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SOME ESSENTIAL CONSIDERATIONS IN ESTABLISHING A SEAWEED EXTRACTION PLANT. James R. Moss. President, AgroMar, Inc., 6405 Chartres Drive, Rancho Palos Verdes, California 90274, U.S.A.

Economical feasibility of a new extraction plant is mainly dependent upon market growth and future potential of the extractive, availability and stability of the seaweed source, and capital costs for construction. Figures and charts show historical growth of estimated extractive production which indicates stability for algin and carrageenan. Agar and furcellaran have major seaweed source problems. A procedural outline and program for developing data necessary to judge feasibility is given.

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SPORE GERMINATION AND EARLY DEVELOPMENT IN PADINA GYMNOSPORA. K.E. Mshigeni and K.J.K. Mkwizu Botany Department, P.O. Box 35060, University of Dar es Salaam, Dar es Salaam, TANZANIA.

The spores germinated immediately after attachment. The germlings produced much elongated rhizoids and a multicellular mass of cells, the central nodule. Two types of shoot initials subsequently developed: from the central nodule, and at intervals along the axes of the rhizoids. The biological significance of the rhizoidal shoot initials is discussed.

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MECHANISM OF SEXUAL APPROACH IN GAMETES OF BROWN ALGAE. D.G.Müller. Fachbereich Biologie der Universität Konstanz.

As an initial step of fertilization male gametes of the brown alga Ectocarpus siliculosus are attracted by stationary female cells which secrete a hormone-like substance known as ectocarpen. The locomotive behaviour of male cells when stimulated by a source of ectocarpen was studied using video recording techniques. The male gametes are directed to the source by a gradual modification of their normal locomotive responses under chemical stimulation.

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SEXUAL REPRODUCTION IN ECTOCARPUS: CRITICAL EVALUATION OF SOME CONTROVERSIAL CONCEPTS. D.G. Müller. Fachbereich Biologie der Universität Konstanz.

Two phenomena well established in phycological literature were reexamined using unialgal cultures under laboratory conditions. The following conclusions were obtained:

1. Relative sexuality as described by Hartmann for Ectocarpus siliculosus at Naples has to be considered as experimental error caused by poor techniques.
2. Reports claiming the gametic character of zoids from unilocular sporangia of Ectocarpus siliculosus are based on a misinterpretation of unseparated zoids as zygotes.

A careful search of the original locality at the British coast revealed the presence of genuine dioecious gametophytes which had not been detected previously.

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FIELD AND LABORATORY EXPERIMENTS WITH IRIDAEA CORDATA GROWN ON NYLON NETTING. I. SEEDING TECHNIQUES, GROWTH RATES, YIELDS, AND HARVESTING STRATEGIES. T.F. Mumford, Jr. Div. Marine Land Management, Dept. Natural Resources, Olympia WA 98504, U.S.A.

Iridaea cordata (Rhodophyta, Gigartinaceae), a carrageenophyte, has been successfully seeded on nets placed directly over natural beds of this alga.However, in situ seeding results in only about 50% success, and suffers from intense herbivory by the snails Calliostoma and Lacuna. If initial sets cover the nets, fouling does not occur, but further setting is prevented by fouling with ulvoids. Ongoing experiments with tank seeding should overcome these problems. Yields of 6-8 kg dry matter/ m^2 was obtained in 1975, and 3.3 kg in 1976. 1975-1977 yields are compared and correlated with seccchi-disc readings and surface irradiance. Comparison of the strategies of harvesting nets twice and many times per season is made. If only two harvests are made, careful monitoring of biomass must be made to insure harvest before senescence and biomass loss occurs. This aquaculture technique appears to be promising for the growth of this economically-important alga.

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INTERTIDAL SEAWEED COMMUNITIES OF FLUCTUATING ENVIRONMENTS. S. N. Murray and M. M. Littler. California State University, Fullerton and University of California, Irvine, 92634, U.S.A.

During the past five years, extensive seasonal investigations of Southern California rocky intertidal seaweed communities have been performed. These revealed the increased occurrence of filamentous and other morphologically simple algae in fluctuating habitats such as those characterized by periodic sand abrasion, substrate instability and variable inputs of sewage. Structurally simple algae typically have high surface area/volume ratios, high rates of productivity and presumably allocate a high proportion of their resources to reproduction (vegetative, asexual or sexual). Additionally, many of these algal types are among the first seaweeds to colonize freshly-bared substrate. Their increased abundance on stressed shorelines suggests that these regions support seaweed communities largely held in a disclimax state due to environmental fluctuations.

Murray SN, Littler MM. 1977.
Intertidal seaweed communities of fluctuating environments. Abstract #270.
Journal of Phycology 13 (Suppl.): 47.