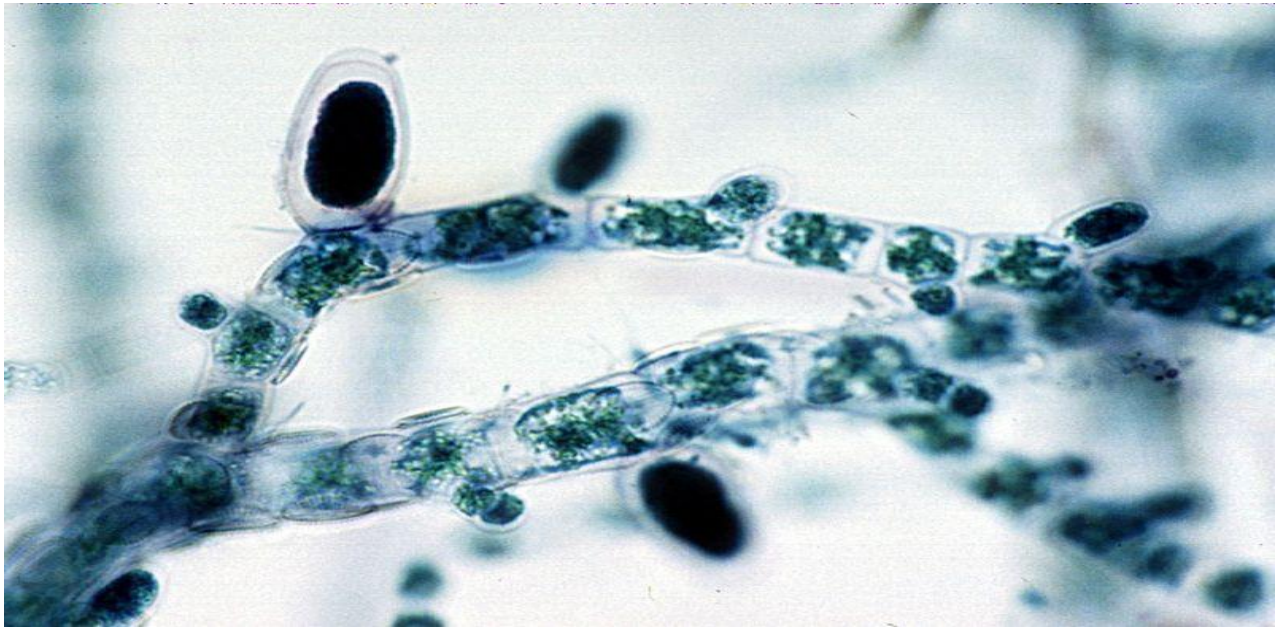
Bhagalpur National College, Bhagalpur

(A Constituent unit of Tilka Manjhi Bhagalpur University, Bhagalpur)

PPT Presentation for B.Sc. I- Life Cycle of Oedogonium



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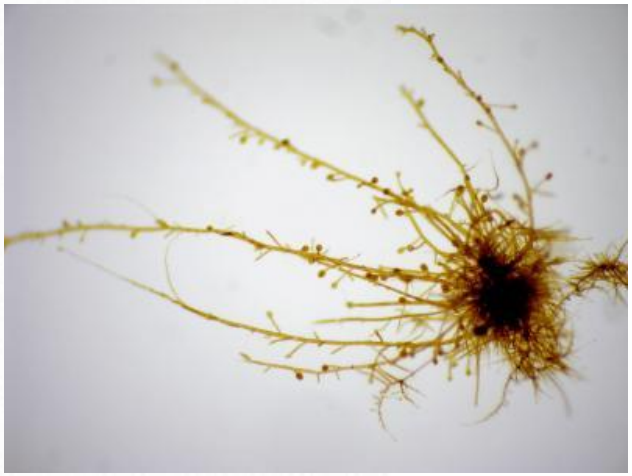
SYSTEMATIC POSITION

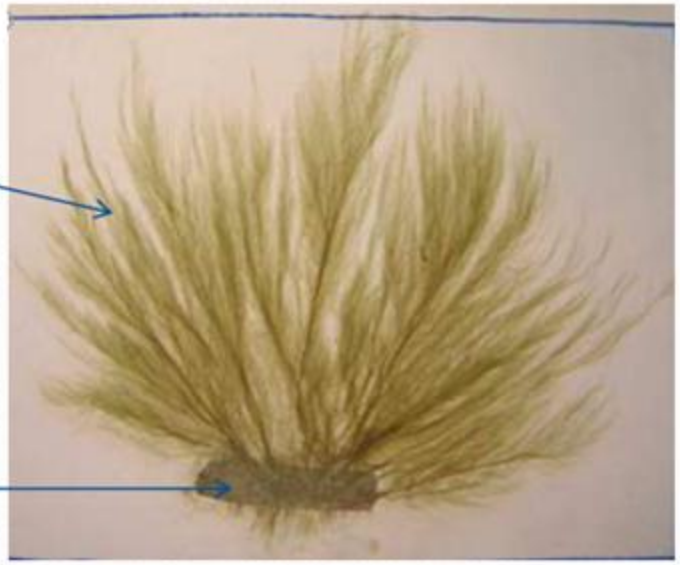


- CLASS- PHAEOPHYCEAE
- ORDER-ECTOCARPALES
- FAMILY-ECTOCARPACEAE
- GENUS-ECTOCARPUS
- SPECIES- *E. acanthophorus, E. acutus etc.*
- BROWN ALAGE, WIDELY DISTRIBUTED, REMAIN ATTACHED TO ROCKS AND OTHER BOGGER ALAGE.

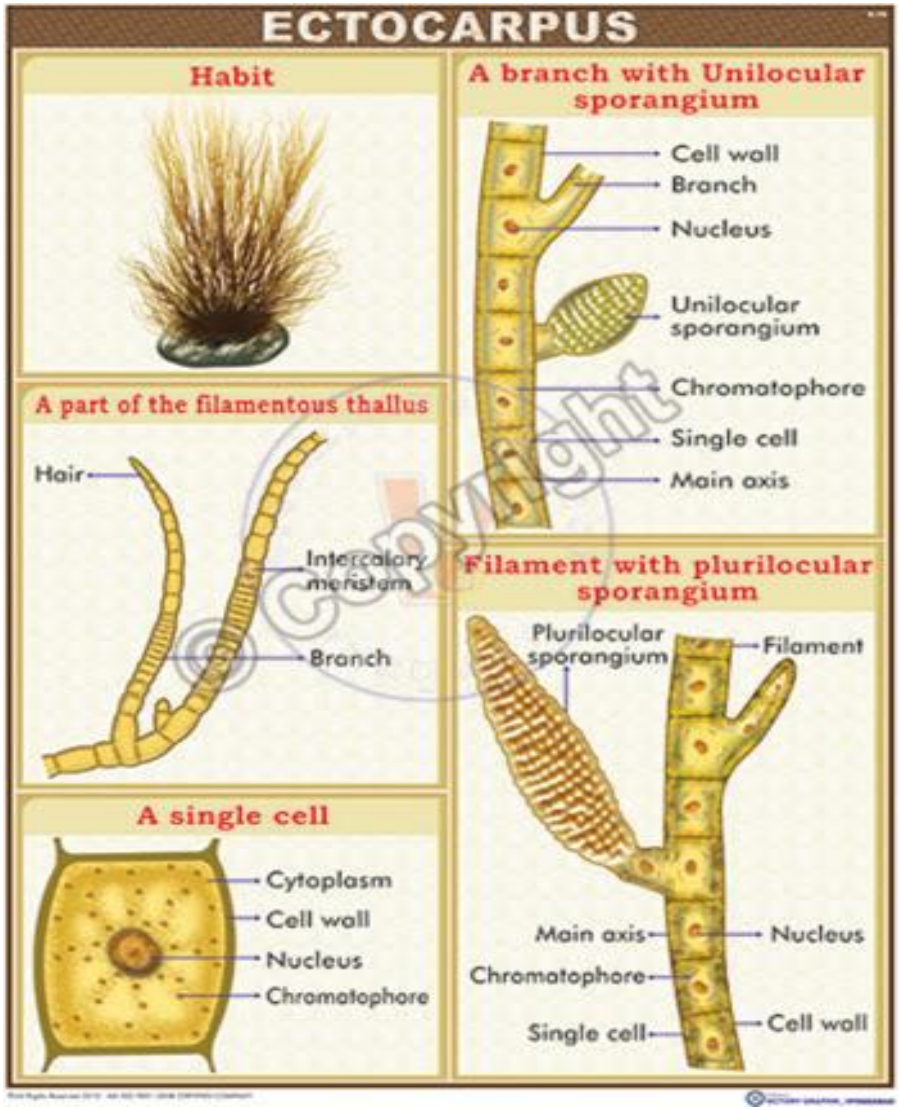
VEGETATIVE/THALLUS/ PLANT BODY

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

- ERRECT PORTION
- PROSTRATE PORTION



- Errect branches are uniserriate 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)



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 zoosporangiaum 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.

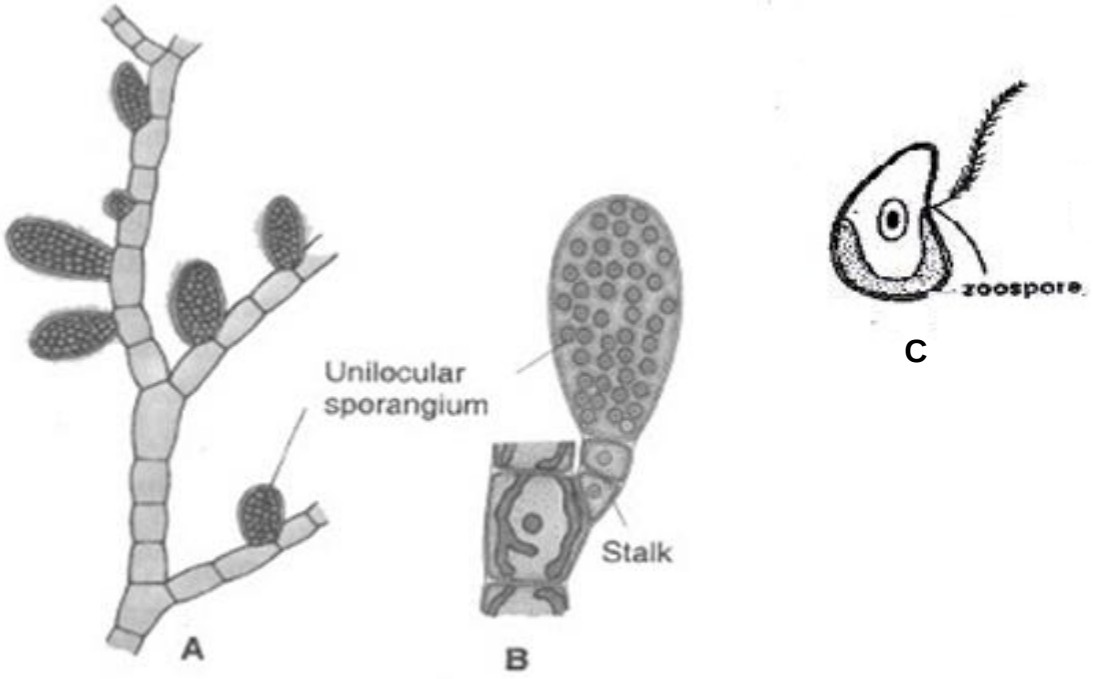
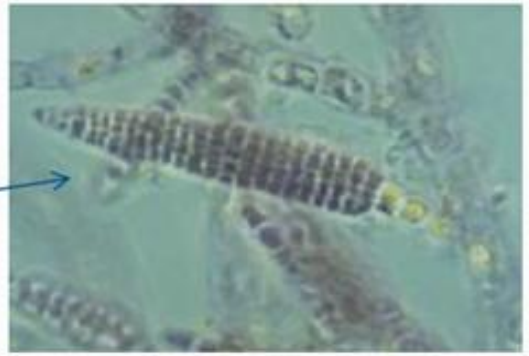
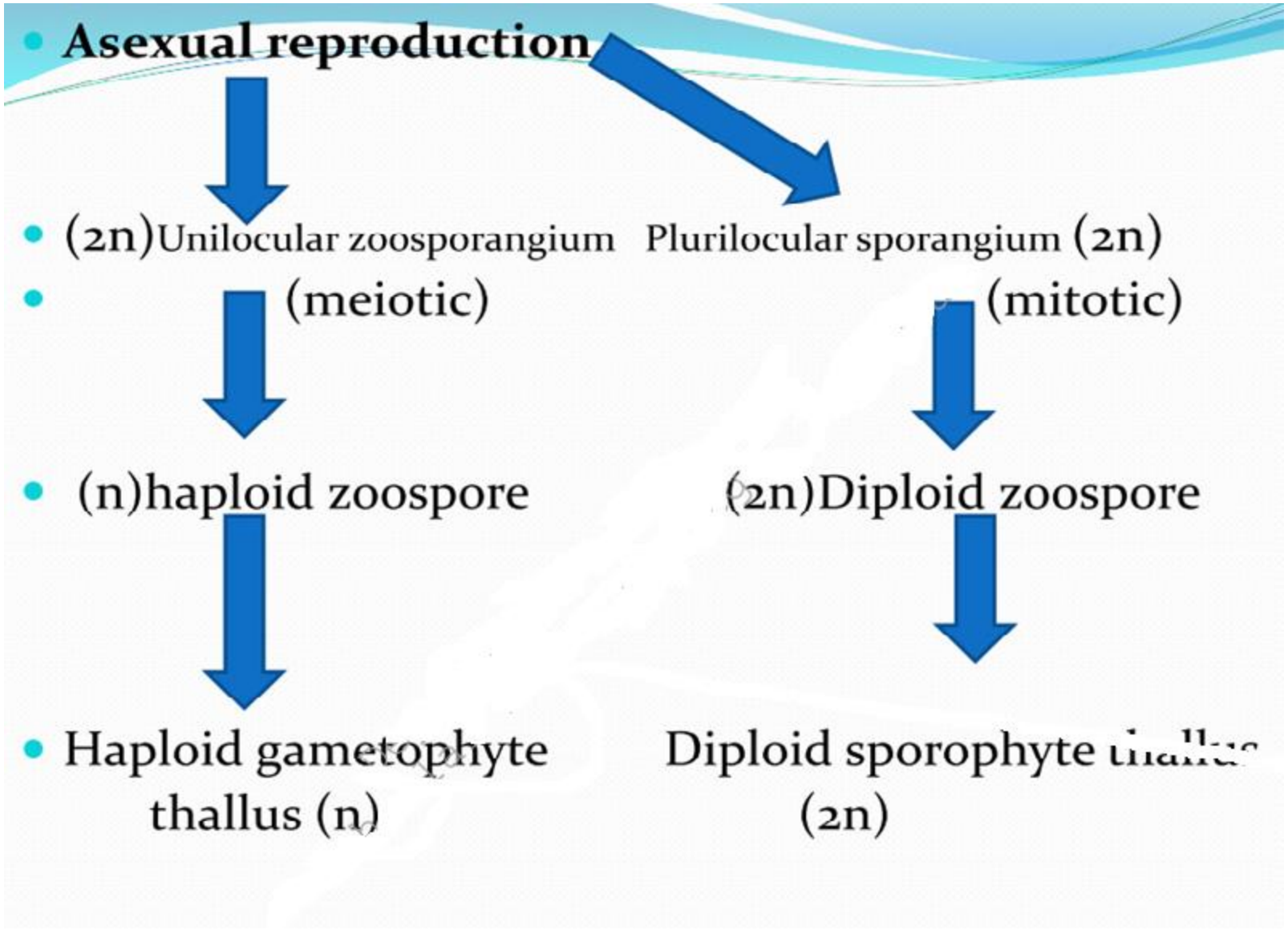


Fig : (A) A portion of thallus bearing Unilocular sporangia,
(B) Stalked Unilocular sporangia,
(C) Liberated Zoomeiospores.

PLURILOCULAR ZOOSPORE

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



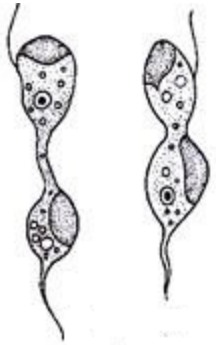

Asexual reproduction
(2n)Unilocular zoosporangium
Plurilocular sporangium (2n)
(meiotic)
(mitotic)
(n)haploid zoospore
(2n)Diploid zoospore
Haploid gametophyte thallus (n)
Diploid sporophyte thallus (2n)

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

Homothallus

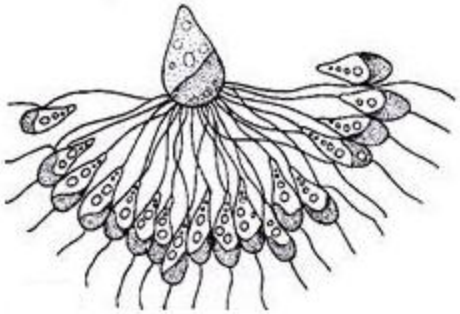
Isogamy



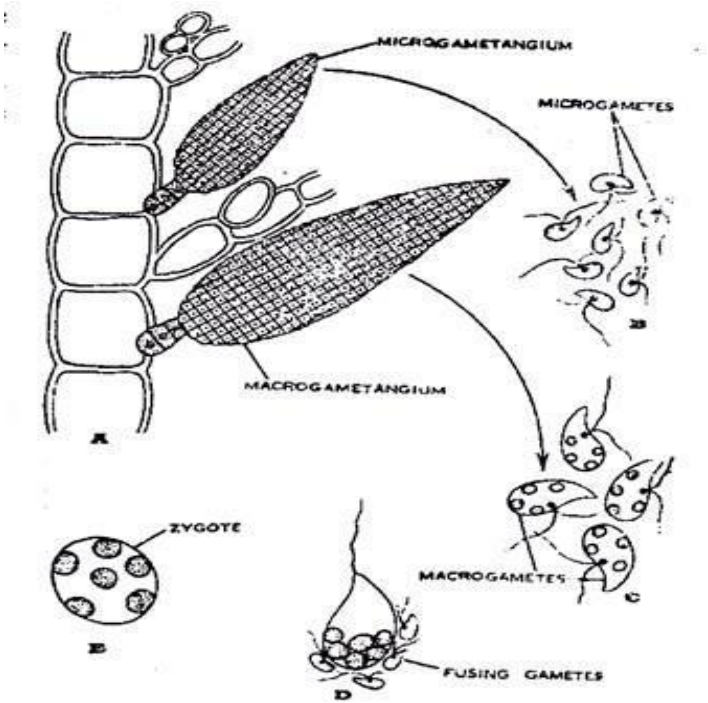
Heterothallus

Anisogamy

Physiological Anisogamy



Morphological Anisogamy



Clump formation in E. siliculosus

Fertilization

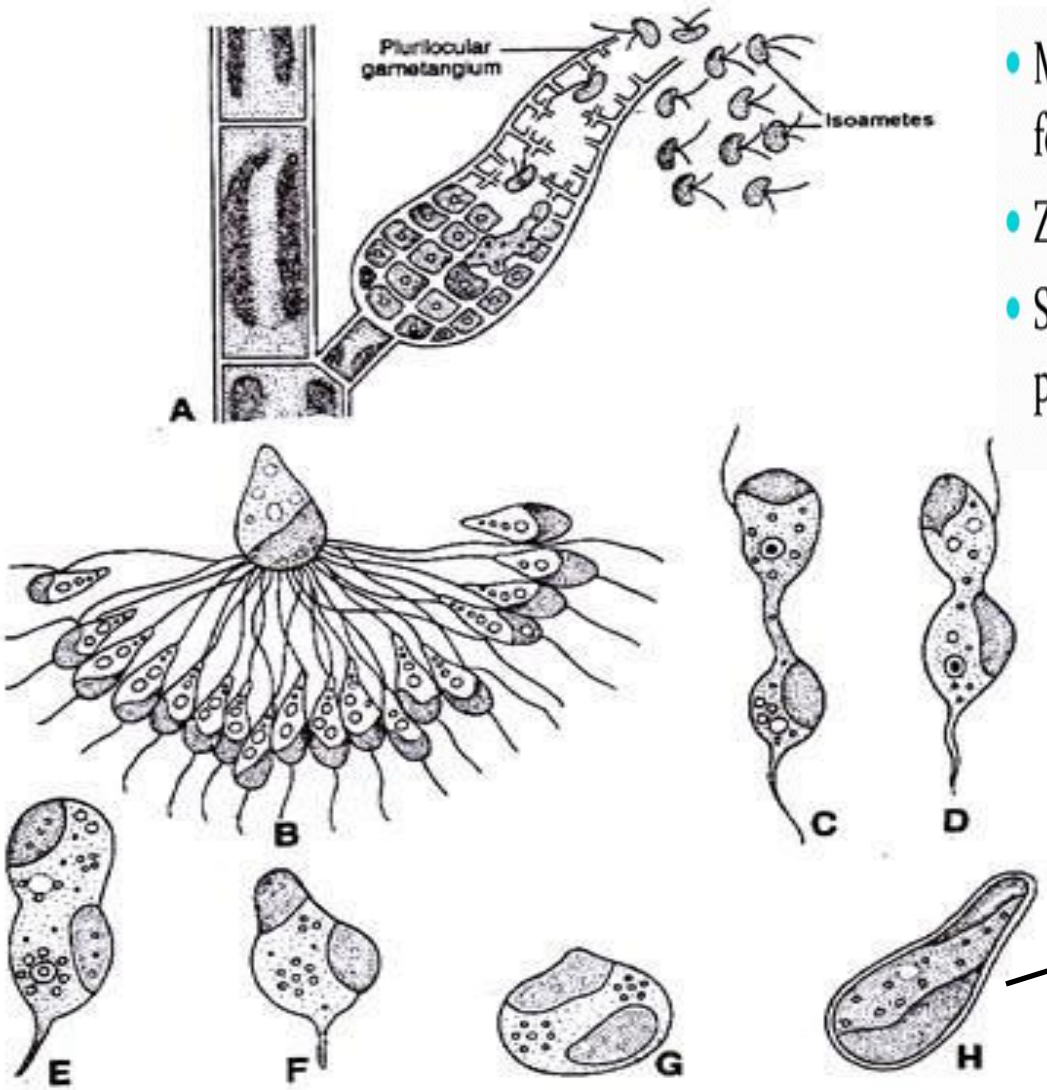


Fig. 4 (A–H). *Ectocarpus*. A. Plurilocular gametangium, B. Clump formation, C–H. Fusion stages and zygote.

- 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.

Zygote

Life Cycle of Ectocarpus

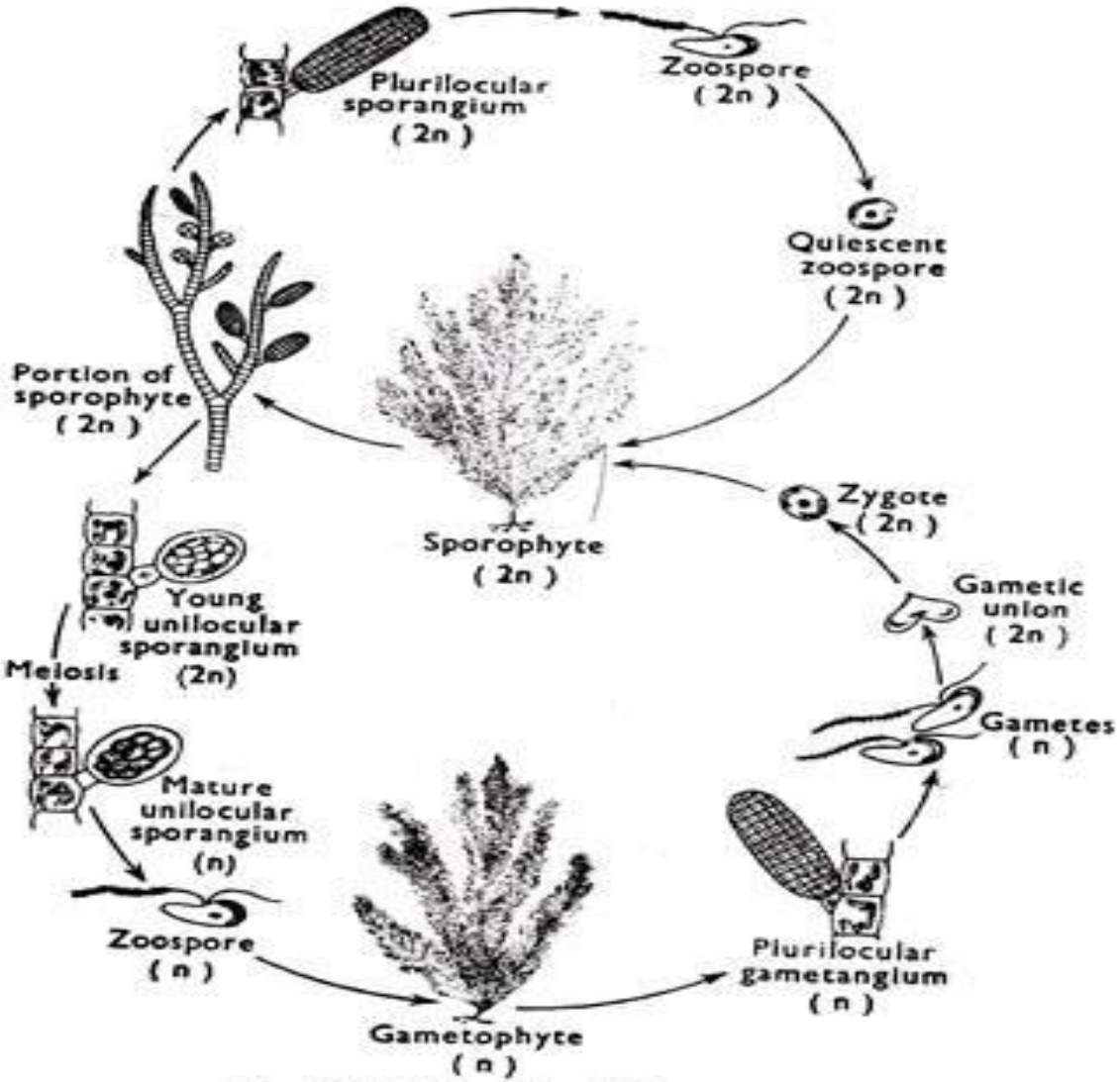


Fig. 104. Life cycle of *Ectocarpus* sp.

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