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**CRITERION II - TEACHING-LEARNING AND EVALUATION**  
**(2.3 - Teaching- Learning Process)**

2.3.2 - Teachers use ICT enabled tools for effective teaching-learning process.

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# Academic PPT of TYBSc Microbiology ( Use of ICT)

## Ag - Ab interaction

Depends on **antigen affinity and avidity** and **Antigen binding strength**

**Antigen affinity** : Measure of the binding strength at a single binding site. One epitope interacts with one paratope.

**Antigen avidity** : It is also called **functional affinity**. Measure of the total binding strength. One antibody may have 2 to 10 binding sites. Thus avidity vary from 2 to 10.

## A. Transplantation types

Based on genetic (and antigenic) relationship between **DONOR & RECIPIENT**

**Autograft**      **Syngeneic**      **Allogeneic**      **Xenogeneic**

## Estimate water resources of India

Water resources are estimated to be - 1.4 million km<sup>3</sup>  
 - West Bengal - 2.10 lakh ha  
 - Andhra Pradesh - 1.75 lakh ha  
 - Karnataka - 1.05 lakh ha  
 - Maharashtra - 1.05 lakh ha  
 - Madhya Pradesh - 1.05 lakh ha  
 - Gujarat - 1.05 lakh ha  
 - Uttar Pradesh - 1.05 lakh ha

**Estimated per capita water availability**  
 - 1600 lit per day  
 - 1600 lit per day

## The Allograft reaction

**1. First Set Response**

- Skin graft from a genetically unrelated animal of same species
- Initial acceptance
- Thrombosed an T. necrosis
- Mainly by T lymphocytes

## Cytotoxic T cells (CD8<sup>+</sup>)

**Activation of Naive CD8<sup>+</sup> T cells from CD8<sup>+</sup> T cells**

Naive CD8<sup>+</sup> T cells are a population of T cells that are in a state of self-censorship. They are not yet fully committed to the destruction and clearance of infected cells or tumor cells and generally do not kill or kill very few cells.

**Activation of Naive CD8<sup>+</sup> T cells from CD8<sup>+</sup> T cells**

Activation of Naive CD8<sup>+</sup> T cells from CD8<sup>+</sup> T cells is a process that requires at least three molecular signals:

1. The antigen - specific signal is provided by T cell receptor (TCR) recognition of peptide - class II MHC complex presented on Antigen Presenting Cell (APC).
2. A co-stimulatory signal is provided by the CD28 - B7 interaction (CD28 on T cell is co-stimulatory and B7 on APC is co-stimulatory).
3. A signal induced by the interaction of IL-2 with its high - affinity IL-2 receptor, resulting in proliferation and differentiation of CD8<sup>+</sup> T cells into effector CD8<sup>+</sup> T cells.

## Sickle Cell Anemia

- In sickle cell anemia, the red blood cells become rigid and sticky and are shaped like sickles or crescent moons.
- These irregularly shaped cells can get stuck in small blood vessels, which can slow or block blood flow and oxygen to parts of the body.

**Normal red blood cell**      **Sickle cell**

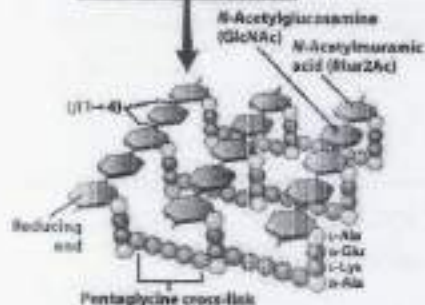
**Normal red blood cell**      **Sickle cell**

*Staphylococcus aureus*

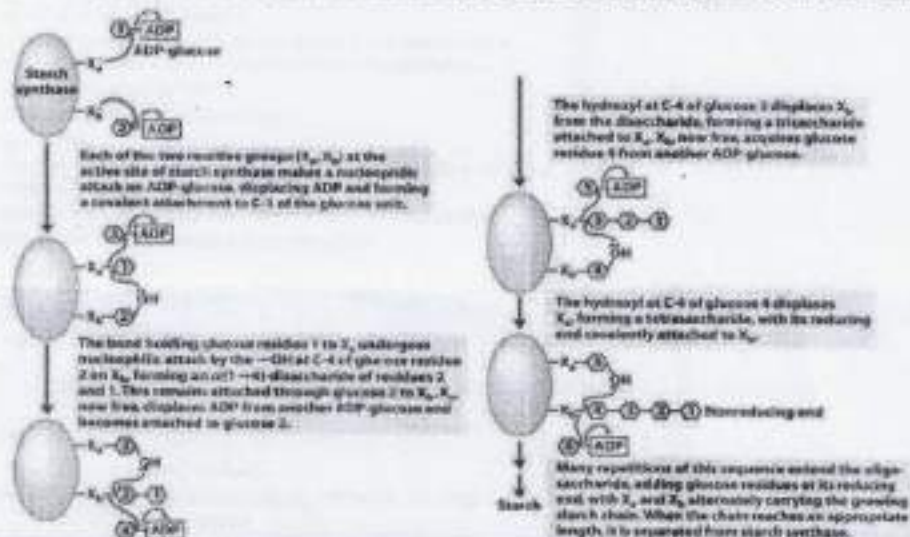


## Biosynthesis of peptidoglycan

- Peptidoglycan is the major component of bacterial cell wall.



## STARCH BIOSYNTHESIS IS GROWING FROM REDUCING END



## SPOILAGE

Raw meat is subjected to change by its own enzymes & by microbial action & its fat may be oxidized chemically.

- a. Factors that influence the invasion include:-
  - a. The load of gut of the animal- more the load, greater the invasion of tissues.
  - b. The physiological condition of the animal immediately before slaughter- if the animal is excited, feverish bacteria is more likely to be enter the tissues.
  - c. The method of eviscerating & bleeding- the better sanitary the bleeding, better would be the keeping quality of meat.
  - d. The rate of cooling- rapid cooling will reduce the rate of invasion of tissues.

## GENERAL TYPES OF SPOILAGE OF MEAT

### SPOILAGE UNDER AEROBIC CONDITIONS

1. Surface slime-
  - which may be caused by species *Pseudomonas*, *Leuconostoc*, *Bacillus*, *Actinomyces*, *Micrococcus* etc.
  - Temperature & availability of moisture, influence the kind of organisms causing surface slims.
2. Changes in color of meat pigments-
  - The production of oxidizing agents causes change in red color of meat to shades of green, brown & gray, by bacteria species of *Lactobacillus*.
  - Red color of meat called as "bloom".
  - *Leuconostoc* causes greening of sausages.
3. Changes in fats-
  - The oxidation of unsaturated fats in meats takes place chemically in air & may be catalyzed by light & copper.
  - Lipolytic bacteria may cause lipolysis of flavor due to aldehyde & acids.
  - Lipolytic species viz., *Pseudomonas* & *Actinobacter*.

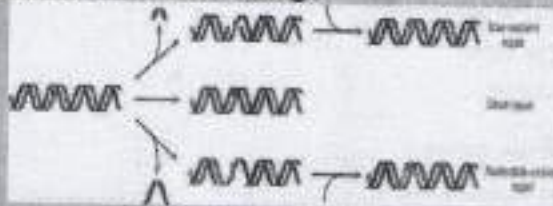
### IMPORTANT ISOLATED MICRO-ORGANISMS FROM MEAT

PRODUCT	MICRO-ORGANISMS ISOLATED
FRESH & REFRIGERATED MEAT	BACTERIA- <i>Pseudomonas</i> , <i>Acetomonas</i> , <i>Micrococcus</i> , & <i>Alcaligenes</i>
	MOLDS- <i>Cladosporium</i> , <i>Geotrichum</i> , & <i>Mucor</i>
	YEASTS- <i>Candida</i> , <i>Torulopsis</i> , & <i>Rhodotorula</i>
PRECESSED & CURED MEATS	BACTERIA- <i>Lactobacillus</i> & other lactic acid bacteria, <i>Bacillus</i> , <i>Micrococcus</i> , & <i>Streptococcus</i>
	MOLDS- <i>Penicillium</i> , <i>Aspergillus</i> , <i>Rhizopus</i>
	YEASTS- <i>Candida</i> , <i>Torula</i> , <i>Torulopsis</i>

## DNA Repair

DNA repair can be grouped into two major functional categories:

- A) Direct Damage reversal
- B) Excision of DNA damage



## Base analogue incorporation

- Base analogues become incorporated into daughter strands during DNA replication
  - For example, 5-bromouracil is a thymine analogue
    - It can be incorporated into DNA instead of thymine



Figure 24.24 All three coding ATG with adenine or guanine

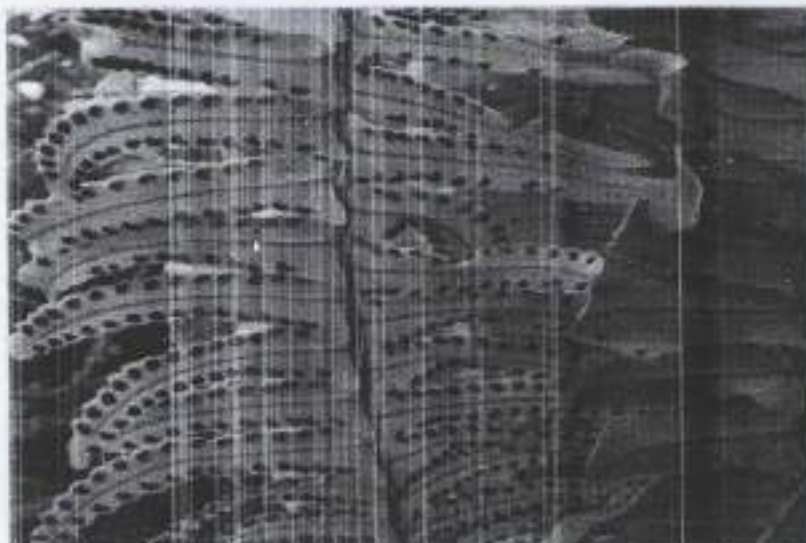
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## Point mutations

	No mutation	Point mutations			
		Silent	Nonsense	Missense	
				conservative	non-conservative
DNA level	TTC	TTT	ATC	TCC	TGC
mRNA level	AAG	AAA	UAG	AGG	ACG
protein level	Lys	Lys	STOP	Arg	Thr

Illustration of three types of point mutations

# NEPROLEPIS



## INTRODUCTION

- Nepros-Kidney, lepis-Scale like
- Evergreen,terrestrial ,sporophytic,can be differentiated into rhizome,roots and leaves.
- About 30 species distributed in tropics of the world.
- Shows alternation of generation
- Morphology-adventitious roots on rhizoms and stolon
- Small,fibrous,branched and persistent root hairs
- Short,erect,thick cylindrical stem-caudex
- Large,pinnately compound,spirally arranged ,basal part without leaflets (stipe), upper part with leaflets(frond).
- Central axis of frond is Rachis
- Sessile,auriculate,lanceolate with acute apex leaflet about 6-8 cm length, and 2-3 cm width.

### Fertilization:

- Water is essential for fertilization. After the release of antherozoids from antheridium, they swim in a thin film of water present on the surface of the prothallus.
- They are attracted towards the neck of archogonia by chemicals oozing out of the neck.
- Thus the antherozoids are directed towards the egg. Even though many antherozoids enter the neck only one fuses with the egg and forms zygote.

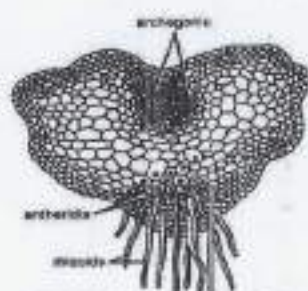


Fig. 3. Nephrolepis heart shaped prothallus.

### Alternation of generation

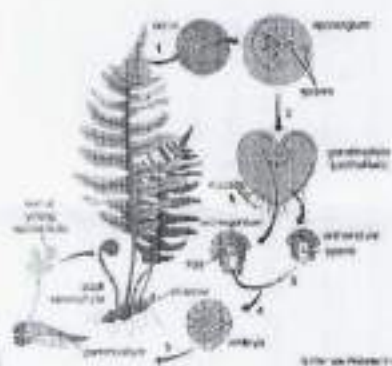


Fig. - Life Cycle - Nephrolepis

THANK YOU

## Use of ICT in the department of Economics

### Google Classroom

Google classroom method is used by the faculty. Students join this classroom. Hand written Study material, Power Point presentations, video clips, the interviews of the economists on You tube are shared through Google classroom. The classwork is given to the students in the Google classroom. Students also share their work in the classroom.

Link Classroom: <https://classroom.google.com/c/MTE10TUyNDA3NDk?cjc=36Indgh>

Google Quiz: Google Quiz used by faculty for internal assessment.

Link Google Quiz: <https://forms.gle/4gMRgz3HYvktztpP8>

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## ICT ENABLED TEACHING

Google Classroom Links:

<https://classroom.google.com/c/NTgzNDQvMDQxNzQ3?cjc=wjnaqkw> - TYBA

<https://classroom.google.com/c/NTA5MjE0OTE2MzU3?cjc=r257dbt> - SYBA

<https://classroom.google.com/c/NTA3NTg1OTU5ODMx?cjc=6fn5gqn> - FYBCom Add. English

<https://classroom.google.com/c/NTA0MTY0NzcyMDg5?cjc=dramejfFYBCom> Com. English

<https://classroom.google.com/c/NTY3NzIwNTcyMDkz?cjc=ei2rzzs> FYBA- Comp. English

Departmental Website –

<https://sites.google.com/view/deptofenglishindrayanimah/result>

Personal Profile- <https://sites.google.com/view/diptipethe/home>

PPTs

Zoom Meeting

Google Meet

You Tube... tools are used

DEPT. OF ENGLISH IMV

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डॉ. मधुकर देशमुख द्वारा उपयोग में लाये गए आई सी टी टूल्स

1. काव्य के लक्षण (KAVYA KE LAKSHAN ) परिभाषा, नेट, सेट तथा जेआरएफ के लिए उपयोगी ...  
<https://youtu.be/urYc3CxxxE?si=DGsVo4IXMG3vybOW>
2. काव्यशास्त्र (साहित्य का स्वरूप एवं परिभाषा)  
<https://youtu.be/zGjT68tVX-o?si=HNGH-VmdR22oX-Ay>
3. काव्य का स्वरूप एवं परिभाषा  
<https://youtu.be/MQeP-weDvjY?si=V4MHHWJYfmXWnTep>
4. शास्त्र का स्वरूप एवं परिभाषा  
<https://youtu.be/C6cRkZMgNzo?si=MJchoxoXqpJIQP2Y>
5. रस का स्वरूप एवं परिभाषा  
<https://youtu.be/Lym2uHFzeAA?si=MKmOEjEggFGT7llt>
6. कारक स्वरूप एवं परिभाषा  
[https://youtu.be/6NqyJC5dCNs?si=r0mXsH-2il\\_4HOhl](https://youtu.be/6NqyJC5dCNs?si=r0mXsH-2il_4HOhl)
7. मानवतावादी कवी 'नीरज'  
[https://youtu.be/6NqyJC5dCNs?si=r0mXsH-2il\\_4HOhl](https://youtu.be/6NqyJC5dCNs?si=r0mXsH-2il_4HOhl)



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इंद्रायणी महाविद्यालय  
तळेगाव-दाभाडे, पुणे-४१०५०७

### 1.1(1.1.1 Use of ICT 2022-2023)

Google Class Room, Google form as well as You Tube, PPT and Important Links are use in ICT tools.

जुने मराठी ग्रंथ

1. मराठी पुस्तके

2. मराठी साहित्य

3. मराठी साहित्य

4. मराठी साहित्य

5. मराठी साहित्य, संस्कृती जोपासना

6. मराठी साहित्य, वविध अभ्यासपूर्ण लेख

7. मराठी साहित्य, वविध अभ्यासपूर्ण लेख

8. मराठी साहित्य, वविध अभ्यासपूर्ण लेख

9. मराठी साहित्य, वविध अभ्यासपूर्ण लेख

10. मराठी साहित्य, वविध अभ्यासपूर्ण लेख

11. वैविध्यपूर्ण माहिती

12. नाटक-चित्रपट परीक्षण, परिचय

13. मराठीसहित २१ भाषांमध्ये, विविध विषयांवरची माहिती

- <http://mr.vikaspedia.in/InDG>

14. मराठी परिभाषा कोश

15. मराठी विश्वकोश

- <http://www.dli.ernet.in/>

- [www.esahity.com](http://www.esahity.com)

- <http://antaraal.com/>

- <http://www.chaparak.com/>

<http://www.maanbindu.com/marathi>

- <https://msblc.maharashtra.gov.in>

- <http://misalpav.com/>

- wiki source - <https://goo.gl/jzKkFw>

- <http://www.maayboli.com/>

- <http://aisiakshare.com/>

- <http://www.manogat.com/>

- <http://www.marathimati.com/>

- <http://www.pahawemanache.com>

- <http://marathibhasha.org/>

- <https://marathivishwakosh.maharashtra.gov.in/>



Efforts are made to educate students with new technology and developed ICT tools.