

# BSc. I Sem.

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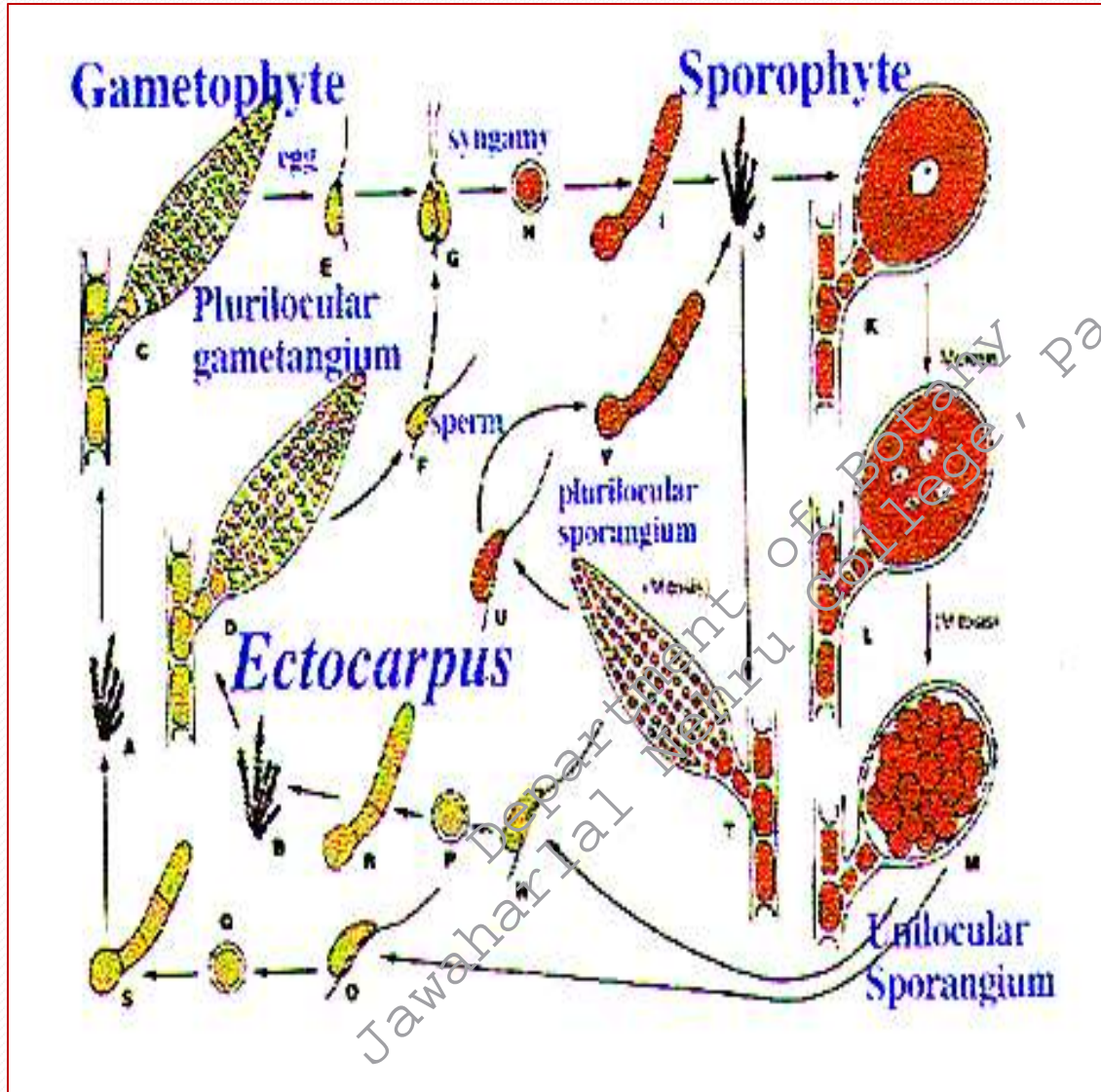
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# Points to remember



- Three pluriloculars:

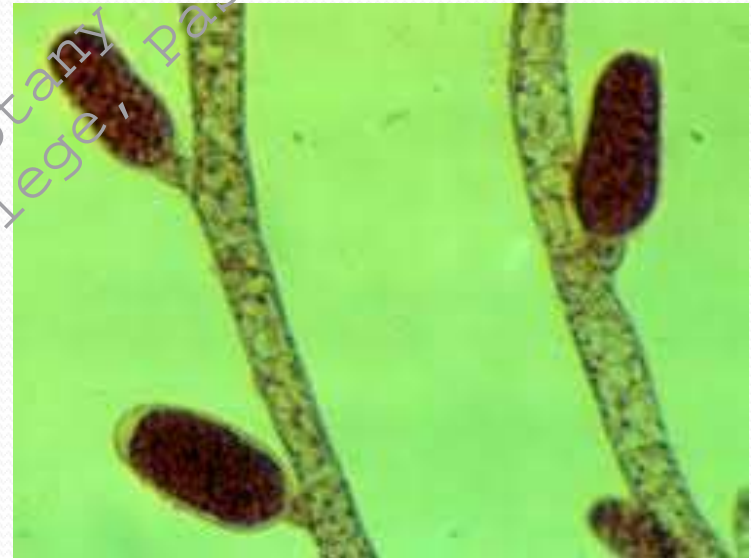
1. Plurilocular sporangium (Asexual) (2n).  
Male and Female Plurilocular gametangium (produced from Unilocular sporangium take part in sexual reproduction (n)).
- ✓ Two sporangium i.e Unilocular sporangium and Plurilocular sporangium.
- ✓ Notice the gametophyte (n) and Sporophyte (2n).

# sporangium

**Plurilocular sporangium  
lead to asexual  
reproduction**



**Unilocular sporangium  
lead to sexual reproduction**



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# SYSTEMATIC POSITION

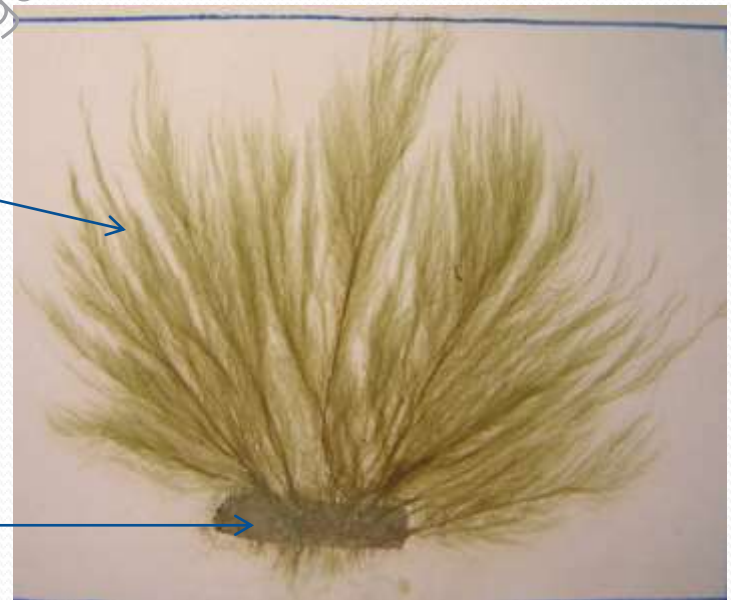
- CLASS- PHAEOPHYCEAE
- ORDER-ECTOCARPALES
- FAMILY-ECTOCARPACEAE
- GENUS-ECTOCARPUS
- SPECIES- *E. acanthophorus*, *E. acutus* etc.
- BROWN ALGAE, WIDELY DISTRIBUTED, REMAIN ATTACHED TO ROCKS AND OTHER BOGGER ALGAE.

# VEGETATIVE/THALLUS/ PLANT BODY

- Occur as tufts of branched filaments.
- Thallus can be divided into prostrate and branched erect portion.

- ERRECT PORTION

- PROSTRATE PORTION



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- Erect branches are uniseriate or monosiphonous.
- Branching is always lateral in position and arise from beneath the septa.
- Cell contain numerous disc-shaped brown plastids.
- Morphologically all vegetative thallus are similar in appearance **BUT**
- Genetically two types of ectocarpus thallus are found (Haploid & Diploid )

- 1. DIPLOID SPOROPHYTE THAT PRODUCE SPORES
- 2. HAPLOID GAMETOPHYTE THAT PRODUCE GAMETES.

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# REPRODUCTION/LIFE CYCLE

- COMPLETE LIFE CYCLE BY TWO METHODS:-
- 1. ASEXUAL REPRODUCTION / SPOROPHYTE
- 2. SEXUAL REPRODUCTION/ GAMETOPHYTE

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# ASEXUAL REPRODUCTION/ZOOSPORE FORMATION

- Ectocarpus produce two kinds of asexual structures called zoores:-
- A) Haploid zoospore is borne from unilocular sporangium
- B) Diploid zoospore is borne from plurilocular zoospore.
- Unilocular zoosporangium and plurilocular zoosporangium may be developed on same thallus or in separate thallus.

# UNILOCULAR ZOOSPORANGIUM

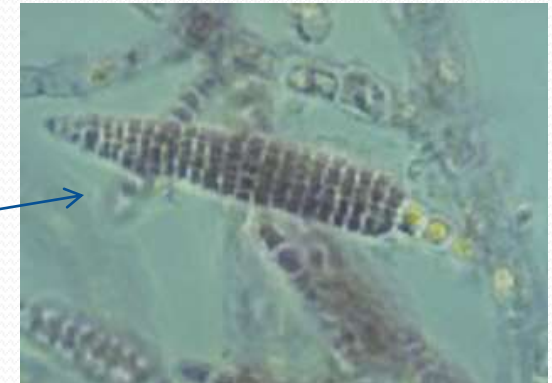
- Unilocular zoosporangium produce 32-64 haploid zoospores by meiotic division.
- These zoospores escape through terminal opening of sporangium and give rise to haploid gametophyte plant i.e thallus.



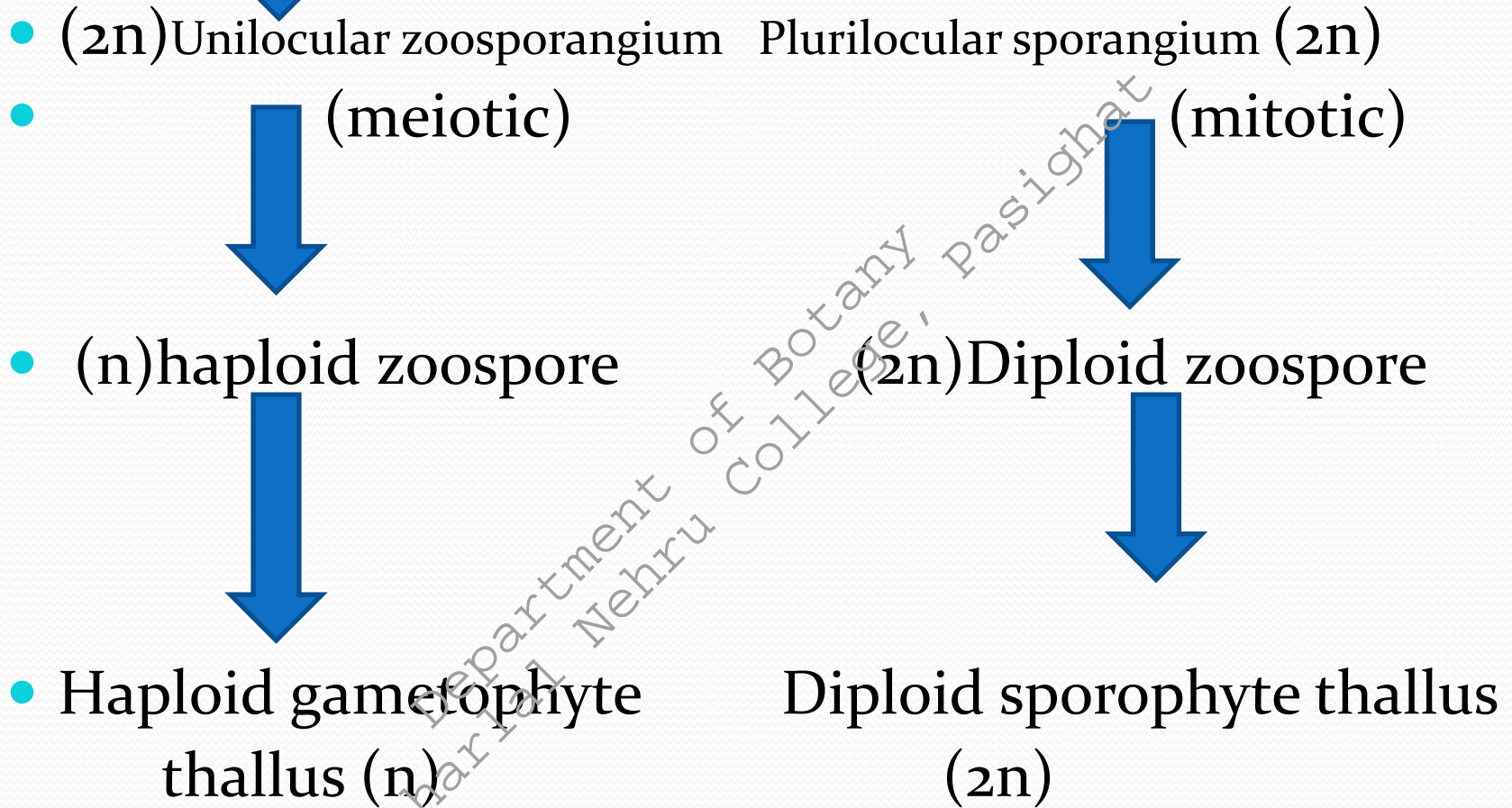
Unilocular zoosporangium

# PLURIOLOCULAR ZOOSPORE

- The plurilocular sporangium produce diploid zoospores by mitotic division.
- Plurilocular zoospores germinate to give rise to diploid sporophyte plant.
- Plurilocular appears as many tiers of cells arranged like an open maize.
- Unilocular zoospores as well as plurilocular zoospores develop laterally inserted flagella.
- Flagella are heterokont.
- PLURIOLOCULAR SPORANGIUM



# • Asexual reproduction



# Sexual reproduction

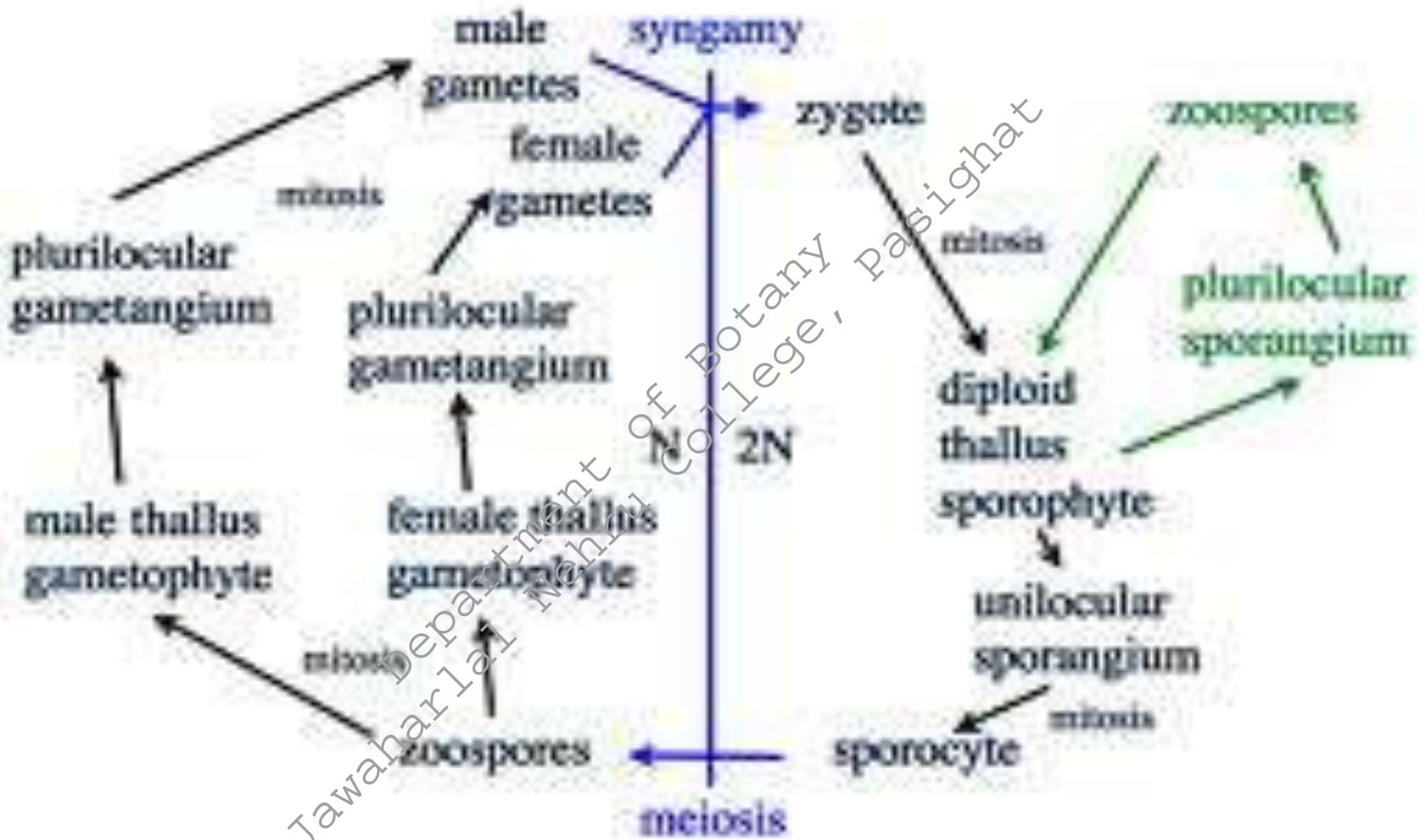


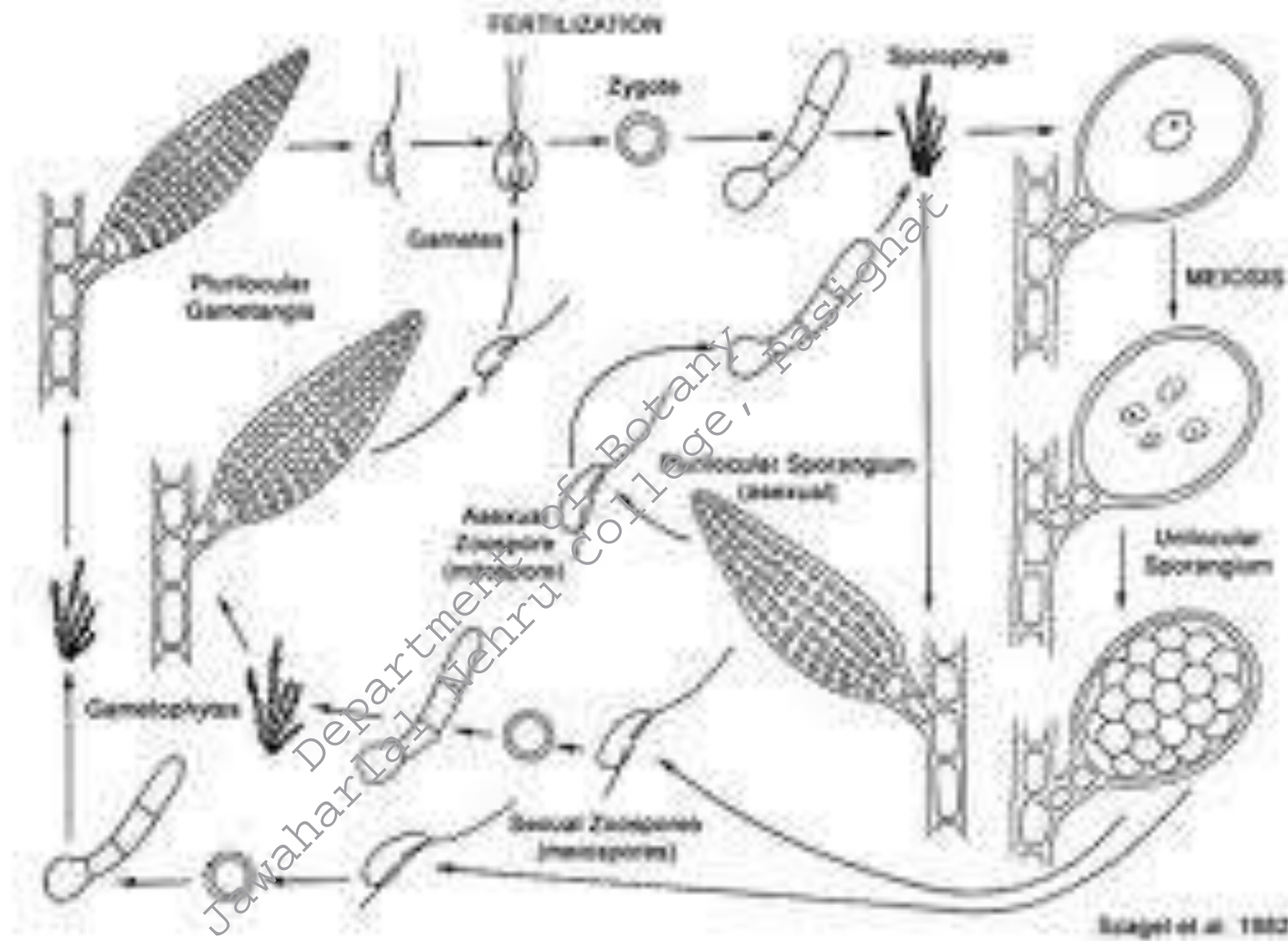
- Gametophyte thallus produced from unilocular zoospores matured up to produce **plurilocular gametangium**.
- Plurilocular gametangium produce gametes, laterally biflagellated
- Heterothallic i.e gametes from different thallus fuse together.
- Isogamous i.e same type of gametes fuse together.
- Male gametes are more active than female gametes

# Contd.

- Male gametes cloud around the female gamete and fertilization take place.
- Zygote grow to form sporophyte plant.
- Sporophyte plant again produce unilocular or plurilocular zoosporangium.

# Ectocarpus Life Cycle



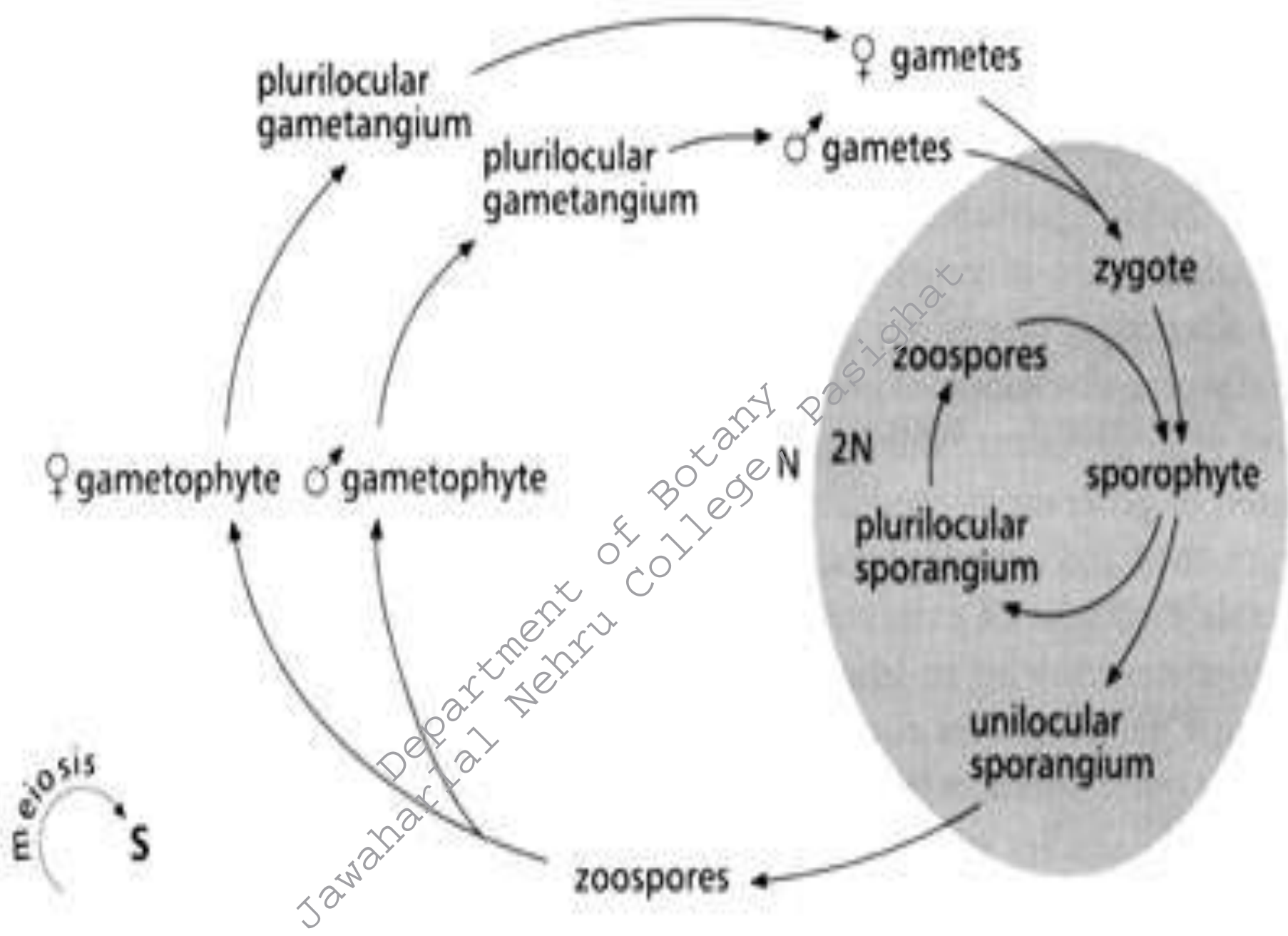




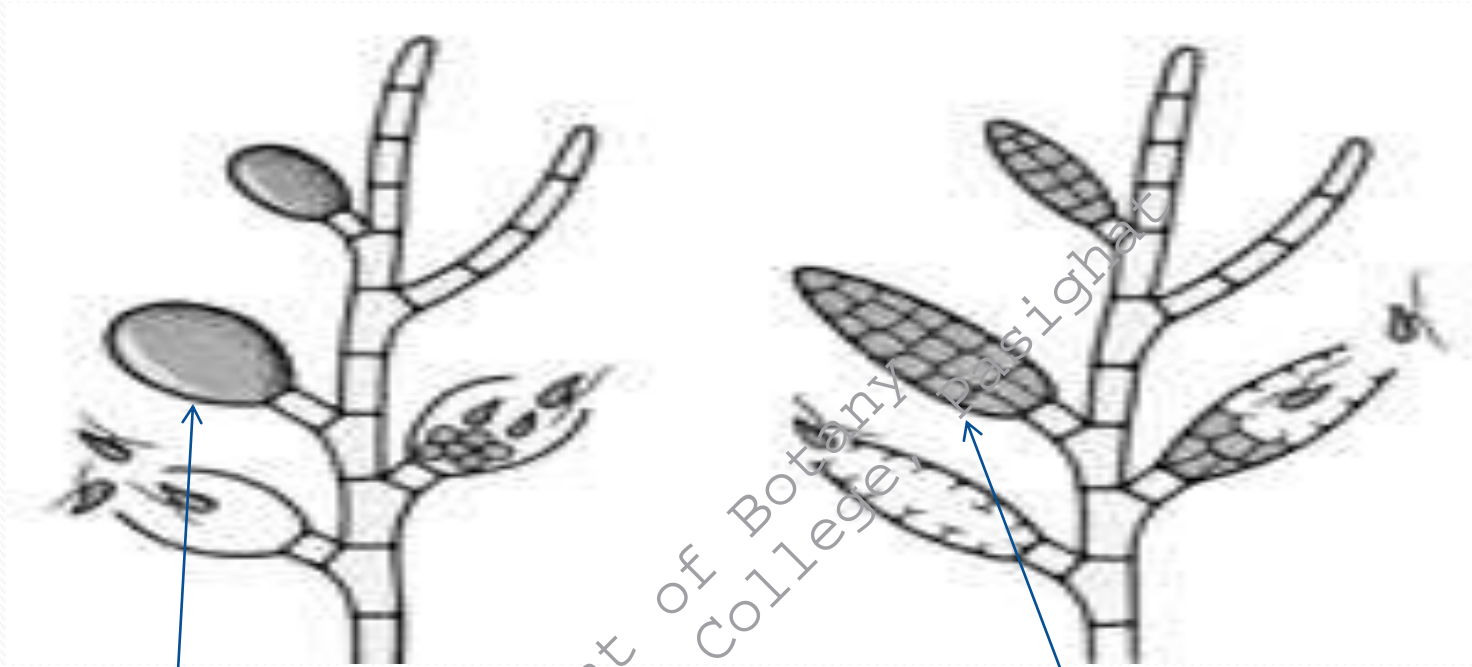
# Alternation of generation

- Isomorphic alternation of generation by forming familiar sporophyte and gametophyte thallus.

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● Unilocular

Plurilocular

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