up explants (e.g. chick limb bones)

Subculture (The medium should be changed every 48 hours.)

CHOPPED TISSUE TECHNIQUE

Cultivation of poliomyelitis virus in minced tissue suspensions

CUTTING CHICK EMBRYONIC HEART EXPLANTS BY MEANS OF THE McILWAIN TISSUE CHOPPER

WHOLE EMBRYO CULTURE

Culture of preimplantation mammalian embryos

Culture of postimplantation mammalian embryos

PRIMARY EXPLANTATION TECHNIQUES

III. DISAGGREGATION METHODS

PREPARATION OF CELL SUSPENSIONS FROM FRESH TISSUES

Disaggregation of embryonic limbbuds

Preparation of trypsinised embryonic carcass

Trypsinibation of monkey kidney tissue

Preparation of primary human amnion cells

Trypsinibation procedure

Trypsinibation in the cold

Cloning of primarily disaggregated cells

12. CELL LINES

STATIC CULTURE METHODS

SUSPENDING CELLS FROM A MONOLAYER CULTURE

INOCULATION OF NEW VESSELS

FEEDING AND MAINTENANCE

Agar slope cultures

SUSPENSION CULTURES

Media for suspension cultures

Gas phase

General methods

General management of suspension cultures

Batch cultures

Continuous medium replacement

GROWTH OF PLANT CELLS IN SUSPENSION

CLONING CELLS

Cloning of HeLa cells by the dilution technique

Agar suspension technique

Cloning in fibrin gels

Cloning cells by the isolation technique

Technique

Characterisation of cell lines

SPECIAL ASPECTS OF HANDLING PRIMARY CELL LINES

General maintenance

Seed stocks

13. ISOLATION METHOD FOR MICROORGANISMS FOR CULTURE

SOURCES OF ORGANISMS AND SOME SAMPLING

STRATEGIES

DIRECT ISOLATION METHODS

Pretreatment of Samples

DILUTION AND INCUBATION OF SAMPLES

Media Considerations

ENRICHMENT CULTURE METHODS

Baiting Methods

General Chemical Enrichment

Specialized Enrichment Systems and their Applications

Enrichments from sea water

Enrichments for biomass production

Enrichments for nitratereducing bacteria

Enrichments in complex media

Biodegradation

Heterogeneous continuous flow systems

14. CULTURE PRESERVATION AND STABILITY

PROCEDURES PRIOR TO SELECTING A

PRESERVATION METHOD

Object of Preservation

Good Record Keeping of Previous Treatment and Lineage

Notation of Reported Characteristics of a Culture

Culture Preservation and Stability

DETERMINANTS FOR CULTURE IDENTITY,

CHARACTERISTICS AND PURITY

Authenticated Cultures Confirmation of Stated Traits

Morphological

Biochemical

Physiological

Research and Development Strains

Elimination of leaky mutants

Assurance of auxotrophic traits (elimination of mixed genetic bag)

Selective pressure for maintaining specific culture traits

Longterm Storage

Cost efficiency

Minimal maintenance

Endurance of label

Precise inventory system

Shortterm Storage

Ease of sample preparation

Label reliability

Economic aspects

Reliability

Ease of retrieval

Rapid retrieval

SELECTION OF MAINTENANCE CONDITIONS AND PROCEDURES FOR IMPLEMENTATION,
BASED ON CULTURE USE

Longterm Storage

Analytical organisms

Comparison strains

Manufacturing plant cultures

Shortterm Storage

.New metabolite producers for investigative studies

Clones from populations for improved metabolite producers

Working stocks of analytical organisms

CULTURE RESTORATION AND GROWTH

CONSIDERATIONS

Restoration

Concentration of inocula

Nutrition

Osmotic (rehydration)

Temperature (rehydration and/or rate of melting)

Growth

Requirements

Temperature

Aeration (including dissolved gases)

Duration

Verification of Purity

15. GENETIC MODIFICATION OF INDUSTRIAL MICROORGANISMS

MUTATION

DNA Repair Mechanisms

Mutagen Specificity

Survival Curves and Optimum Conditions for the Use of a Mutagen and Expression of Mutations

Site Specific Mutagenesis

Applications of Mutation to Antibiotic-producing

Microorganisms

RECOMBINATION

Protoplast Fusion

Conjugation and Natural Plasmids

Transformation

Transduction

Sexuality and Parasexuality in Fungi

Recombinant DNA Technology

Transposable Elements

Applications of Recombination to Antibiotic-producing Microorganisms

GENETICS AND SCREENING

16. IN VITRO RECOMBINANT DNA TECHNOLOGY

GENERATION AND CLONING OF DNA FRAGMENTS

Fragmentation of DNA

Class II restriction enzymes

Random DNA fragments and the generation of genomic libraries

Enrichment for specific D.N.A. sequences

Synthesis of cDNA

Chemical synthesis of DNA

Covalent Linkage of DNA Fragments to Vector Molecules

Ligation to vector molecules

Methods favouring formation of hybrid DNA molecules

Modification of DNA Extremities

Isolation of Recombinant Molecules and Interspecies DNA Transfer

Transformation and transfection

In vitro packaging

CLONING VECTORS

Plasmid Vectors

Vectors Derived from Bacteriophage λ

Phage vectors

Cosmids vectors

Special Purpose Cloning Vectors

Expression vectors

Singlestranded phage vectors

Plasmid vectors for subcloning and sequencing

Vectors for the detection of transcription and translation signals

Vector Systems for Organisms other than E. coli

DETECTION AND ANALYSIS OF CLONES

Screening Recombinant Clones

Nucleic acid homology

Translation in vitro

Immunological screening

Characterization of Cloned DNA

Isolation of cloned DNA

Physical characterization of cloned fragments

Characterization of products expressed by cloned fragments

MANIPULATION OF CLONED GENES

IN VITRO

Mutagenesis

Generation of deletions and insertions

Point mutations

Efficient Expression of Cloned Genes

Constructions that maximize expression

Secretion of cloned products

17. NUTRITIONAL REQUIREMENTS OF MICROORGANISMS

BACTERIA AND FUNGI

Macronutrients

Carbon

Nitrogen

Hydrogen
Oxygen
Phosphorus
Sulfur
Potassium
Magnesium
Micronutrients
Growth requirements
Effects of trace elements
Addition of trace elements
Chelation
Growth Factors
Vitamins
Amino acids
Miscellaneous growth factors
ALGAE
Macronutrients
Carbon, oxygen and hydrogen
Nitrogen
Phosphorus and sulfur
Potassium and magnesium
Micronutrients
Growth Factors

PROTOZOA

18. DESIGN, PREPARATION AND STERILIZATION OF FERMENTATION MEDIA

MEDIUM DESIGN

MEDIUM PREPARATION

STERILIZATION

19. NUTRIENT UPTAKE AND ASSIMILATION

NUTRIENT UPTAKE

Simple Diffusion

Transport Systems

Facilitated diffusion

Active transport

Redundancy of Transport Systems

ASSIMILATION

Assimilation of Carbon

Assimilation of Nitrogen

Control of nitrogen assimilation

Assimilation of Other Elements

20. MODES OF GROWTH OF BACTERIA AND FUNGI

GROWTH OF UNICELLULAR ORGANISMS

Cocci

Grampositive Rods

Gramnegative Rods

Budding Yeasts (Saccharomyces)

THE CELL CYCLE

GROWTH OF FILAMENTOUS ORGANISMS

Germination of Fungal Spores

Hyphal Morphology

Growth of Individual Hyphae

The extension zone

Cytology of the nonextending part of fungal hyphae

The peripheral growth zone

Growth of Mycelia

YEASTMYCELIAL DIMORPHISM

COLONY GROWTH

Growth of Colonies on Solid Media

Growth of Colonies in Liquid Media

EFFECT OF GROWTH RATE AND OTHER VARIABLES ON CELL COMPOSITION AND MORPHOLOGY

Unicellular Organisms

Fungi and Actinomycetes

21. MIXED CULTURE AND MIXED SUBSTRATE SYSTEMS

MIXED CULTURES

Methods of Study

Enrichment of Mixed Cultures

Analysis of Twospecies Systems

Analysis of Multispecies Communities

Kinetics of Mixed Cultures

Genetic Interactions

Mixed Culture Processes

Spontaneous mixed culture processes

Defined mixed cultures

Contamination and Degradation

Contamination

Industrial fermentations with unstable strains

Environmental Biotechnology

MIXED SUBSTRATES

Patterns of Mixed Substrate Utilization

Control of Mixed Substrate Utilization in Batch Culture

Control by regulation of substrate transport

Control by regulation of enzyme synthesis

Control by regulation of enzyme activity

Mixed Substrate Utilization in Continuous Culture

Double substrate limited growth

Efficiency of growth on mixed substrates

COMETABOLISM

Cometabolism in the Environmen

Technological Potential

22. PROTOPLAST TECHNOLOGY

ISOLATION OF PROTOPLASTS

1. Mechanical Method

2. Enzymatic Method

MAINTENANCE OF PROTOPLASTS

Viability Tests for Protoplasts

1. FAD Test

2. Phenol Safranin Test

3. ColflourWhiteTest

4. Microscopic Observation of Cytfoplasmic Streaming

Plant Regeneration from Protoplasts

Applications of Protoplast Culture

PROTOPLAST FUSION

Methods of Protoplast Fusion

Selection of Hybrid protoplasts

Regeneration of Plantlets

Uses of Protoplast Fusion

INVITRO MUTATION BREEDING

Induction of invitro Mutagenesis

Uses of Invitro Mutation Breeding

23. GERMPLASM STORAGE

GERMPLASM STORAGE BY CRYOPRESERVATION

1. Collection of Plant Materials

2. Addition of Cryoprotective Agents

3. Freezing Treatment

4. Longterm Cold Storage

REUSE OF PRESERVED TISSUE

1. Thawing

2. Removal of Cryogen

3. Callus Induction

4. Plant Regeneration

Achievements

Advantages of Cryopreservation

STORAGE OF GERM PLASM OF POTATO

24. GENETIC ENGINEERING THROUGH THE TRANSFER OF CELL ORGANELLES

1. Isolation of Cell Organelles

2. Isolation of Protoplasts

3. Induction of protoplast to uptake cell Organelles

4. Selection of Transformed Protoplast

5. Regeneration of Plantlets

Advantages of Organelle Uptake Method

SUBPROTOPLASTS

Production of Cybrids

Applications of Cybrids

25. SPECIAL CONSIDERATIONS FOR DIFFERENT TISSUES

VERTEBRATE TISSUES

Embryonic tissues

DISSECTION OF THE CHICK EMBRYO

Chick embryonic limb bones for organ culture

MAMMALIAN EMBRYONIC TISSUES

ADULT TISSUES

PREPARATION OF EXPLANTS OF THE BUFFY COAT

Culture of peripheral blood leucocytes

Human skin fibroblasts

PROLONGED CULTURE OF DIFFERENTIATED CELLS

CULTIVATION OF TISSUES FROM COLD BLOODED VERTEBRATES

CULTURE OF INVERTEBRATE TISSUES

Arthropods

Other invertebrates

STORAGE OF TISSUE BEFORE CULTURING

CULTURE OF PLANT TISSUES

Preparation of tissues from plants

Cultivation of plant tissues

Culture of tomato roots

Culture of carrot callus

26. CULTIVATION OF CELLS IN VIVO TRANSPLANTATION

Transplantation into embryos

PROCEDURE

Transplantation into tolerant chimeras

Transplantation into genetically similar hosts
Transplantation into nonvascular areas
Procedure for anterior eye chamber implantation
Procedure for brain implantation
Diffusion chambers
Transplantation to irradiated and cortisone-treated animals
scites tumours

Maintenance of sterility

27. LARGESCALE CULTURE METHODS

Preparation and sterilisation of apparatus

Preparation and sterilisation of media

Cells and media

APPARATUS FOR MASSIVE CULTURE OF CELLS ON GLASS SURFACES

Largescale Roux flask cultures

Roller bottle methods

Solid matrix perfusion systems.

The multiple surface tissue culture propagator

MASSIVE SCALE SUSPENSION CULTURE

Culture vessels

CONTROL OF CULTURE CONDITIONS

Temperature

pH

Oxygen

28. PRESERVATION, STORAGE AND TRANSPORTATION OF LIVING TISSUES AND CELLS

Maintenance at slightly reduced temperatures

Maintenance at refrigerator temperature

Preservation by freezing

Equipment

General Procedure

Transportation of cells

29. MORPHOLOGICAL STUDIES

Morphological Studies

COMMON FIXATION AND STAINING TECHNIQUES

FOR TISSUE CULTURE MATERIAL

I . Commonly used fixatives

II. Routine stains

III. Special histochemical stains

Chromosome spreading technique

Determining the mitotic coefficient

Planimetry

Examination of living cells

Photography

PERFUSION OR CIRCUMFUSION CHAMBERS

Timelapse cinemicrography

QUANTITATIVE OPTICAL METHODS

Auto radiography

Preparation of cultures for electron microscopy

30. APPLICATIONS OF TISSUE CULTURE

1. Micropropagation

2. Elimination of Pathogens

3. Germplasm Storage

4. Somaclonal Variation

5. Embryo Rescue

6. The Production of Haploids

7. Artificial Seeds

Types of Artificial Seeds.

8. Production of Secondary Metabolites

9. Production of Somatic Hybrids

10. Transgenic Plants

Secondary Metabolites

Culture of Plant Cells for the Extraction of Secondary Metabolites

1. Designing of Bioreactor

2. Selection of Explant Source

3. Surface Sterilization

4. Preparation of Explant

5. Callus Culture

6. Suspension Culture

7. Cell Plating

8. Testing for Biosynthetic Activity

9. Culture of more Productive Clones

10. Extraction of Secondary Metabolites

Biotransformation In Plant Cells

Elicitor dependent Biosynthesis

Immobilization of Plant Cells

Hairy Root Clones

31. LIST OF CULTURE

NCTC 109 AND NCTC 135

32. SOURCES OF MATERIALS FOR TISSUE CULTURE

General suppliers of laboratory apparatus
General glassware (in addition to above firms)
General biological products and biochemicals
General chemicals
Special tissue culture media
Suppliers of cell cultures

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