



B. Sc. (Botany) SEMESTER-VI

Paper-I

(Biochemistry, Biotechnology and Herbal Technology)

Unit- I

Biochemistry: Lipids and Enzymology:

1 Lipids: Definition, Properties and role of fatty acids, oils and waxes; Degradation of fats (B-Oxidation and Glyoxylic acid cycle)

<https://youtu.be/iPrVkvBu01E>

https://youtu.be/_jS-pjzb5k

<https://youtu.be/D2Tys7CqTsM>

2. Enzymology: Enzymes: Definition, Nomenclature and classification of enzymes; Characteristics (Properties) of enzymes

<https://youtu.be/2S2wCL1A4tg>

<https://youtu.be/yslaz6uqj9I>

3. Basic concepts of enzymology: Holoenzyme, Apoenzyme, Prosthetic group, Co-enzyme, Co-factor, Active site, Isoenzyme

<https://youtu.be/XiC7aE-fifo>

<https://youtu.be/93z3HLHG73s>

<https://youtu.be/1A-0nzEoxes>

4. Mechanism of enzyme action: Enzyme-substrate complex theory, Lock and key model, Induced fit model

<https://youtu.be/iKDMwN3wWU4>

<https://youtu.be/RwIRiQNZ6LA>

<https://youtu.be/z2OfqRHZ0B0>

4. Enzyme inhibitors: Definition, Competitive and non-competitive.

<https://youtu.be/S1ErNSn7q-Y>

<https://youtu.be/KpVstOEoCtI>

UnitII: Plant tissue culture:



DHARAMPETH M. P. DEO MEMORIAL SCIENCE COLLEGE, NAGPUR

- 1. Brief account of:** Tissue culture, Totipotency, Explant, Aseptic cultures, Micropropagation, Differentiation and Morphogenesis.
https://youtu.be/Hf6SsiPn7_U
<https://youtu.be/BUddRMjL-og>
<https://youtu.be/BYJ1iHcCSig>
<https://youtu.be/NkcMghjufek>
<https://youtu.be/A6qEgc6Jt3Q>
<https://youtu.be/uLuLE42etFk>
<https://youtu.be/3W5w3873FjM?list=PLJL5i6f9trgaU5ONp4rNnT-cppUqNRtCp>
<https://youtu.be/f3XLdSbjhJs>
- 2. Methods of sterilization:** Autoclaving, Dry heat and Chemical sterilization
<https://youtu.be/qpDkvectqGE>
<https://youtu.be/RN7mcvosGMA>
<https://youtu.be/QacnD-dGa5U>
- 3. Culture Media:** MS media (Preparation and nutrient contents)
<https://youtu.be/ArneRUolgeA>
- 4. Tissue Cultures:** Callus and organ culture (Shoot tip and Anther culture) and its applications
https://youtu.be/0u_iB60Fn4A
<https://youtu.be/zvDJC1iE1Lo>
<https://youtu.be/T-xJ3ofqxDM>
- 5. Protoplast culture and its applications.**
<https://youtu.be/JG2kP7rrVwg>
- 6. Applications of tissue culture**
https://youtu.be/wgn_vP_b8zg

Unit-III: Genetic engineering:

- 1. Genetic engineering:** Definition, Tools in genetic engineering: Enzymes (Restriction enzymes, Ligases, DNA-polymerases), Host
<https://youtu.be/4fBQ2umTaMA>
https://youtu.be/mK_hJJuZt9Q
https://youtu.be/rhd_fBPyzSM
<https://youtu.be/a3Z3VFdV5FE>
<https://youtu.be/91O0IrjoXQQ>
<https://youtu.be/z3KIC6yietA>
- 2. Cloning vectors:** General Characteristics, method of Isolation of vector, Plasmid as a vector (pBR322).
<https://youtu.be/meL5mTXy3dQ>
<https://youtu.be/yLETI3DKmZY>
<https://youtu.be/SZHJOmxEJfQ>



DHARAMPETH M. P. DEO MEMORIAL SCIENCE COLLEGE, NAGPUR

- 3. DNA Library:** Definition, Construction of Genomic library and C-DNA library and their significance
https://youtu.be/q0pZU4se_F8
- 4. Agrobacterium mediated gene transfer:** Structure of Ti-plasmid, mechanism of transfer.
<https://youtu.be/40GtVHhAeXc>
<https://youtu.be/LmnVqmjemeY>
<https://youtu.be/wHWxqsfW8r4>
<https://youtu.be/6YUW-8PVIVo>
https://youtu.be/_NS0E2DSktI
<https://youtu.be/GjbeDAmj8nY>
- 5. Role of biotechnology in crop improvement**
<https://youtu.be/dATyIjngnNI>
<https://youtu.be/WWRbx0vE7zY>

Unit-IV: Skill Development: Herbal technology:

- 1. Herbal technology:** History and importance of herbal technology
- 2. Basic concepts:** Drugs, cosmetics, Natural dyes, Difference between organized and unorganized drugs

<https://youtu.be/7S9xSboDimU>

<https://youtu.be/oI5ToTv3nFo>

<https://youtu.be/Emgv4bWRfYo>

<https://youtu.be/4uuw39sCI8w>

- 3. Methods:** Cultivation, harvesting, processing, storage and utilization of Withania sammfera, Aloe vera, Ocimum sanctum
<https://youtu.be/THZHctCSmUk>
<https://youtu.be/ajNlxQzh-vQ>
<https://youtu.be/xvakf3P3yoA>
<https://youtu.be/3MtZjyQcGOg>
- 4. Dye yielding herbal plants:** Lawsonia alba (Henna), Rivina humilis, Indigofera tinctoria
https://youtu.be/S1sXQiNeE_c
<https://youtu.be/ynfCqX8GtEU>
- 5. Herbs used in cosmetics:** Corus nucifera (Coconut oil), Curcuma longa (Turmeric), Cucumis sativa (Cumber), Lavendula sps. (lavender oil). Rose sps. (Rose), Hibiscus rosa Sensis (China rose) (With reference to parts used chemical constituents, uses and Marketed products)



**DHARAMPETH M. P. DEO MEMORIAL SCIENCE COLLEGE,
NAGPUR**

<https://youtu.be/7gmBmF54xI4>

<https://youtu.be/AjLVMhdtOM>