



OBSERVATIONS ON THE MARINE ALGAL FLORA  
OF THE AZORES I:  
NOTES ON THE EPIZOIC ALGAE OCCURRING  
ON THE MARINE MOLLUSCUS *PATELLA* SPP.

by

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ABSTRACT

*A preliminary investigation to evaluate the significance of a unique, marine algal flora on the shells *Patella* spp. was conducted on representative *Patella* specimens from the Islands of Faial and Pico, Azores. The algal flora (20 species) found on the shells formed three distinct algal groupings: (1) adherent-prostrate forms, (2) calcareous forms and (3) fleshy forms. Indications are that a calcium substrate affinity exists for one or more of these groups.*

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## RESUMO

*Foram realizadas investigações preliminares para avaliar o significado da flora de algas marinhas características das conchas de *Patella* spp. («lapas») das ilhas do Faial e Pico, Açores. A flora de algas (20 espécies) encontrada nas conchas distribuiu-se por três grupos distintos: (1) formas aderentes-procumbentes, (2) formas calcárias e (3) formas carnudas. Há indicações de que existem afinidades para um substrato calcário num ou mais grupos.*

## INTRODUCTION

Species of the genus *Patella* are, traditionally, important food species in the Azores. These limpets (or «lapas» as they are called locally) are collected and consumed especially during the summer months when they are easily harvested from the intertidal and subtidal regions of the near-shore environment. Limpets are considered a delicacy, for the most part eaten raw, and they are an excellent source of protein. Harvesting experience and reports from the local collectors indicate that they have been overexploited during the recent years. The Regional Secretariat of Agriculture and Fisheries, cognizant of the decline of the limpets, has instituted a research program on this problem in the Department of Oceanography and Fisheries, University of the Azores, Horta, Faial. This program deals primarily with basic biological aspects of life history and ecology.

As a part of this program we were contacted by Helen R. Martins, biologist of the DOP, to determine the significance of the algae found in the *Patella*-community. Qualitative observations were conducted on the algae-covered *Patella* shells from two locations — Praia do Norte, located on Faial and S. Mateus on the Island of Pico. These obser-

vations are most interesting in that the algal vegetation of molluscan substrata has not previously been studied in the Azores.

To date, the literature records only a few species of algae epizoic on *Patella*. The following checklist indicates a far greater species diversity than previously acknowledged. The nomenclature for this list follows that of Ardre (1970).

#### MARINE ALGAE FOUND ON *PATELLA* SHELLS

Division: Chlorophyta  
Order : Codiales  
Family : Codiaceae

*Codium adhaerens* (Cabrerá) C. Agardh

Division: Phaeophyta  
Order : Sphacelariales  
Family : Stypocaulaceae

*Halopteris scoparia* (L.) Savageau

*Halopteris filicina* (Grateloup) Kutzing

Division: Rhodophyta  
Family : Bangiales  
Order : Erythropeltidaceae

*Erythrotrichia carnea* (Dillwyn) J. Agardh

Order : Gelidiales  
Family : Gelidiaceae

*Pterocladia capillacea* (Gmelin) Bornet and Thuret

*Gelidium latifolium* (Greville) Thuret and Bornet

Order : Cryptonemiales

Family : Corallinaceae

*Dermatolithon pustulatum* (Lamouroux) Foslie

*Corallina officinalis* L.

*Jania rubens* (L.) Lamouroux

*Dermatolithon hapalidioides* (Crouan) Foslie

*Lithothamnium* sp.

*Amphiroa* sp.

Family : Peyssonneliaceae

*Peyssonnelia squamaria* (Gmelin) Decaisne

Order : Ceramiales

Family : Ceramiaceae

*Ceramium rubrum* (Hudson) C. Agardh

*Ceramium echinotum* J. Agardh

*Ceramium diaphanum* (Roth) Harvey

*Griffithsia* sp.

Family : Rhodomelaceae

*Polysiphonia opaca* (C. Agardh) Zanardini

*Symphycladia marchantioides* (Harvey) Falken.

*Herposiphonia* sp.

## RESULTS

Twenty species of marine algae were found on shallow water *Patella* spp. from Faial and Pico. In the Division Chlorophyta only one species, *Codium adhaerens*, was found. Two species were recorded for the Division Phaeophyta, *Halopteris scoparia* and *Halopteris filicina*. The Division Rhodophyta was well-represented on *Patella* shells.

Three distinct floristic patterns were evident on the *Patella* shells that we examined. The first is a grouping composed of *Codium adhaerens* and *Peyssonnelia squamaria*, *Polysiphonia opaca* and several *Ceramium* species, which constitute an adherent group. The second grouping is a calcareous assemblage of *Corallina*, *Jania*, *Dermatolithon*, *Lithothamnium* and *Amphiroa*. The third group is composed of erect, fleshy or foliose algae dominated by *Pterocladia* and *Gelidium*.

The unique algal flora observed on *Patella* shells corresponds to the known distributional zones for intertidal and subtidal algal species in the Azores. A question of distributional relationships and calcium substrate affinity merits closer examination.

Further studies on the distribution, occurrence, species composition and biomass of the marine algal flora found on *Patella* would be most interesting. Such studies are presently underway through a cooperative arrangement with the Department of Oceanography and Fisheries at the University of the Azores in Faial.

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