

Marine Algae and Seagrasses of Hatay (Mediterranean, Turkey)

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Abstract

In this research, marine algae and seagrasses were investigated in the upper infralittoral zone of Hatay (Turkish Mediterranean coasts). A total of 377 algae and 5 seagrasses were determined. 30 of them belong to blue-green algae (*Cyanophyceae*), 201 to red algae [*Rhodellophyceae* (2), *Compsopogonophyceae* (2), *Bangiophyceae* (5), *Florideophyceae* (192)], 73 to brown algae (*Fucophyceae*), 73 to green algae [*Chlorophyceae* (5), *Ulvophyceae* (19), *Trentepohliophyceae* (1), *Cladophorophyceae* (24), *Bryopsidophyceae* (22), *Dasycladophyceae* (2)] and 5 to seagrasses (*Liliopsida*).

Key Words: Blue-green algae, red algae, brown algae, green algae, seagrasses, Hatay, Mediterranean, Turkey

Introduction

The earliest study on Turkish Mediterranean algae was performed Karamanoğlu (1964), Güven *et al.* (1973, 1974, 1975, 1980), Güven and Güvener (1981), Additionally Apaydın *et al.* (2002), Aysel (1997a, b), Aysel and Gezerler- Şıpal (1996), Aysel *et al.* (1998, 2002, 2003, 2005a,b), Cirik (1986, 1991), Cirik and Öztürk (1991), Ertan *et*

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al. (1998), Everest *et al.* (1997), Okudan and Aysel (2005), Öztürk (1988, 1993, 1996a, b), Öztürk and Güner (1986), Taşkın *et al.* (2000a,b, 2001), Turna *et al.* (2000a,b, 2002, 2003), Yağcı and Turna (2002) who have performed floristic studies on Mediterranean coasts of Turkey.

Material and Methods

Collected specimens were fixed by using 4 % formaldehyde. Specimens belonging to *Rhodomelaceae* and *Corallinaceae* were exceptionally treated with 10 % HCl in identification procedures for specific cell wall properties. Hatay is situated between $35^{\circ} 55' 31''$ and $35^{\circ} 55' 20''$ eastern longitudes (Figure 1).

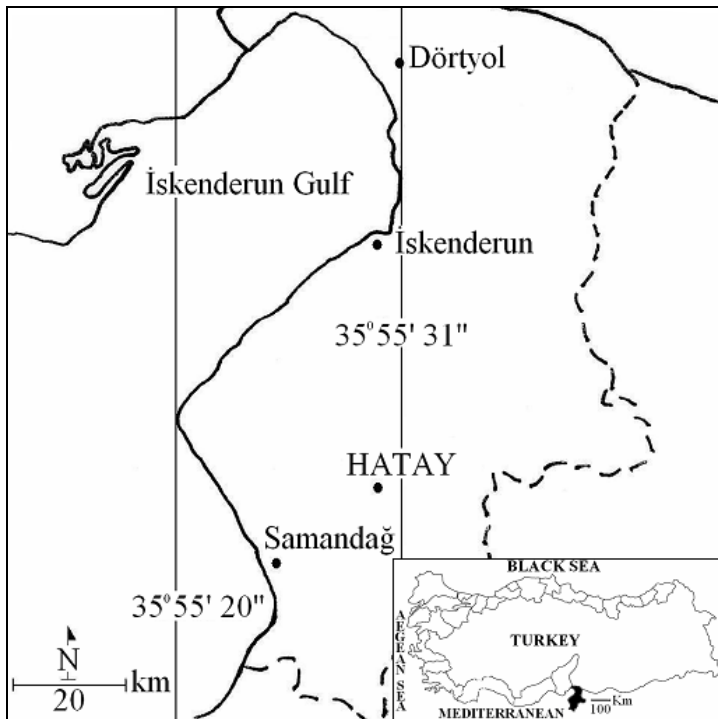


Figure 1: Map of Hatay coastline

Results

Taxa distributed in the study area are listed in Table 1. In this list, classes and upper categories were arranged according to Van den Hoek *et al.* (1997) and Guiry and Dhonncha (2005). Arrangement of lower categories, presented in the list were followed by specialists (Silva *et al.* (1996) for *Cyanophyta* and *Rhodophyta*, Stegenga (1985) for *Acrochaetiales*, Frederic and Hommersand (1989) for *Gracilariales*, Bressan and Babbini-Benussi (1995, 1996) for *Corallinales*, Gomez Garreta *et al.* (2001) for *Ceramiales*, Ribera *et al.* (1992) for *Fucophyceae*, Gallardo *et al.* (1993) for *Chlorophyceae*. Additionally, the studies of Barbara and Cremades (1996), Ballantine and Aponte (1997) and Hardy and Guiry (2003) were used to create an evolutionary list of taxa above genus level. Taxa in species or below species level are listed alphabetically. New records for the Turkish coasts of Mediterranean are indicated with asteriks.

Table 1: Taxa distributed on Hatay (Mediterranean) coasts of Turkey

CYANOPHYTA	Kützing
[=CYANOBACTERIA]	var. <i>hydroides</i>
CYANOPHYCEAE	
CHROOCOCCALES	SPIRULINOIDEAE
CHROOCOCCACEAE	<i>Spirulina subsalsa</i> Oersted
<i>Chroococcus minor</i> (Kützing) Nägeli	<i>S. subtilissima</i> Kützing
<i>C. minutus</i> (Kützing) Nägeli	
	PSEUDOANABAENACEAE
MICROCYSTACEAE	<i>Spirocoleus tenuis</i> (Meneghini)
<i>Microcystis halophila</i> B. Martens and Pankow	Silva
<i>M. marina</i> (Hansgrig <i>in</i> Foslie) Silva	
	LEPTOLYNGBYOIDEAE
MERISMOPEDIACEAE	<i>Leibleinia baculum</i> (Gomont)
GOMPHOSPHAERIOIDEAE	Hoffmann
<i>Gomphosphaeria aponina</i> Kützing	<i>Leibleinia gracilis</i> Meneghini
OSCILLATORIALES	SCHIZOTHRICHACEAE
OSCILLATORIACEAE	<i>Schizothrix tenerrima</i> (Gomont)
<i>Blennothrix lyngbyacea</i> Kützing <i>ex</i> Anagnostidis and Komárek	F.E. Drouet
<i>Leptolyngbya foveolarum</i> (Montagne <i>ex</i> Gomont) Anagnostidis and Komárek	
<i>L. fragilis</i> (Gomont) Anagnostidis and Komárek	NOSTOCALES
<i>Lyngbya adriae</i> Ercégovic	RIVULARIACEAE
<i>L. agardhii</i> (P.L. Crouan and H.M. Crouan) Gomont	<i>Calothrix aeruginea</i> (Kützing) Thuret
<i>L. confervoides</i> C. Agardh	<i>C. confervicola</i> (Roth) C. Agardh
<i>L. majuscula</i> (Dilliwyn) Harvey	<i>C. parasitica</i> (Chauvin) Thuret
<i>L. semiplana</i> (C. Agardh) J. Agardh	<i>Rivularia atra</i> Roth <i>ex</i> Bornet and Flahault
<i>Oscillatoria curvipes</i> C. Agardh	<i>R. biasolettiana</i> (Meneghini) Bornet and Flahault
	<i>R. polyotis</i> (J. Agardh) Hauck
PHORMIDIOIDEAE	
<i>Phormidium ambiguum</i> Gomont	RHODOPHYTA
<i>P. autumnale</i> C. Agardh (Gomont)	RHODELLOPHYTINA
<i>Porphyrosiphon martensianus</i> (Meneghini <i>ex</i> Gomont) Anagnostidis and Komárek	RHODELLOPHYCEAE
<i>Symploca hydroides</i> (Harvey)	STYLONEMATALES
	STYLONEMATAACEAE
	<i>Stylonema alsidii</i> (Zanardini) K. Drew
	<i>S. cornu-cervi</i> Reinsch
	COMPSOPOGONOPHYCEAE

ERYTHROPELTIDALES**ERYTHROTRICHIACEAE***Erythrotrichia carnea* (Dillwyn)

J. Agardh

Sahlingia subintegra (Rosenvinge)

Kornmann

MACRORHODOPHYTINA**BANGIOPHYCEAE****BANGIOPHYCIDAE****GONIOTRICHALES****GONIOTRICHACEAE***Chroodactylon ornatum* (C. Agardh)

Basson

BANGIALES**BANGIACEAE***Bangia atropurpurea* (Roth) C. Agardh*Porphyra leucosticta* Thuret in Le Jolisf. *leucosticta*f. *undulata* Schiffner*P. umbilicalis* (Linnaeus) Kützing**FLORIDEOPHYCEAE****NEMALIOPHYCIDAE****ACROCHAETIALES****ACROCHAETIACEAE***Acrochaetium crassipes* (Børgesen)

Børgesen

A. mediterraneum (Levring)

Boudouresque

A. microscopicum (Nägeli ex Kützing)

Nägeli

A. rosulatum (Rosenvinge) Papenfuss*A. savianum* (Meneghini) Nägeli*A. secundatum* (Lyngbye) Nägeli*A. virgatulum* (Harvey) Batters**COLACONEMATALES****COLACONEMATACEAE***Colaconema codicola* (Børgesen)

Stegenka

C. daviesii (Dillwyn) Stegenka**NEMALIALES****GALAXAURACEAE***Scinaia furcellata* (Turner)

J. Agardh

Tricleocarpa cylindrica (Ellis and Solander) Huisman and Borowitzka*T. fragilis* (Linnaeus) Huisman and Townsend**LIAGORACEAE***Ganonema farinosum*

(Lamouroux) Fan and Wang

Liagora viscida (Forsskål)

C. Agardh

NEMALIACEAE*Nemalion helminthoides* (Velley)

Batters

RHODYMENIOPHYCIDAE**GELIDIALES****GELIDIACEAE***Gelidium corneum* (Hudson)

Lamouroux

var. *pectinatum* Ardissonne

and Strafforello

G. crinale (Hare ex Turner)

Gaillon

var. *crinale**G. pulchellum* (Turner) Kützing*G. pusillum* (Stackhouse) Le Jolisvar. *pusillum**G. spathulatum* (Kützing) Bornet*G. spinosum* (Gmelin) Silvavar. *spinosum*var. *hystrix* (J. Agardh) Furnari*Pterocладиella capillacea* (Gmelin)

Santelices *and* Hommersand
f. *capillaceae*
P. melanoidea (Schousboe *ex*
Bornet) Santelices *and*
Hommersand
var. *melanoidea*
var. *filamentosa* (Schousboe *ex*
Bornet) Wynne
var. *gracilis* (Feldmann *and* Hamel)
Wynne

GELIDIELLACEAE

G. lubrica (Kützing) Feldmann
and Hamel
Gelidiella nigrescens (Feldmann)
Feldmann *and* Hamel
G. ramellosa (Kützing) Feldmann
and Hamel
Parviphycus tenuissimus (Feldmann
and Hamel) Santelices

GRACILARIALES

GRACILARIACEAE

Gracilaria bursapastoris (Gmelin)
Silva
G. gracilis (Stackhouse) Steentoft
and Farnham
var. *gracilis*

BONNEMAISONIALES

BONNEMAISONIACEAE

Falkenbergia rufolanosa (Harvey)
Schmitz
Trailiella intricata Batters

CORALLINALES

CORALLINACEAE

AMPHIROIDEAE

Amphiroa cryptarthrodia Zanardini
A. rigida Lamouroux

CHOREONEMATOIDEAE

Choreonema thuretii (Bornet)
Schmitz

CORALLINOIDEAE

CORALLINEAE

Corallina elongata Ellis *and*
Solander
C. panizzoi Schnetter *and* U.
Richter

JANIEAE

Haliptilon virgatum (Zanardini)
Garbary *and* Johansen
Jania longifurca Zanardini
J. rubens (Linne) Lamouroux
var. *rubens*
var. *corniculata* (Linnaeus)
Yendo

MASTOPHOROIDEAE

Hydrolithon farinosum
(Lamouroux) D. Penrose *and*
Chamberlain
var. *farinosum*

LITHOPHYLLOIDEAE

Lithophyllum cystoseirae (Hauck)
Heydrich
L. incrustans Philippi
L. tortuosum (Esper) Foslie
f. *tortuosum*
Titanoderma pustulatum
(Lamouroux) Nägeli

MELOBESIOIDEAE

Melobesia membranacea (Esper)
Lamouroux sensu Chanberline
and Irvine
Mesophyllum expansum (Philippi)
Cabioch *and* Mendoza
M. lichenoides (Ellis) Lemoine
Phymatolithon lenormandii

(Areschoug) Avey

GIGARTINALES

ACROSYMPHYTACEAE

Acrosymphyton purpuriferum

(J. Agardh) Sjostedt

CALOSIPHONACEAE

Calosiphonia vermicularis

(J. Agardh) Schmitz

CYSTOCLONIACEAE

Rhodophyllis divaricata

(Stackhouse) Papenfuss

DUMONTIACEAE

Dudresnaya verticillata

(Withering) Le Jolis

FURCELLARIACEAE

Halarachnion ligulatum (Woodward)

Kützing

GIGARTINACEAE

Chondracanthus acicularis (Roth)

Fredericq

HYPNEACEAE

Hypnea musciformis (Wulfen in

Jaquin) Lamouroux

H. spinella (C. Agardh) Kützing

KALLYMENIACEAE

Kallymenia requienii (J. Agardh)

J. Agardh

Meredithia microphylla (J. Agardh)

J. Agardh

PEYSSONNELICEAE

Metapeysonnelia feldmannii

Boudouresque and Marcot

Peyssonnelia bornetii Boudouresque

and Denizot

P. crispata Boudouresque and
Denizot

P. dubyi P.L. Crouan and H.M.
Crouan

P. polymorpha (Zanardini)
Schmitz

P. rosamarina Boudouresque
and Denizot

P. rubra (Greville) J. Agardh

P. squamaria (Gmelin) Decaisne

PHYLLOPHORACEAE

Coccotylus truncatus (Pallas)

Wynne

and Heine

f. *truncatus*

f. *concatenatus* (Lyngbye) V.

Aysel,

Erduğan,

DuralTarakçı,

Okudan,

F. Aysel

Gymnogongrus

griffithsiae

(Turner)

Martius

RHABDONIACEAE

Catenella caespitosa (Withering)

Irvine in Parke and Dixon

NEMASTOMACEAE

Nemastoma dichotomum

J. Agardh

RHIZOPHYLLIDACEAE

Contarinia peysonneliaeformis

Zanardini

C. squamariae (Meneghini)

Denizot

SCHIZYMENIACEAE

Platoma cyclocalpa (Montagne)

- Schmitz
- WURDEMANNIACEAE**
Wurdemannia miniata (Sprengel)
 Feldmann and Hamel
- RHODYMENIALES**
RHODYMENIACEAE
Botryocladia borgesinii Feldmann
B. botryoides (Wulfen) Feldmann
B. chiajeana (Meneghini) Kylin
Chrysiomenia ventricosa
 (Lamouroux) J. Agardh
Rhodymenia ardissoni
 J. Feldmann
 var. *ardissoni*
 var. *spathulata* (Schiffner)
 Okudan and Aysel
R. ligulata Zanardini
- CHAMPIACEAE**
Champia parvula (C. Agardh)
 Harvey
Chylocladia verticillata
 (Lightfoot) Bliding
- LOMENTARIACEAE**
Lomentaria articulata (Hudson)
 Lyngbye
 var. *articulata*
L. clavellosa (Turner) Gaillon
- HALYMENIALES**
GRATELOUPIACEAE
Grateloupia dichotoma J. Agardh
G. filicina (Lamouroux) C. Agardh
- HALYMENIACEAE**
Halymenia floresii (Clemente y
 Rubio)
 C. Agardh
H. latifolia P.L. Crouan and H.M
- Crouan
 ex Kützing
PLOCAMIALES
PLOCAMIACEAE
Plocamium cartilagineum
 Linnaeus
 (Dixon)
- CRYPTONEMIALES**
CRYPTONEMACEAE
Cryptonemia lomation (Bertoloni)
 J. Agardh
- CERAMIALES**
CERAMIACEAE
CALLITHAMNIOIDEAE
CALLITHAMNIEAE
Aglaothamnion hookeri (Dillwyn)
 Maggs and Hommersand
A. tenuissimum (Bonnemaison)
 Feldmann Mazoyer
 var. *tenuissimum*
A. tripinnatum (C. Agardh)
 Feldmann Mazoyer
Callithamnion corymbosum
 (Smith)
 Lyngbye
C. granulatum (Ducluzeau) C.
 Agardh
Seirospora graudyi (Kützing) De
 Toni
- GYMNOTHAMNIEAE**
Gymnothamnion elegans
 (Schousboe
 ex C. Agardh) J. Agardh
- CERAMOIDEAE**
ANTITHAMNIEAE
Antithamnion cruciatum (C.
 Agardh)
 Nägeli

var. *cruciatum*

CERAMIEAE

Ceramium ciliatum (Ellis)

Ducluzeau

var. *ciliatum*

var. *robustrum* (J. Agardh)

Mazoyer

C. cimbricum Petersen

f. *cimbricum*

C. deslongchampsii Chauvin ex

Duby

C. flaccidum (Kützing) Ardissonne

C. rubrum auctororum

var. *rubrum*

C. siliquosum (Kützing) Maggs and

Hommersend

var. *siliquosum*

var. *elegans* (Roth) Furnari

var. *tenuissimum* (Lyngbye)

Aysel, B Dural Tarakçı, H

Erduğan, F Aysel, E Türker,

Y. Tarakçı

var. *zostericola*

(Feldmann Mazoyer) Furnari

f. *zostericola*

C. tenerrimum (G. Martens)

Okamura

var. *tenerrimum*

var. *brevizonatum* (Peterson)

Feldmann Mazoyer

C. tenuicorne (Kützing) Waern

Centroceras clavulatum

C. Agardh) Montagne

Corallophila cinnabarina

(Grateloup ex Bory) R.E. Norris

CROUANIEAE

Crouania attenuata (C. Agardh)

J. Agardh

GRIFFITHSIEAE

Anotrichium barbatum

(C. Agardh) Nägeli

A. tenue (C. Agardh) Nägeli

Griffithsia devoniensis Harvey

G. phyllamphora J. Agardh

G. schousboei Montagne

var. *schousboei*

var. *minor* G. Feldmann

ex Feldmann Mazoyer

PTEROTHAMNIEAE

Pterothamnion

crispum

(Ducluzeau)

Nägeli

SPYRIDIEAE

Spyridia filamentosa (Wulfen)

Harvey

in W.J. Hooker

V *S. hypnoides* (Bory) Peperfuss

WRANGELIEAE

Wrangelia penicillata (C. Agardh)

C. Agardh

COMPSOTHAMNIOIDEAE

COMPSOTHAMNIEAE

Compsothamnion thuyoides

(J.E. Smith) Schmitz

MONOSPOREAE

Monosporus pedicellatus (J.E.

Smith)

Solier

SPERMOTHAMNIEAE

Lejolisia mediterranea Bornet

Spermothamnion flabellatum

Bornet

S. repens (Dillwyn) Rosenvinge

var. *repens*

var. *flagelliferum* (De Notaris)

Feldmann Mazoyer

Kylin

SPONGOCLONIEAE

Pleonosporium borrieri (J.E. Smith)
Nägeli

DASYACEAE

Dasya baillouviana (Gmelin)
Montagne

var. *baillouviana*

D. corymbifera J. Agardh

D. hutchinsiae Harvey in W.J. Hooker

D. ocellata (Grateloup) Harvey

D. rigidula (Kützing) Ardissonne

Eupogodon planus (C. Agardh)
Kützing

Heterosiphonia crispella

(C. Agardh) Wynne

H. crispella var. *laxa* (Børgesen)

M.J. Wynne

DELESSERIACEAE

DELESSERIOIDEAE

APOGLOSSEAE

Apoglossum ruscifolium (Turner)
J. Agardh

HYPOGLOSSEAE

Hypoglossum hypoglossoides
(Stackhouse) Collins and Harvey

NITOPHYLLOIDEAE

NITOPHYLLEAE

Nitophyllum punctatum

(Stackhouse) Greville

var. *punctatum*

Radicilingua thysanorhizans

(Holmes) Papenfuss

PHYCODRYOIDEAE

CRYPTOPLEUREAE

Acrosorium ciliolatum (Harvey)

Subfamilia and Tribus not known:

Taenioma nanum (Kützing)
Papenfuss

RHODOMELACEAE

AMANSIEAE

Halopithys incurva (Hudson)

Batters

Osmundaria volubilis (Linnaeus)

R.E. Norris

Rytiphlaea tinctoria (Clemente)

C. Agardh

CHONDRIEAE

Acanthophora nayadiformis
(Delilei)

Papenfuss

Chondria capillaris (Hudson)
Wynne

var. *capillaris*

C. dasyphylla (Woodward) C.
Agardh

LAURENCIEAE

Chondrophycus paniculatus

(C. Agardh) Furnari

C. papillosum (C. Agardh) Garbary
and

J. Harper

Erythrocytis montagnei (Derbès
and Solier) Silva

Laurencia obtusa (Hudson)
Lamouroux

var. *obtusa*

var. *gracilis* (Kützing) Hauck

var. *laxa* (Kützing) Ardissonne

var. *racemosa* Kützing

L. pyramidalis Bory de
Saint-Vincent ex

Kützing
Osmundea pinnatifida (Hudson)
Stackhouse

POLYSIPHONIEAE

Alsidium corallinum C. Agardh
A. *helminthochorton*
(Schwendimann)
Kützing
A. lanciferum Kützing
Boergesenella fruticulosa (Wulfen)
Kylín
Digenea simplex (Wulfen) C. Agardh
Herposiphonia secunda (C. Agardh)
Ambronn
f. *secunda*
f. *tenella* (C. Agardh) Wynne
Lophocladia lallemandii (Montagne)
Schmitz
Lophosiphonia cristata Falkenberg
L. obscura (C. Agardh) Falkenberg
L. scopulorum (Harvey) Womersley
L. subadunca (Kützing) Falkenberg
Polysiphonia atra Zanardini
P. breviarticulata (C. Agardh)
Zanardini
P. deusta (Roth) Sprengel
P. elongata (Hudson) Harvey *in*
Hooker
P. flocculosa (C. Agardh)
Endlicher
P. furcellata (C. Agardh) Harvey
P. opaca (C. Agardh) Moris and De
Notaris
P. sertularioides (Grateloup)
J. Agardh
P. tenerrima Kützing
P. tripinnata J. Agardh
P. urceolata (Lightfoot *ex*
Dillwyn) Greville
P. variegata (C. Agardh) Zanardini

POLYZONIEAE

Dipterosiphonia rigens
(Shousboei) Falkenberg

PTEROSIPHONIEAE

Pterosiphonia pennata
(C. Agardh) Sauvageau

OCHROPHYTA

[=**HETEROKONTOPHYTA**]

FUCOPHYCEAE

ECTOCARPALES

ECTOCARPACEAE

Ectocarpus siliculosus (Dillwyn)
Lyngbye
var. *siliculosus*
var. *crouaniorum* (Thuret)
Gallardo

Feldmannia caespitula

(J. Agardh) KnoepfflerPéguy
var. *caespitula*
var. *lebelii* (Areschoug *ex*
P.L. Crouan)
KnoepfflerPéguy

F. irregularis (Kützing) Hamel

F. globifera (Kützing) HamelT

F. padinae (Buffham) Hamel

Hincksia mitchelliae (Harvey) Silva

Streblonema sphaericum (Derbès *and* Solier) Thuret

CHORDARIALES

MYRIONEMATACEAE

Myrionema strangulans Greville

ELACHISTACEAE

Halothrix lumbricalis (Kützing)
Reinke

LEATHESIACEAE

Leathesia mucosa Feldmann

CORYNOPHLAEACEAE*Corynophlaea umbellata* (C. Agardh)

Kützing

Myriactula arabica (Kützing)

Feldmann

M. rivulariae (Shur) Feldmann**SPERMATOCHEACEAE***Stilophora tenella* (Esper) Silva**CHORDARIACEAE***Cladosiphon mediterraneus* Kützing*C. zosteriae* (J. Agardh) Kylin*Liebmannia leveillei* J. Agardh*Sphaerotrichia divaricata* (C. Agardh)

Kylin

RALFSIALES**RALFSIACEAE***Hapalospongidion macrocarpum*

(Feldmann) León Álvarez and

González

Ralfsia verrucosa (Areschoug)

Areschoug

CUTLERIALES**CUTLERIACEAE***Cutleria chilosa* (Falkenberg) Silva*C. multifida* (Turner) Greville*Zanardinia typus* (Nardo) Furnari**SPHACELARIALES****SPHACELARIACEAE***Sphacelaria cirrosa* (Roth) C. Agardhf. *cirrosa*f. *mediterranea* Sauvageau*S. fusca* (Hudson) S.F. Gray*S. rigidula* Kützing*S. tribuloides* Meneghini**STYPOCAULACEAE***Halopteris filicina* (Grateloup)

Kützing

H. scoparia Linnaeus Sauvageau**CLADOSTEPHACEAE***Cladostephus spongiosus*

(Hudson) C. Agardh

f. *verticillatus* (Lightfoot)

Prod'homme van Reine

DICTYOTALES**DICTYOTACEAE***Dictyopteris polypodioides*

(De Candolle) Lamouroux

Dictyota dichotoma (Hudson)

Lamouroux

var. *intricata* (C. Agardh)

Greville

D. fasciola (Roth) Lamourouxvar. *fasciola*var. *repens* (J. Agardh)

Ardissonne

D. linearis (C. Agardh) Grevillef. *linearis*f. *divaricatus* (Lamouroux)

Aysel, Okudan, Aysel

D. mediterranea (Schiffner)

Furnari

var. *mediterranea*var. *crassa* (Schiffner)

V Aysel, H Erduğan,

EŞ Okudan, H Erk

D. menstrualis (Hoyt) Schmetter,

Hornig and WeberPeukert

var. *menstrualis**D. spiralis* Montagne*Padina pavonica* (Linnaeus) Thivy*Stypopodium schimperii*

(Buchinger ex Kützing) Verlaque

and Boudouresque

Taonia atomaria (Woodward)
J. Agardh
f. *atomaria*
f. *ciliata* (C. Agardh) Nizamuddin
Zonaria tournafortii (Lamouroux)
Montagne

DICTYOSIPHONALES
MYRIOTRICHACEAE

Myriotrichia clavaeformis Harvey

GIRAUDIACEAE

Giraudia sphacelarioides Derbès
and Solier

ASPEROCOCCACEAE

Asperococcus bullosus Lamouroux
f. *bullosus*
A. fistulosus (Hudson) W.J. Hooker

PUCTARIALES

PUNCTARIACEAE

Punctaria latifolia Greville

SCYTOSIPHONALES

COLPOMENIACEAE

Colpomenia sinuosa (Mertens ex
Roth) Derbès and Solier
Hydroclathrus clathratus (C. Agardh)
Howe

SCYTOSIPHONACEAE

Petalonia fascia (Müller) Kuntze
Scytosiphon *simplicissimus*
(Clemente)
Cremades
var. *simplicissimus*

FUCALES

CYTOSEIRACEAE

Cystoseira amentacea Bory
var. *spicata* (Ercégovic) Giaccone

C. barbata (Stackhouse) C. Agardh
var. *barbata*

C. compressa (Esper) Gerloff
Nizamuddin
f. *compressa*

C. corniculata (Turner) Zanardini
var. *corniculata*

C. crinita (Desfontaines) Bory
f. *crinita*

C. crinitophylla Ercégovic

C. elegans Sauvageau

C. foeniculacea (Linnaeus)
Greville

f. *tenuiramosa* (Ercégovic)

A. Gómez Garreta, M.C.
Barceló, Ribera and J. Rull
Lluch

C. humulis Schousboe ex Kützing
var. *humulis*

C. mediterranea Sauvageau
var. *mediterranea*

var. *valiantei* Sauvageau

C. spinosa Sauvageau

C. squarrosa De Notaris

SARGASSACEAE

Sargassum acinarum (Linnaeus)
Setchell

S. hornschuchii C. Agardh

S. vulgare C. Agardh
var. *vulgare*

CHLOROPHYTA

CHLOROPHYTINA

TETRASPOROPHYTAE

CHLOROPHYCEAE

PHAEOPHILALES

PHAEOPHILACEAE

Phaeophila dendroides (P. L.

Crouan and H. M. Crouan)
Batters

TETRASPORALES

PALMELLOPSIDACEAE

Palmophyllum crassum (Naccari)
Rabenhorst

CHLOROCOCCALES

ENDOSPHAERACEAE

Gomontia polyrhiza (Leigerheim)
Bornet and Flahault

CHAETOPHORALES

CHAETOPHORACEAE

Entocladia viridis Reinke
Pringsheimiella scutata (Reinke)
Höhnelt ex Marchewianka

ULVOPHYCEAE

ULOTRICHALES

BORODINELLACEAE

Planophila microcystis (Dangeard)
Kornmann and Sahling

ULOTRICHACEAE Kützing

Ulothrix implexa (Kützing) Kützing
U. zonata (Weber and Mohr) Kützing

ULVALES

ULVACEAE Lamour ex Dumort

Enteromorpha clathrata (Roth)
Greville
E. compressa (Linnaeus) Nees
var. *compressa*
E. flexuosa (Wulfen) J. Agardh
subsp. *flexuosa*
E. intestinalis (Linnaeus) Nees
var. *intestinalis*
E. linza (Linnaeus) J. Agardh
var. *linza*
var. *crispata* (Bertoloni) J. Agardh
var. *minor* Schiffner
E. prolifera (Müller) J. Agardh
subsp. *prolifera*

Ulva fasciata Delile

U. lactuca Linnaeus
f. *lactuca*

U. laetevirens Areschoug

U. rigida C. Agardh
f. *rigida*

U. taeniata (Setchell) Setchell
and Gardner

ULVELLACEAE

Acrochaete repens Pringsheim

Epicladia flustrae Reinke

Ulvella lens P. L. Crouan and
H. M. Crouan

TRENTEPOHLIOPHYCEAE

TRENTEPOHLIALES

TRENTEPHOLIACEAE

Chlorotylum cataractarum
Kützing

CLADOPHOROPHYCEAE

CLADOPHORALES Haeckel

ANADYOMENACEAE Kützing

Anadyomene stellata (Wulfen)
C. Agardh

CLADOPHORACEAE Wille

Chaetomorpha aerea (Dillwyn)
Kützing

C. linum (Müller) Kützing

Cladophora albida (Nees) Kützing

C. coelothrix Kützing

C. dalmatica Kützing

C. flexuosa (Müller) Kützing

C. glomerata (Linnaeus) Kützing
var. *glomerata*

C. hutchinsiae (Dillwyn) Kützing

C. laetevirens (Dillwyn) Kützing

C. lehmanniana (Lindenberg)
Kützing

C. mediterranea Hauck

C. oblitterata Söderström
C. pellucida (Hudson) Kützing
f. *pellucida*
C. prolifera (Roth) Kützing
C. rupestris (L.) Kützing
C. sericea (Hudson) Kützing
C. trichotoma (C. Agardh)
Kützing
Conferva densissima (Kützing)
Zanardini
Rhizoclonium riparium (Roth)
Harvey
R. tortuosum (Dillwyn) Kützing

SIPHONOCLADALES

SIPHONOCLADACEAE

Siphonocladus pusillus
(C. Agardh ex Kützing) Hauck

VALONIACEAE Kützing

Valonia macrophysa Kützing
V. utricularis (Roth) C. Agardh

BRYOPSIDOPHYCEAE

BRYOPSIDALES Schaffner

BRYOPSIDACEAE Bory

Bryopsis adriatica (J. Agardh)
Meneghini

B. corymbosa J. Agardh

B. duplex De Notaris

B. flagellata Kützing

B. hypnoides Lamouroux
var. *hypnoides*

B. muscosa Lamouroux

B. pennata Lamouroux

B. plumosa (Hudson) C. Agardh
var. *plumosa*

DERBESIALES

DERBESIACEAE Hauck

Derbesia tenuissima (Morris and De
Notaris) P. L. Crouan and H. M.

Crouan

Pedobesia simplex (Meneghini
ex Kützing) Wynne and Leliaert

CODIALES

CODIACEAE Kützing

Codium adhaerens C. Agardh

C. bursa (Linnaeus) C. Agardh

C. effusum (Rafinesque) Delle
Chiaje

C. tomentosum Stackhouse

C. vermilara (Olivi) Delle Chiaje

CAULERPALES

CAULERPACEAE Kützing

Caulerpa ollivieri Dostal

C. prolifera (Forsskål) Lamouroux

C. racemosa (Forsskål) J. Agardh
var. *lamourouxii* (Turner)

Weber van Bosse

f. *requienii* (Montagne)

Weber van Bosse

UDOTEACEAE J. Agardh

Flabellia petiolata (Turra)
Nizamuddin

Pseudochlorodesmis furcellata
(Zanardini) Børgesen

HALIMEDALES

HALIMEDACEAE

Halimeda tuna (Ellis and
Solander)

Lamouroux

DASYCLADOPHYCEAE

DASYCLADALES Bessey

DASYCLADACEAE Kützing

Dasycladus vermicularis (Scopoli)
Krasser

ACETABULARIACEAE

Acetabularia acetabulum
(Linnaeus) Silva

Posidonia oceanica (Linnaeus)
Delile

TRACHEOPHYTA
[=**MAGNOLIOPHYTA**]
ANGIOSPERMAE
LILIOPSIDA
CYMODOCEALES
CYMODOCEACEAE
Cymodocea nodosa (Ucria)
Ascherson

ZOSTERALES
ZOSTERACEAE
Zostera marina Linnaeus
Z. noltii Homermann

HYDROCHARITALES
HYDROCHARITACEAE
Halophila stipulacea (Forsskål)
Ascherson

POSIDONIALES
POSIDONIACEAE

Discussion

382 taxa (377 algae and 5 *seagrasses*) have been found In the present study.

As seen in Table 2, the comparison of the number of algal species of Hatay with those of the other Mediterranean coastal cities of Turkey was given.

Phycologically, Hatay when compared with the other cities of Mediterranean, is one of the richest provinces of southern Turkey.

Table 2: The number of algae species of Hatay and the other the Mediterranean coastal cities (HT: Hatay, HT*: (Aysel *et al.*, 1996, 1998, Aysel 1997a-b, Everest *et al.*, 1997, Taşkın *et al.* 2000a,b) MU: Muğla, AN: Antalya, MR: Mersin, AD: Adana).

Division	Studied Cities of Turkish Mediterranean Shores					
	HT	HT*	MU	AN	MR	AD
<i>Cyanophyta</i> (Cy)	30	3	40	36	36	27
<i>Rhodophyta</i> (R)	201	32	222	198	204	204
<i>Ochrophyta</i> (O)	73	19	99	74	82	78
<i>Chlorophyta</i> (C)	73	17	73	67	74	72
<i>Magnoliophyta</i>	5	5	5	5	5	5
Total	382	76	439	380	401	386

Table 3: Dominancy in division level amongst southern provinces of Turkey

Division	Dominancy as cities in division level from the Mediterranean Shores of Turkey					
	HT	HT*	MU	AN	MR	AD
R/O	2.753	1.684	2.242	2,675	2.487	2.615
R/C	2.753	1.882	3.041	2,955	2.756	2.833
R/CY	6.700	10.666	5.550	5,500	5.666	7.555
O/C	1	1.117	1.356	1,104	1.108	1.083
O/CY	2.433	6.333	2.475	2,055	2.277	2.888
C/CY	2.433	5.666	1.825	1,861	2.055	2.666

Dominancy of taxa depending upon the provinces is summarized in Table 3. In this table, R/O values are relatively close amongst all provinces and change between 2,242 and 2,753. According to these data, it can be stated that Turkish shores of Mediterranean is not polluted heavily.

Özet

Bu arařtırmada, Hatay (Türkiye'nin akdeniz kıyıları) kıyılarının üst infralittoralinde yayılıř gösteren deniz algleri ve deniz çayırları çalıřılmıřtır. Toplam 377 alg ve 5 deniz çayırı tayin edilmiřtir. Bunların 30 tanesi Mavi-yeřil bakteriler (*Cyanophyceae*), 201 tanesi kırmızı algler [*Rhodellophyceae* (2), *Compsopogonophyceae* (2), *Bangiophyceae* (5), *Florideophyceae* (192)], 73 tanesi kahverengi algler (*Fucophyceae*), 73 tanesi yeřil alglere [*Chlorophyceae* (5), *Ulvophyceae* (19), *Trentepohliophyceae* (1), *Cladophorophyceae* (24), *Bryopsidophyceae* (22), *Dasycladophyceae* (2)] ve 5 tanesi deniz çayırdır (*Liliopsida*).

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