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-procarpal, carpgonia & auxiliary cells being formed in separate
accessory branch systems
- following fertilization, one or more connecting filaments arise from the
carpgonium & 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: carpgonium & auxiliary cells formed in accessory filaments
called ampullae
however: ampullar initial can be part of normal vegetative growth, & this
then cuts off carpgonial or auxiliary cell accessory
- genera are separated on the amount and shape of accessory filaments
produced
- mostly filiform medulla, stellate cells

Halymenia, Prioritis, Cryptonemia...

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