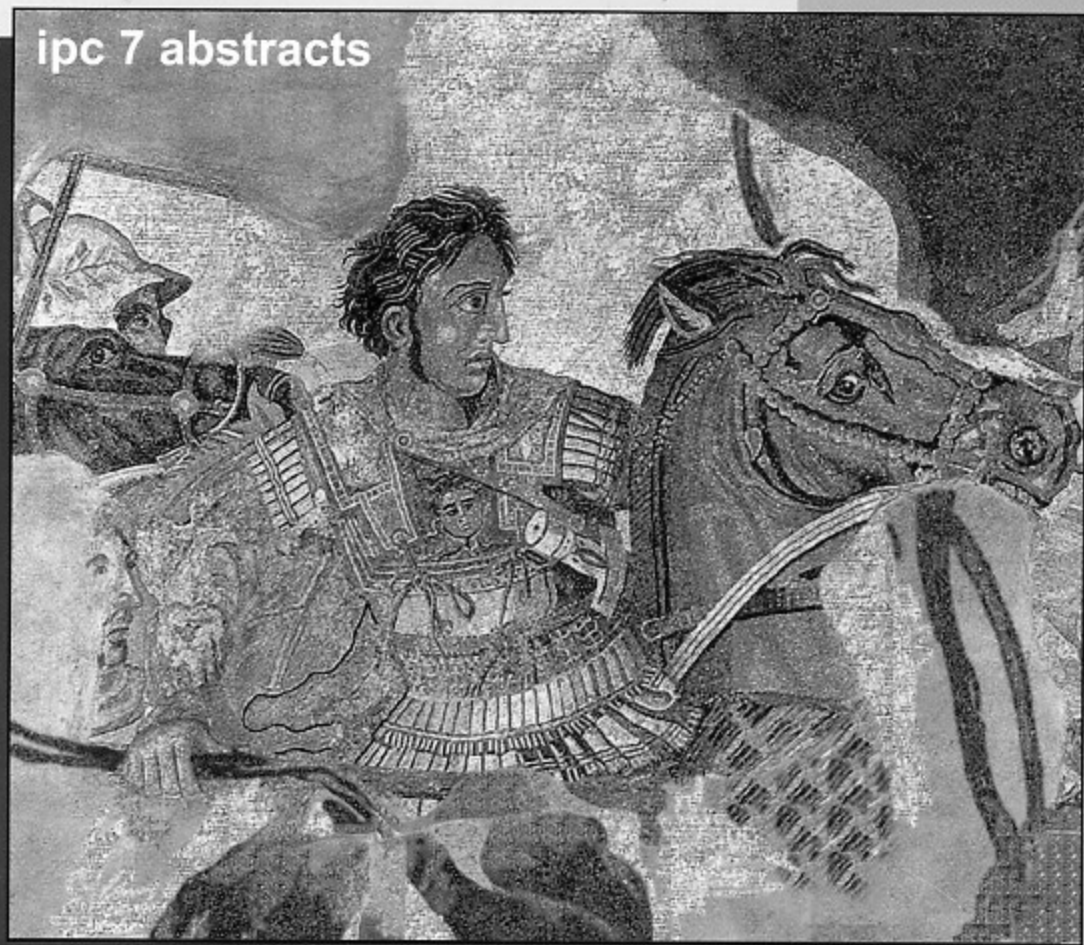


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sensu lato (including two species of the newly described genus *Neosiphonia*) and 15 related Rhodomelaceae indicates that *Polysiphonia* consists of three strongly supported clades – *Polysiphonia*-group, *Neosiphonia*-group and the multipericentral *Polysiphonia* species. The type species of the genus, *P. stricta*, from the North Atlantic, formed a distinct clade with *P. morrowii* from the north-west Pacific and *P. pacifica* from the north-east Pacific. *Neosiphonia* included *N. japonica* and *N. savatieri* from the north-west Pacific as originally proposed, and additionally includes *P. harveyi*, and *P. elongata* from the North Atlantic, which share diagnostic features with this genus. The two genera *Boergeseniella* and *Enelittosiphonia* associated solidly with the multipericentral *Polysiphonia* species, *P. fucooides*, *P. lanosa* and *P. nigra* from the North Atlantic. The implications for the taxonomy of *Polysiphonia sensu lato* and related genera within the Rhodomelaceae will be discussed.

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MOLECULAR CHARACTERIZATION OF THE PICOPHYTOPLANKTON IN TWO REGIONS OF THE SOUTHERN OCEAN

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Filtered seawater samples were obtained from the Ross Sea (4th USJGOFS Antarctic Environment and Southern Ocean Process Study AESOPS line (76 30°S), November–December 1997), and from stations situated between La Réunion and the Kerguelen Islands (Antarès 4, France-JGOFS, January–February 1999). The molecular diversity of the picophytoplankton in two samples (30 m depth, station 420 (174°E) in the Ross Sea, 30 November 1997; and 20 m depth, station 7J3 in the Sub-Antarctic, 8 February 1999; http://usjgofs.who.edu/jg/dir/jgofs/southern/nbp97_8/) was studied by constructing a clone library based on ssrDNA sequences. 17 recombinant clones were obtained for each library and screened by restriction digest with *Rsa*I. Partial sequences were obtained that were identical or very similar (98%), to the sequences of *Synechococcus* WH8101 and WH7803. They were also very similar to picocyanobacterial sequences from the sector between Tasmania and Antarctica (47 to 54°S, 141 to 144°E) retrieved in March 1998, as reported at the SO-JGOFS Symposium in Brest in July 2000. Thus, very related sequences of the *Synechococcus* type were found in temperate and antarctic waters at markedly different temperatures, the temperature of Ross Sea waters is close to 1°C. (Supported by the Antarctic Program of the Belgian OSTC).

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MARINE DIATOMS OF THE GALAPAGOS ISLANDS: A PRELIMINARY REPORT ON THE INVENTORY OF THE EXISTING COLLECTIONS

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The marine microalgae of the Galapagos Islands have never been subjected to detailed, systematic study. The results from the occasional collections that have been made are scattered and difficult to access; some collections have never been examined. We are therefore compiling a list of all available marine diatom collections from the Galapagos Islands and critically examining the material in them using light and scanning electron microscopy. It is hoped that this study will provide baseline information for future investigations of biodiversity and of the effects of environmental change on this important component of the marine ecosystem in the Galapagos Islands. To date, we have located and examined Galapagos material from the Academy of Natural Sciences (Philadelphia), the American Museum of Natural History, the British Museum, the California Academy of Sciences, the University of California at Berkeley, and the Smithsonian Institution. So far, over 278 species of diatoms have been identified, belonging to at least 90 genera. The most frequently encountered diatoms in the collections are members of the centric diatom family Hemidiscaceae.

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ON THE OCCURRENCE OF THE GENUS *SEBDENIA* (HALYMENIALES, RHODOPHYTA) IN THE AZORES

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The occurrence of the genus *Sebdenia* (Halymeniales, Rhodophyta) in the Azores is reported for the first time, based on collections made on the island of São Miguel. The ecology, anatomy and morphology of the plants are described and meristic comparisons with representatives from elsewhere are presented. With few exceptions, the results indicate stronger similarities with plants from the Atlantic African coasts than with plants from other parts of Macaronesia, namely Cape Verde and the Canarian Archipelago. This is the second contribution to the study of the genus *Sebdenia* in the Macaronesian region. Further taxonomic and biological studies are now in progress, to determine if the specimens collected in the Azores will constitute a new

species for the genus, or simply a variety of the species recently described for Macaronesia.

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LIFE HISTORY STUDIES AND ECOLOGICAL OBSERVATIONS OF *ENDARACHNE BINGHAMIAE* J. AGARDH (SCYTOSIPHONACEAE, PHAEOPHYCOTA) FROM THE AZORES

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First reported in the Azores in 1994, *Endarachne binghamiae* J. Agardh is commonly found throughout the year on large stones, bedrock and other hard substrata in the upper mid-tidal region of exposed Azorean shores. Reproductive plants with plurilocular sporangia occur all year round. In culture, spores released from plurilocular sporangia developed into small knot-filaments, which on squashing exhibited a 3-dimensional structure of a typical crust. These prostrate filaments gave rise directly to new erect blades. No unilocular sporangia were seen and no evidence of sexuality has been observed so far. These observations were obtained in both short-day and long-day conditions at 15–22°C, and are similar to those for Californian plants.

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A NEW APPROACH AND HYPOTHESIS TO THE DISTRIBUTION AND ORIGIN OF THE BRAZILIAN SEAWEED FLORA

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The publication of a considerable number of papers since the last synthesis of the Brazilian seaweed flora (Oliveira F. in 1977), the recent publication of the marine flora of Uruguay, and a survey of the subtidal flora of the S-SE coast of Brazil have provided enough information to support mathematical analysis and a new hypothesis on the distribution and origin of the seaweed flora in Brazil. The prevailing hypothesis considers the Caribbean as the centre of origin of the tropical Atlantic flora, of which the flora of Brazil is an extension. The consolidated data yielded a matrix of 649 subgeneric taxa, comprising 405 Rhodophyta, 159

Chlorophyta and 85 Phaeophyta. A principal components analysis of the matrix indicates that the flora can be divided into two main groups: a tropical and a warm temperate one, explained by temperature and habitat heterogeneity. A third group of species is restricted to brackish-water areas colonized by mangroves. On the basis of floristic similarities, continental drifts and palaeocurrents, we propose that the Brazilian seaweed flora migrated from the Indian Ocean, as well as from the Caribbean, but at different times and by different routes.

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FIRST RECORD OF *PACHYCHAETA* (CERAMIALES, RHODOPHYTA) IN THE SOUTH WESTERN ATLANTIC

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A rhodomeloid alga has been collected for several years in Espírito Santo State, south-eastern Brazil (c. 20°S). The species is apparently restricted to intertidal sandstone beach rocks exposed to moderate wave action, often buried in sand. The endogenous origin of the dwarfed lateral tetrasporangial and cystocarpic branches, the procarps borne on unbranched laterals of limited growth and the presence of special trichoblasts (brachyblasts) support its placement in the genus *Pachychaeta* Kützing. However, it differs from *Pachychaeta brachyartha* (Kützing) Trevisan and *P. cryptoclada* Falkenberg, both known only from South Africa, by the presence of a crustose instead of rhizomatous base, a corticated axis and one sporangium per segment. The Brazilian plants are considered a new species. A previous record of *P. brachyartha* in the West Indies has been questioned; however, a few other supposedly endemic South African genera have been found in Brazil and the present report of *Pachychaeta* is yet another example of this extended distribution.

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THE GENERA *LAURENCIA* AND *CHONDROPHYCUS* (CERAMIALES, RHODOPHYTA) IN WESTERN CARIBBEAN

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