

## ORDER CRYPTONEMIALES (HALYMENIALES) & RHODYMENIALES

-2 of Kylin's 1956 core Florideophyte orders

1. Nemalionales (=Nemaliales)
  - > Acrochaetiales
  - > Batrachospermales
2. Gelidiales
- \*3. **Cryptonemiales**  
=Halymeniales
4. Gigartinales
  - > Ahnfeltiales
  - > Gracilariales
- \*5. **Rhodymeniales**
  - > Palmariales
6. Ceramiales

-In 1986, Robins & Kraft found that the criterion to separate the Cryptonemiales from the Gigartinales based on origin of auxiliary cell (in accessory branch vs. an existing vegetative cell) was artificial, and proposed merging both orders into the Gigartinales *sensu lato*  
---> taxonomic move provided a clean slate to reevaluate phylogenetic importance of auxiliary cells, connecting filaments, procarpy, non-procarpy, connecting cells:

how many times did they arise in the red algae?  
are the Gigartinales polyphyletic or monophyletic?

- Saunders & Kraft (1994) resurrected the Cryptonemiales, gave them a new name, the Halymeniales, & limited the order to two families: the Halymeniaceae (=Cryptonemiaceae) and Sebdeniaceae. The remaining families placed in the the Gigartinales *sensu lato* were kept in the Gigartinales (except for one family that was transferred to a new order).

-non-procarpy, carpegonia & auxiliary cells being formed in separate accessory branch systems

-following fertilization, one or more connecting filaments arise from the carpegonium & make direct contact with auxiliary cell from which the carposporophytes are produced towards the thallus surface.

-A connecting filament may continue on to make contact with auxiliary cells in other ampullae

-life history triphasic, isomorphic

-multiaxial growth

-pit plugs with cap membranes but 0 plug caps

-great diversity, worldwide

Halymeniaceae: carpegonium & auxiliary cells formed in accessory filaments called ampullae

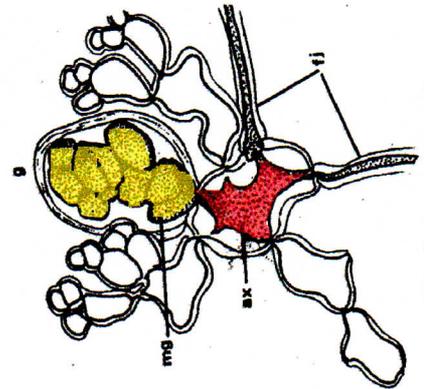
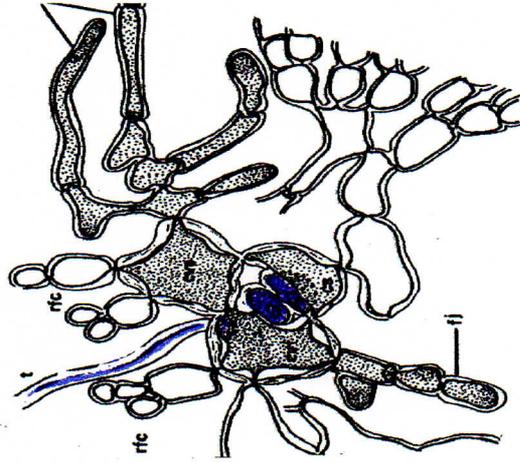
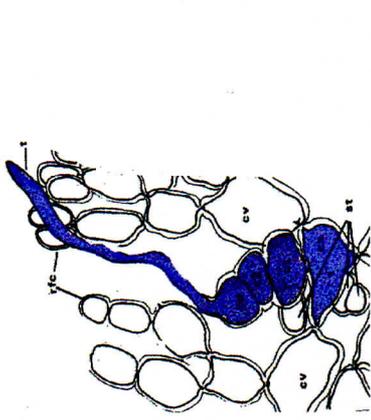
however: ampullar initial can be part of normal vegetative growth, & this then cuts off carpegonial or auxiliary cell accessory

-genera are separated on the amount and shape of accessory filaments produced

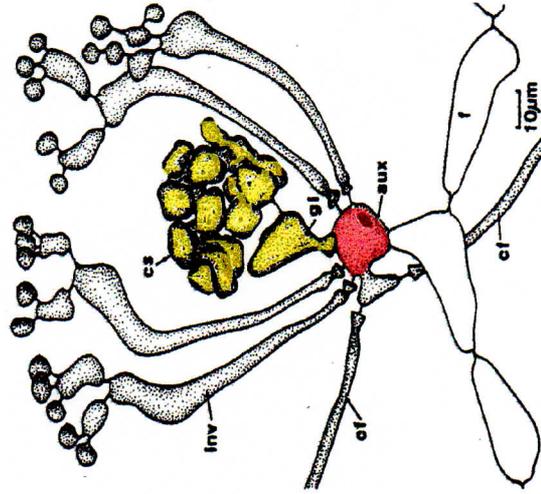
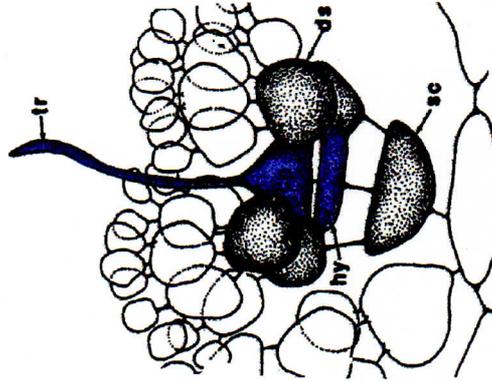
-mostly filiform medulla, stellate cells

*Halymenia, Priontis, Cryptonemia...*

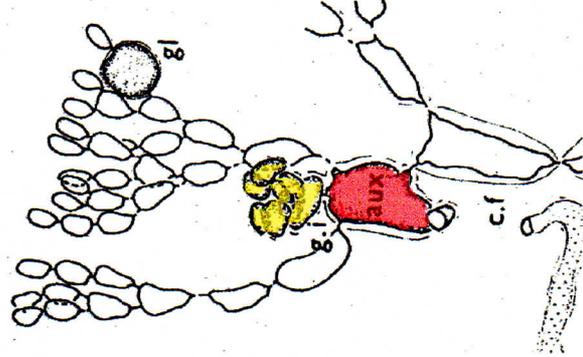
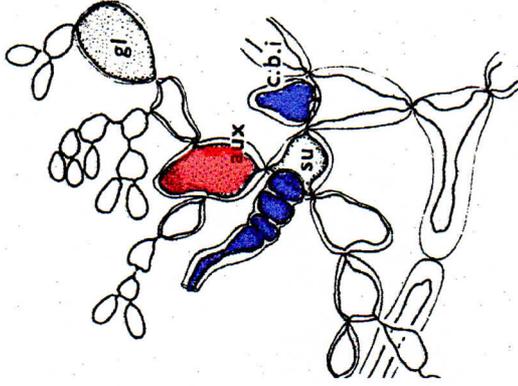
Sebdeniaceae: no ampullary filaments; auxiliary cell part of normal vegetative growth



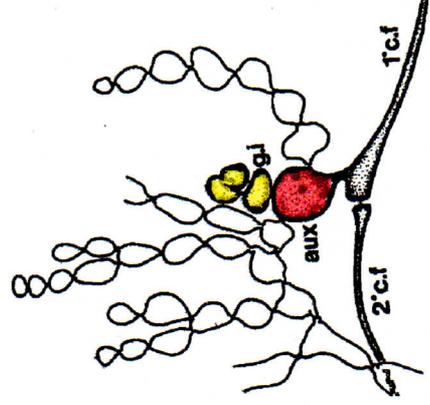
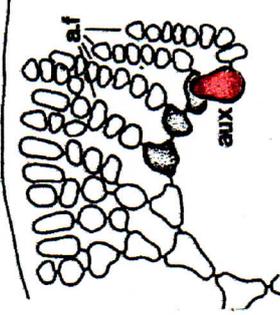
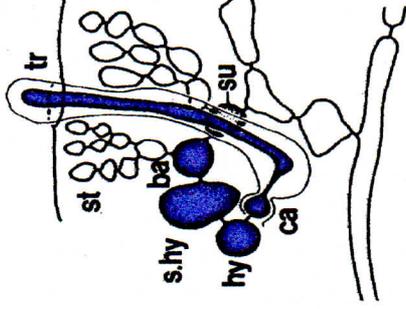
**Schizymenia,**  
**Schizymeniaceae**



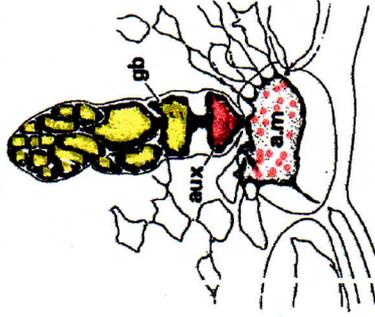
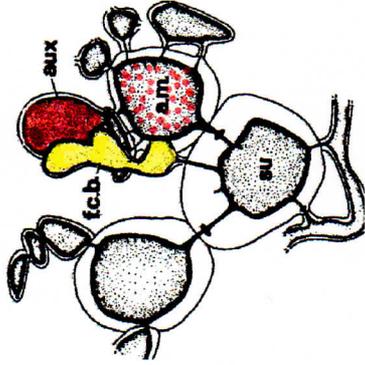
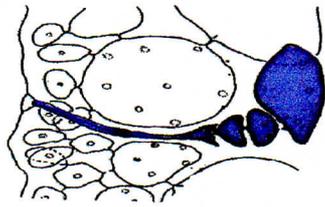
**Titanophora,**  
**Schizymeniaceae**



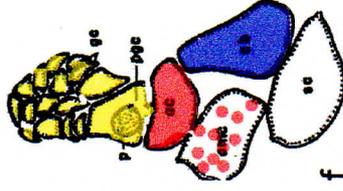
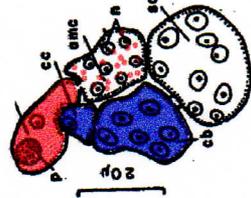
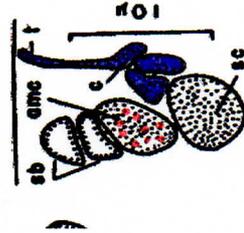
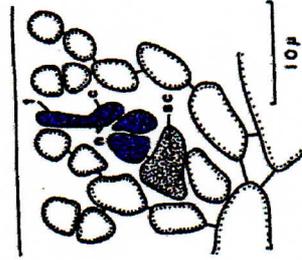
**Nemastoma,**  
**Nemastomataceae**



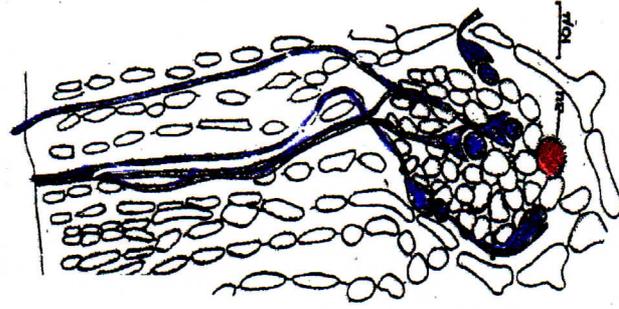
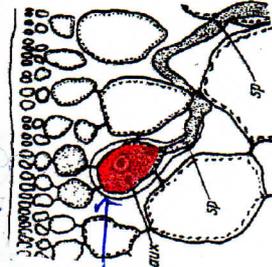
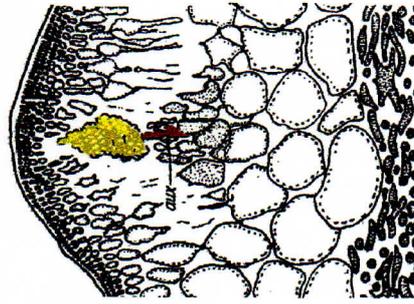
**Zymurgia,**  
**Hallymeniaceae**



**Semnocarpa, Lomentariaceae, Rhodymeniales**



**Faucheia, Rhodymeniaceae, Rhodymeniales**



**Sebdenia, Sebdeniaceae**

**Corynomorpha, Corynomorphaceae  
, Halymeniales**

# Hyalinaria

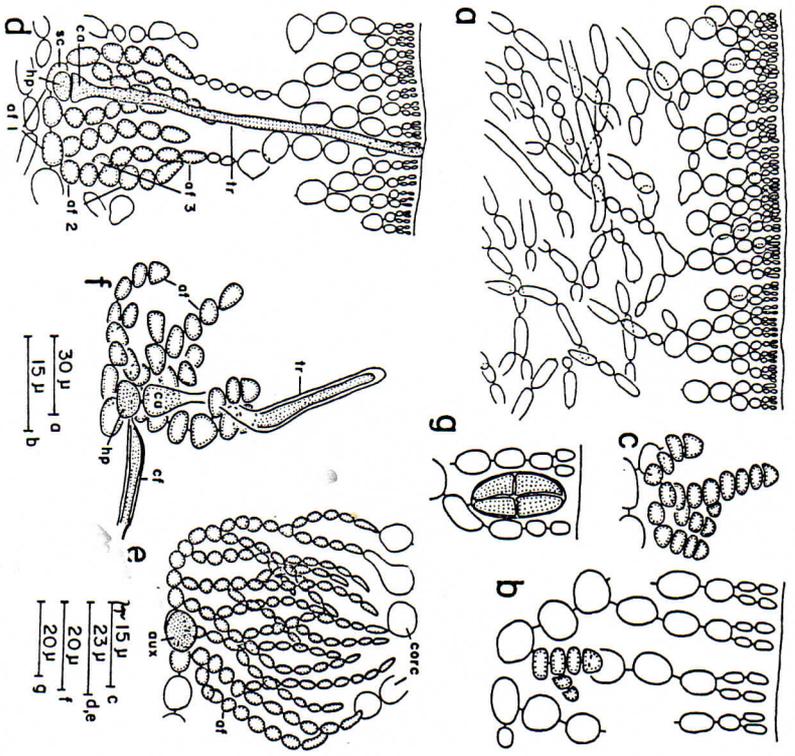


Fig. 1. *Acodes nitidissima* J. Agardh. a, part of section through sterile region of thallus; b-c, young stages in development of ampulla; d, carposogonial branch ampulla; e, auxiliary cell ampulla; f, fertilized carposogonium showing a connecting filament issuing from the hypogynous cell; g, tetrasporangium.

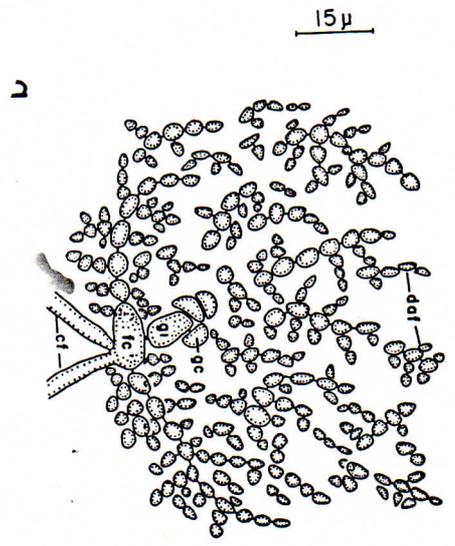


Fig. 2. *Acodes nitidissima* J. Agardh. a, young stage in development of gonimoblasts; b, mature cystocarp.

