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UNIVERSITY

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FACULTY OF ENGINEERING &
TECHNOLOGY

Course: B. Tech Biotechnology
Sub Code: BBT-515

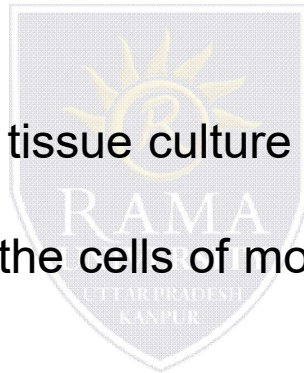
Semester: 5th
Sub Name: Plant Biotechnology

LECTURE 1

Dr. NIHARIKA SINGH
Assistant Professor
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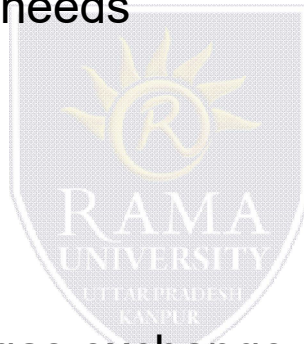
NUTRIENT MEDIA

- Culture media are largely responsible for the in vitro growth and morphogenesis of plant tissues.
- The success of the plant tissue culture depends on the choice of the nutrient medium. In fact, the cells of most plant cells can be grown in culture media



FUNCTIONS OF NUTRIENT MEDIA

- ✓ Provide water
- ✓ Provide mineral nutritional needs
- ✓ Provide vitamins
- ✓ Provide growth regulators
- ✓ Access to atmosphere for gas exchange
- ✓ Removal of plant metabolite waste



SOURCES OF ENERGY

Carbon Source

Sucrose (2-5%)

Fructose

Lactose

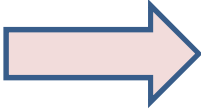
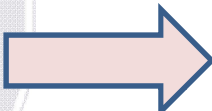
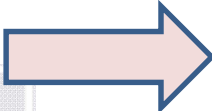
Maltose

Starch

Nitrogen source

Defined

Undefined



Major nutrients:
Inorganic ions

Minor nutrients:
Amino acids, glycine,
glutamine

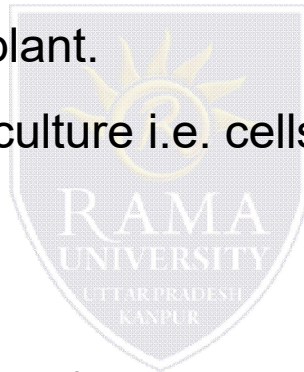
Extracts of malt,
yeast and corn

COMPOSITION OF MEDIA

Composition of Media:

The composition of the culture media is primarily dependent on two parameters:

1. The particular species of the plant.
2. The type of material used for culture i.e. cells, tissues, organs, protoplasts.



- ✓ The media used may be solid (solid medium) or liquid (liquid medium) in nature.
- ✓ The selection of solid or liquid medium is dependent on the better response of a culture.

MAJOR TYPES OF MEDIA

- 1. White's medium:** is one of the earliest plant tissue culture media.
 - 2. MS medium:** formulated by Murashige and Skoog (MS) is most widely used for many types of culture systems. Murashige and Skoog (MS) originally formulated a medium to induce organogenesis, and regeneration of plants in cultured tissues.
 - 3. B5 medium:** developed by Gamborg for cell suspension and callus cultures and at present it's modified form used for protoplast culture
 - 4. N6 medium:** formulated by Chu and used for cereal anther culture
 - 5. Nitsch's medium:** developed by Nitsch and Nitsch and used for anther culture
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QUIZ

