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SPECIALIZED STRUCTURES FOR VEGETATIVE REPRODUCTION AMONG THE FLORIDEOPHYCEAE. Y. Lipkin. Botany Department, Tel Aviv University, Tel Aviv, ISRAEL.

Missile shaped propagules released by Centroceras clavulatum from the epiphytic algal community of seagrass leaves in the Red Sea developed in culture into plants that within 4 days produced their first propagules. This process was repeated for many "generations." In the same original culture dishes, into which the field collected material was inoculated, triangular propagules were also found. They were possibly released by either Hypnea esperi or Dermatolithon sp. of the same epiphytic community. Unfortunately, after germination they failed to develop normally, and eventually degenerated. Another case studied was that of Hypnea cornuta. The 3 (-4) radiate branchlets typical to the species easily drop off and develop into plantlets that within a week produce their first propagules. This process also was repeated for many "generations" in culture.

In the case of Centroceras it is assumed that heavy grazing pressure was the environmental factor that brought about the evolution of the production of specialized structures for vegetative reproduction by the plant.

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SEASONAL PATTERNS OF SEAWEED PRODUCTIVITY. Mark M. Littler and Steven N. Murray. Department of Ecology and Evolutionary Biology, University of California, Irvine, 92717 and Department of Biological Science, California State University, Fullerton, 92634, U. S. A.

Production was found to vary greatly between intertidal macrophyte populations of the same species as well as between thalli within a given population. This makes seasonal field studies difficult because the variations encountered at any given season tend to obscure differences between seasons. However, the general trend shown by most macrophytes was for a winter minimum and spring to fall maximum in light saturated net productivity. Increasing day length would appear to be more closely related to the large increases in seasonal growth rate than the reasonably uniform production rates determined by this study.

Littler MM, Murray SN. 1977.
Seasonal patterns of seaweed productivity.
Journal of Phycology 13 (Suppl.):42.

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TRANSLOCATION OF 14-C IN THE GIANT KELPS MACROCYSTIS INTEGRIFOLIA AND M. PYRIFERA. Christopher S. Lobban. Department of Biological Sciences, Simon Fraser University, Burnaby, B.C., Canada, V5A 1S6.

The patterns of import and export of ^{14}C-labeled assimilates were studied by labeling single blades on fronds in situ for 24h. The pattern was similar in both species, and is similar to that known in dicotyledons. Actively growing tissue imported and did not export. The distal parts of blades, which are not meristematic even in immature blades, did not import. As a blade reached maturity it began to export, at first only to the apex which formed it, later also down the frond to sporophylls and frond initials at the base of the frond, and the apical regions of young fronds. Finally there was a phase, late in the life of the blade, when transport was only downwards. The distance of a blade from the apex was used as an index of the blade's age. The distances at which changes in translocation pattern of a blade took place were different in populations of plants growing at different depths (final frond length is a function of depth), and in M. integrifolia also changed from spring to fall. No transport was found from a younger to an older frond, nor was there acropetal transport in fronds lacking the apical growing region.

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MORPHOGENESIS OF CLADOSIPHON ZOSTERAE (J.AG.) KYLIN (PHAEOPHYCEAE). J.C. Lockhart. University of Massachusetts, Amherst, 01003, U.S.A.

The brown alga Cladosiphon zosterae (Chordariaceae) exists in a variety of morphological forms, including filaments, discoid or crustose forms, and two types of erect cylindrical thalli. Asexual spores from plurilocular sporangia of each form can produce any and all forms.

Studies conducted on clonal material have identified three factors controlling expression of form in C. zosterae. These factors include: (1) heteroblasty (formation of filamentous and discoid germlings as a consequence of alternate modes of spore germination), which was independent of all environmental factors tested; (2) influence of certain forms of nitrogen, notably ammonium, which induce a compact discoid or crustose morphology; and (3) a bacteria-produced morphogenetic factor which determines mode of development and subsequent form of the erect Cladosiphon thallus.

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THE CHLOROMONAD AFFINITIES OF ISOLATE FCRG51 AND OF OLISTHODISCUS LUTEUS. A.R. Loeblich, III. Biological Laboratories, Harvard Univeristy, Cambridge, MA 02138 U.S.A.

Fine structural observations of isolate FCRG51 indicate that this organism is not an Exuviaella sp. (dinoflagellate) as has been earlier porposed. This organism possess an average of 26 plastids each surrounded by 4 membranes (a double membrane envelope and 2 plastid ER membranes), a nucleus which lacks condensed fibrous chromosomes typical of dinoflagellates, an anterior cap of golgi bodies, many cytoplasmic vesicles containing fibrous tubules (most likely stored flagellar hairs), and many fibrous mucocysts that upon ejection expand to a considerable length. Sufficient morphological similarities exist between isolate FCRG51 and Fibrocapsa japonica to consider them conspecific. Isolate FCRG51 (=Fibrocapsa japonica), Heterosigma inlandica, Chattonella akashiwo, C. subsalsa (=Hornellia marina) and Olisthodiscus luteus are believed on the basis of morphology and types of pigments in those analyzed (chlorophyll a, c_1, c_2 , fucoxanthin) all to be closely related species that should be placed in the marine chloromonad genus Chattonella.

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THE MARINE ULOTHRIX SPECIES IN WESTERN EUROPE (ULOTRICHALES, CHLOROPHYCOPHYTA). G.M. Lokhorst. Rijksherbarium, Schelpenkade 6, Leiden, Netherlands.

A new classification of the marine representatives of the green alga genus Ulothrix in Western-Europe is proposed. It is based on studies of living material in its natural habitat, unialgal cultures, ultrastructure and herbarium specimens. Diagnostic characters are used like cell dimensions, shape of the basal cell, (ultra)structure of the cell wall, pattern of germination of the zoospores, life-history and ultrastructure of the pyrenoid.

The reproductive behaviour of the species in culture under different photo-periods reflects seasonal periodicity in nature, expressed in the alternation of the filamentous gametophytic and the unicelled sporophytic stage.

In winter and spring two species are distributed abundantly on hard substrates along the coasts, one new described species is only present on sheltered soft substrates, whereas two species are characteristic for brackish habitats.