

Marine Algae and Seagrasses of Mersin Shore (Mediterranean, Turkey)

Mersin Kıyılarının Deniz Algleri ve Deniz Çayırları

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Abstract

In this research, marine algae and seagrasses were investigated in the upper infralittoral zone of Mersin (Turkish Mediterranean coasts). A total of 396 algae and 5 seagrasses were determined. 36 of them belong to blue-green algae (*Cyanophyceae*), 204 to red algae [*Rhodellophyceae* (2), *Compsopogonophyceae* (2), *Bangiophyceae* (6), *Florideophyceae*(194)], 82 to brown algae (*Fucophyceae*), 74 to green algae [*Chlorophyceae* (7), *Ulvophyceae* (19), *Trentepohliophyceae* (1), *Cladophorophyceae* (25), *Bryopsidophyceae* (20), *Dasycladophyceae* (2)] and 5 to seagrasses (*Liliopsida*).

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

Introduction

The earliest study on Turkish Mediterranean algae was performed by Apaydın *et al.* (2002), Aysel (1997a, b), Aysel & Gezerler- Şıpal (1996), Aysel *et al.* (1998, 2002, 2003, 2005a,b), Ciriş (1986, 1991), Ciriş & Öztürk (1991), Ertan *et al.* (1998), Everest *et al.* (1997), Okudan & Aysel (2005), Öztürk (1988, 1993, 1996a, b), Öztürk & Güner (1986), Taşkın *et al.* (2000a,b 2001), Turna *et al.* (2000a,b, 2002, 2003), Yağcı & Turna (2002) have also performed floristic studies on Mediterranean coasts of Turkey.

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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. Mersin is situated between 32° 33' 42" and 34° 55' 16" eastern longitudes (Figure 1).

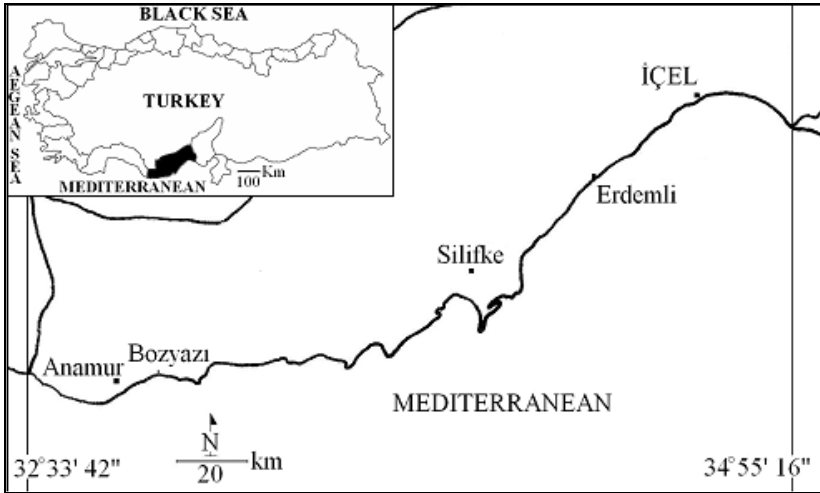


Figure 1: Map of Mersin coastline

Results

The list of the Taxa is given 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 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.

Table 1: Taxa distributed on Mersin (Mediterranean) coast of Turkey.

CYANOPHYTA

[=CYANOBACTERIA]

CYANOPHYCEAE

CHROOCOCCALES

CHROOCOCCACEAE

Chroococcus dimidiatus (Kützing)

Nägeli

C. minor (Kützing) Nägeli

MICROCYSTACEAE

Gloeocapsa compacta Kützing

G. crepidinium Thuret

Microcystis halophila B. Martens
& Pankow

M. marina (Hansgrig *in* Foslie)

Silva

MERISMOPEDIACEAE

GOMPHOSPHAERIOIDEAE

Gomphosphaeria aponina Kützing

OSCILLATORIALES

OSCILLATORIACEAE

Leptolyngbya foveolarum

(Montagne *ex* Gomont)

Anagnostidis & Komárek

L. fragilis (Gomont) Anagnostidis

& Komárek

Lyngbya adriae Ercégovic

L. agardhii (P.L. Crouan & H.M.

Crouan) Gomont

L. confervoides C. Agardh

L. majuscula (Dillwyn) Harvey

L. semiplana (C. Agardh) J. Agardh

Oscillatoria margaritifera Kützing
ex Gomont

PHORMIDIACEAE

PHORMIDIOIDEAE

Phormidium autumnale C. Agardh

(Gomont)

P. limosum (Dillwyn) P.C. Silva

P. subfuscum Kützing *ex* Gomont

Porphyrosiphon martensianus

(Meneghini *ex* Gomont)

Anagnostidis & Komárek

Symploca hydnoides (Harvey)

Kützing

var. *fasciculata* (Kützing)

Gomont

SPIRULINOIDEAE

Spirulina breviarticulata (Setchell
& Gardner) Geitler

S. subsalsa Oersted

PSEUDOANABAENACEAE

Spirocoleus tenuis (Meneghini)

Silva

HETEROLEIBLEINIOIDEAE

Heteroleibleinia infixa (Frémy)

Anagnostidis & Komárek

LEPTOLYNGBYOIDEAE

Leibleinia epiphytica (Hieronymus)

Anagnostidis & Komárek

L. gracilis Meneghini

Planktolyngbya subtilis (W. West)

Anagnostidis & Komárek

SCHIZOTHRICHACEAE

Schizothrix lacustris (Braun)

Gomont

S. tenerrima (Gomont) F.E. Drouet

NOSTOCALES

RIVULARIACEAE

Calothrix aeruginea (Kützing)

Thuret

C. confervicola (Roth) C. Agardh

C. contarenii (Zanardini) Borneo
& Flahault

C. parasitica (Chauvin) Thuret

Isactis plana (Harvey) Thuret

ex Borneo & Flahault

Rivularia atra Roth ex Bornet
& Flahault
R. biasoletiana (Meneghini) Bornet
& Flahault

RHODOPHYTA

RHODELLOPHYCEAE

STYLONEMATALES

STYLONEMATACEAE

Stylonema alsidii (Zanardini)
K. Drew

S. cornu-cervi Reinsch

COMPSOPOGONOPHYCEAE

ERYTHROPELTIDALES

ERYTHROTRICHIACEAE

Erythrotrichia carnea (Dillwyn) J.
Agardh

Sahlingia subintegra (Rosenvinge)
Kornmann

BANGIOPHYCEAE

BANGIOPHYCIDAE

GONIOTRICHALES

GONIOTRICHACEAE

Chrodactylon ornatum
(C. Agardh) Basson

BANGIALES

BANGIACEAE

Bangia atropurpurea (Roth)
C. Agardh

Porphyra laciniata (Lightfoot)
C. Agardh

P. leucosticta Thuret in Le Jolis
f. *leucosticta*
f. *undulata* Schiffner

P. umbilicalis (Linnaeus) Kützing

FLORIDEOPHYCEAE

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)
Stegenk Bolton & Anderson

C. daviesii (Dillwyn) Stegenga

NEMALIALES

GALAXAURACEAE

Scinaia furcellata (Turner)
J. Agardh

Tricleocarpa cylindrica (Ellis
& Solander) Huisman
& Borowitzka

T. fragilis (Linnaeus) Huisman
& Townsend

LIAGORACEAE

Ganonema farinosum (Lamouroux)
Fan & Wang

Liagora viscida (Forsskål)
C. Agardh

NEMALIACEAE

Nemalion helminthoides (Velley)
Batters

GELIDIALES

GELIDIACEAE

Gelidium corneum (Hudson)
Lamouroux

var. *pectinatum* Ardissonne
& Strafforello

G. crinale (Hare ex Turner) Gaillon
var. *crinale*

G. minusculum (Webervan Bosse)
R.E. Norris

G. pulchellum (Turner) Kützing

G. pusillum (Stackhouse) Le Jolis
var. *pusillum*

G. spinosum (Gmelin) Silva
var. *spinosum*

var. *hystrix* (J. Agardh) Furnari

Pterocladia capillacea (Gmelin)
Santelices & Hommersand
f. *capillacea*

P. melanoidea (Schousboe ex Bornet)
Santelices & Hommersand

var. *melanoidea*

var. *filamentosa* (Schousboe
ex Bornet) Wynne

var. *gracilis* (Feldmann & Hamel)
Wynne

GELIDIACEAE

Gelidiella lubrica (Kützing)
Feldmann & Hamel

G. nigrescens (Feldmann) Feldmann
& Hamel

G. ramellosa (Kützing) Feldmann
& Hamel

Parviphycus antipai (Celan)
Santelices

P. tenuissimus (Feldmann
& Hamel) Santelices

GRACILARIALES

GRACILARIACEAE

Gracilaria bursapastoris (Gmelin)
Silva

G. gracilis (Stackhouse) Steentoft
var. *gracilis*

BONNEMAISONIALES

BONNEMAISONIACEAE

Falkenbergia rufolanosa (Harvey)

Schmitz

Trailiella intricata Batters

CORALLINALES

CORALLINACEAE

AMPHIROIDEAE

Amphiroa beauvoisii Lamouroux

A. rigida Lamouroux

CHOREONEMATOIDEAE

Choreonema thuretii (Bornet)

Schmitz

CORALLINOIDEAE

CORALLINEAE

Corallina elongata Ellis & Solander

C. panizzoi Schnetter & U. Richter

JANIEAE

Halitilon squamatum (Linnaeus)

Johansen, Irvine & Webster

H. virgatum (Zanardini) Garbary
& Johansen

Jania longifurca Zanardini

J. rubens (Linne) Lamouroux
var. *rubens*

var. *corniculata* (Linnaeus) Yendo

MASTOPHOROIDEAE

Hydrolithon farinosum

(Lamouroux) D. Penrose
& Chamberlain

var. *farinosum*

Neogoniolithon brassica florida

(Harvey) Setchell & Mason

LITHOPHYLLOIDEAE

Lithophyllum cystoseirae (Hauck)

Heydrich

L. incrustans Philippi

L. tortuosum (Esper) Foslie

f. *tortuosum*

f. *undulosum* (Bory de

SaintVincent) Okudan & Aysel
Titanoderma pustulatum
(Lamouroux) Nägeli

MELOBESIOIDEAE

Melobesia membranacea (Esper)
Lamouroux sensu Chanberline
& Irvine

Mesophyllum expansum (Philippi)
Cabioch & Mendoza

M. lichenoides (Ellis) Lemoine
Phymatolithon lenormandii
(Areschoug) Adey

GIGARTINALES

ACROSYMPHYTACEAE

Acrosymphyton purpuriferum
(J. Agardh) Sjostedt

CALOSIPHONACEAE

Calosiphonia vermicularis
(J. Agardh) Schmitz

CYSTOCLONIACEAE

Rhodophyllis divaricata
(Stackhouse) Papenfuss

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

Peyssonnelia bornetii
Boudouresque & Denizot

P. crispata Boudouresque
& Denizot

P. dubyi P.L. Crouan &
H.M. Crouan

P. harveyana P.L. Crouan &
H.M. Crouan & J. Agardh

P. polymorpha (Zanardini) Schmitz
P. rosa-marina Boudouresque
& Denizot

P. rubra (Greville) J. Agardh

P. squamaria (Gmelin) Decaisne

PHYLLOPHORACEAE

Gymnogongrus griffithsiae (Turner)
Martius

RHABDONIACEAE

Catenella caespitosa (Withering)
Irvine in Parke & Dixon

NEMASTOMACEAE

Nemastoma dichotomum J. Agardh

RHIZOPHYLLIDACEAE

Contarinia squamariae
(Meneghini) Denizot

SCHIZYMENIACEAE

Platoma cyclocalpa (Montagne)
Schmitz

WURDEMANNIACEAE

Wurdemannia miniata (Sprengel)
Feldmann & Hamel

RHODYMENIALES

RHODYMENIACEAE

Botryocladia borgeseni Feldmann
B. botryoides (Wulfen) Feldmann
B. chiajeana (Meneghini) Kylin
Chrysomenia ventricosa
(Lamouroux) J. Agardh
Rhodymenia ardissoni J. Feldmann
var. *ardissoni*
var. *spathulata* (Schiffner)
Okudan & Aysel
R. pseudopalmata (Lamouroux)
Silva

CHAMPIACEAE

Champia parvula (C. Agardh)
Harvey
Chylocladia verticillata (Lightfoot)
Bliding

LOMENTARIACEAE

Lomentaria articulata (Hudson)
Lyngbye
var. *articulata*
L. clavellosa (Turner) Gaillon
L. verticillata Funk

HALYMENIALES

GRATELOUPIACEAE

Grateloupia dichotoma J. Agardh
G. filicina (Lamouroux) C. Agardh
G. prolongata J. Agardh

HALYMENIACEAE

Halymenia floresii (Clemente
y Rubio) C. Agardh

PLOCAMIALES

PLOCAMIACEAE

Plocamium cartilagineum Linnaeus
(Dixon)

CRYPTONEMIALES

CRYPTONEMACEAE

Cryptonemia lomation (Bertoloni)

J. Agardh

CERAMIALES

CERAMIACEAE

CALLITHAMNIOIDEAE

CALLITHAMNIEAE

Aglaothamnion caudatum

(J. Agardh) Feldmann Mazoyer

A. cordatum (Børgesen)

Feldmann Mazoyer

A. hookeri (Dilliwyn) Maggs & Hommersand

A. tenuissimum (Bonnemaison)

Feldmann Mazoyer

var. *tenuissimum*

Callithamnion corymbosum (Smith)

Lyngbye

C. granulatum (Ducluzeau)

C. Agardh

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. *robustum* (J. Agardh)

Mazoyer

C. cimbricum Petersen

f. *cimbricum*

C. circinatum (Kützing) J. Agardh

C. deslongchampsii Chauvin

ex Duby

C. flaccidum (Kützing) Ardissoni

- C. rubrum auctorum**
var. **rubrum**
C. siliquosum (Kützing) Maggs
& Hommersend
var. **siliquosum**
var. **elegans** (Roth) Furnari
var. **tenuissimum** (Lyngbye)
V Aysel, B Dural Tarakçı,
H Erduğan, F Aysel, E Türker,
Y Tarakçı
C. tenerrimum (G. Martens) Okamura
var. **tenerrimum**
var. **brevizonatum** (Peterson)
Feldmann Mazoyer
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
P. plumula (Ellis) Nägeli

- SPYRIDIEAE**
Spyridia filamentosa (Wulfen)
Harvey in W.J. Hooker
S. hypnoides (Bory) Popenfuss

- WRANGELIEAE**
Wrangelia penicillata (C. Agardh)
C. Agardh

- COMPSOTHAMNIOIDEAE**
COMPSOTHAMNIEAE
Compsothamnion thuyoides
(J.E. Smith) Schmitz

- MONOSPOREAE**
Monosporus pedicellatus
(J.E. Smith) Solier

- SPERMOTHAMNIEAE**
Spermothamnion flabellatum
Bornet
S. repens (Dillwyn) Rosenvinge
var. **repens**
var. **flagelliferum** (De Notaris)
Feldmann Mazoyer

- SPONGOCLONIEAE**
Pleonosporium borneri (J.E. Smith)
Nägeli

- DASYACEAE**
Dasya baillouviana (Gmelin)
Montagne
var. **baillouviana**
D. corymbifera J. Agardh
D. hutchinsiae Harvey in
W.J. Hooker
D. punicea (Zanardini) Meneghini
ex Zanardini
D. rigidula (Kützing) Ardissoni
Eupogodon planus (C. Agardh)
Kützing
Heterosiphonia crispella
(C. Agardh) Wynne

- DELESSERIACEAE**
DELESSERIOIDEAE

APOGLOSSEAE

Apoglossum ruscifolium (Turner)
J. Agardh

HYPOGLOSSEAE

Hypoglossum hypoglossoides
(Stackhouse) Collins & Harvey

NITOPHYLLOIDEAE

NITOPHYLLEAE

Nitophyllum punctatum
(Stackhouse) Greville
var. *punctatum*

Radicilingua thysanorhizans
(Holmes) Papenfuss

PHYCODYOIDEAE

CRYPTOPLEUREAE

Acrosorium ciliolatum (Harvey)
Kylin

MYRIOGRAMMEAE

Myriogramme minuta Kylin

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. papillosus (C. Agardh) Garbary
& J. Harper

Erythrocytis montagnei (Derbès
& 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 pelagosae (Schiffner) Nam

O. pinnatifida (Hudson) Stackhouse

POLYSIPHONIEAE

Alsidium corallinum C. Agardh

A. helminthochorton

(Schwendemann) Kützing

A. lanciferum Kützing

Boergesenella fruticulosa (Wulfen)
Kylin

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. biasolettiana J. Agardh

P. deusta (Roth) Sprengel

P. elongata (Hudson) Sprengel
P. flocculosa (C. Agardh) Endlicher
P. furcellata (C. Agardh) Harvey
P. kellneri Zanardini
P. opaca (C. Agardh) Moris & De
Notaris
P. sertularioides (Grateloup)
J. Agardh
P. tenerrima Kützing
P. tripinnata J. Agardh
P. variegata (C. Agardh) Zanardini
P. violacea (Roth) Sprengel

POLYZONIEAE

Dipterosiphonia rigens (Shousboei)
Falkenberg

PTEROSIPHONIEAE

Pterosiphonia pennata (C. Agardh)
Sauvageau

OCHROPHYTA

[=HETEROKONTOPHYTA]

FUCOPHYCEAE

ECTOCARPALES

ECTOCARPACEAE

Acinetospora crinita (Carmichael ex
Harvey) Kornmann
Ectocarpus siliculosus (Dillwyn)
Lyngbye
var. *siliculosus*
var. *crouaniorum* (Thuret)
Gallardo
var. *penicillatus* C. Agardh
E. virescens Thuret ex Sauvageau
Feldmannia caespitula (J. Agardh)
KnoepfflerPéguy
var. *caespitula*
var. *lebelii* (Areschoug ex
P.L. Crouan) Knoepffler Péguy
F. irregularis (Kützing) Hamel
F. globifera (Kützing) Hamel
F. padinae (Buffham) Hamel

Hincksia mitchelliae (Harvey) Silva
H. sandriana (Zanardini) Silva
Streblonema sphaericum (Derbès
& 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

SPERMATOCHNACEAE

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
& 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. Agardh

f. *cirrosa*

f. *mediterranea* Sauvageau

S. fusca (Hudson) S.F. Gray

S. plumula Zanardini

S. rigidula Kützing

S. tribuloides Meneghini

STYPOCAULACEAE

Halopteris filicina (Grateloup)

Kützing

H. scoparia Linnaeus Sauvageau

var. *patentissima* Sauvageau

CLADOSTEPHACEAE

Cladostephus spongiosus (Hudson)

C. Agardh

f. *spongiosus*

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) Lamouroux

var. *fasciola*

var. *repens* (J. Agardh) Ardissonne

D. linearis (C. Agardh) Greville

f. *linearis*

f. *divaricatus* (Lamouroux)

nov. nom.

D. mediterranea (Schiffner) Furnari

var. *mediterranea*

var. *crassa* (Schiffner) V Aysel,

H Erduğan, EŞ Okudan, H Erk

D. menstrualis (Hoyt) Schnetter,

Hornig & WeberPeukert

var. *menstrualis*

D. spiralis Montagne

Lobophora variegata (Lamouroux)

Womersley ex Oliveira

Padina pavonica (Linnaeus) Thivy

Stypopodium schimperi (Buchinger

ex Kützing) Verlaque

& Boudouresque

Taonia atomaria (Woodward)

J. Agardh

f. *atomaria*

f. *ciliata* (C. Agardh)

Nizamuddin

Zonaria tournefortii (Lamouroux)

Montagne

MYRIOTRICHACEAE

Myriotrichia clavaeformis Harvey

GIRAUDIACEAE

Giraudia sphacelarioides Derbès

& 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 & Solier

Hydroclathrus clathratus

(C. Agardh) Howe

SCYTOSIPHONACEAE

Petalonia fascia (Müller) Kuntze

Scytosiphon simplicissimus

(Clemente) Cremades

var. *simplicissimus*

FUCALES

CYTOSEIRACEAE

Cystoseira amentacea Bory

var. *amentacea*

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 Garret M.C. Barceló,

Ribera & 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. hornschurchii C. Agardh

S. vulgare C. Agardh

var. *vulgare*

CHLOROPHYTA

CHLOROPHYCEAE

PHAEOPHILALES

PHAEOPHILACEAE

Phaeophila dendroides (P. L.

Crouan & H. M. Crouan) Batters

TETRASPORALES

PALMELLOPSIDACEAE

Palmophyllum crassum (Naccari)

Rabenhorst

CHLOROCOCCALES

ENDOSPHAERACEAE

Gomontia polyrhiza (Leigerheim)

Bornet & Flahault

CHAETOPHORALES

CHAETOPHORACEAE

Bolbocoleon piliferum Pringsheim

Entocladia viridis Reinke

Pringsheimiella scutata (Reinke)

Höhnelt ex Marchewianka

SPHAEROPLEALES

SPHAEROPLEACEAE

Sphaeroplea annulina (Roth)

C. Agardh

ULVOPHYCEAE

ULOTRICHALES

BORODINELLACEAE

Planophila microcystis (Dangeard)

Kornmann & Sahling

ULOTHRIXACEAE

Ulothrix flacca (Dillwyn) Thuret *in*

Le Jolis

U. zonata (Weber & Mohr) Kützing

ULVALES

ULVACEAE

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. multiramosa Bliding
E. prolifera (Müller) J. Agardh
subsp. *prolifera*
Ulva fasciata Delile
U. lactuca Linnaeus
f. *lactuca*
U. rigida C. Agardh
f. *rigida*
U. taeniata (Setchell) Setchell
& Gardner

ULVELLACEAE

Acrochaete repens Pringsheim
Epicladia flustrae Reinke
Ulvella lens P. L. Crouan & H. M.
Crouan

TRENTEPOHLIOPHYCEAE

TRENTEPOHLIALES

TRENTEPHOLIACEAE

Chlorotylum cataractarum Kützing

CLADOPHOROPHYCEAE

CLADOPHORALES

ANADYOMENACEAE

Anadyomene stellata (Wulfen)
C. Agardh

CLADOPHORACEAE

Chaetomorpha aerea (Dillwyn)
Kützing

C. linum (Müller) Kützing
Cladophora albida (Nees) Kützing
C. catenata (C. Agardh) Hauck
C. coelothrix Kützing
C. dalmatica Kützing
C. glomerata (Linnaeus) Kützing
var. *glomerata*
var. *marina* Lyngbye
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. ruchingeri (C. Agardh) Kützing
C. sericea (Hudson) Kützing
C. trichotoma (C. Agardh) Kützing
Cladophoropsis modenensis
(Kützing) Børgesen
Rhizoclonium riparium (Roth)
Harvey
R. tortuosum (Dillwyn) Kützing

SIPHONOCCLADALES

SIPHONOCCLADACEAE

Siphonocladus pusillus (C. Agardh)
ex Kützing) Hauck

VALONIACEAE

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

BRYOPSISOPHYCEAE

BRYOPSISDALES

BRYOPSISDACEAE

Bryopsis 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

Derbesia tenuissima (Morris & De
Notaris) P. L. Crouan & H. M.
Crouan
Pedobesia simplex (Meneghini ex
Kützing) Wynne & Leliaert

CODIALES

CODIACEAE

Codium adhaerens C. Agardh
C. bursa (Linnaeus) C. Agardh
C. effusum (Rafinesque) Delle
Chiaje
C. tomentosum Stackhouse
C. vermilara (Olivi) Delle Chiaje

CAULERPALES

CAULERPACEAE

Caulerpa ollivieri Dostal
C. prolifera (Forsskål) Lamouroux
C. racemosa (Forsskål) J. Agardh
var. *lamourouxii* (Turner)
Webervan Bosse
f. *requienii* (Montagne) Weber
van Bosse

UDOTEACEAE

Flabellia petiolata (Turra)
Nizamuddin
Pseudochlorodesmis furcellata
(Zanardini) Borgesen

HALIMEDALES

HALIMEDACEAE

Halimeda tuna (Ellis & Solander)
Lamouroux

DASYCLADOPHYCEAE

DASYCLADALES

DASYCLADACEAE

Dasycladus vermicularis (Scopoli)
Krasser

ACETABULARIACEAE

Acetabularia acetabulum
(Linnaeus) Silva

TRACHEOPHYTA

[=MAGNOLIOPHYTA]

ANGIOSPERMAE

LILIOPSIDA

CYMODOCEALES

CYMODOCEACEAE

Cymodocea nodosa (Ucria)
Ascherson

POSIDONIALES

POSIDONIACEAE

Posidonia oceanica (Linnaeus)
Delile

ZOSTERALES

ZOSTERACEAE

Zostera marina Linnaeus
Z. noltii Homermann

HYDROCHARITALES

HYDROCHARITACEAE

Halophila stipulacea (Forsskål)
Ascherson

Discussion

401 taxa (396 algae and 5 *seagrasses*) have been found in the present study area. As seen in Table 2, the comparison of the number of algal species of Mersin with those of the other Mediterranean coastal cities of Turkey is given. Phycologically, one of the richest provinces of the southern Turkey is Mersin as compared with the other cities of the Mediterranean

Table 2: The number of algae species of Mersin and the other Mediterranean coastal cities (MR: Mersin, MR*: (Aysel *et al.*, 1996, 1998, Aysel 1997a-b, Cirik 1986, 1991) MU: Muğla, AN: Antalya, AD: Adana, HT: Hatay).

| Division | Studied Cities of Turkish Mediterranean Shores | | | | | |
|------------------------|--|-----|-----|-----|-----|-----|
| | MR | MR* | MU | AN | AD | HT |
| <i>Cyanophyta</i> (Cy) | 36 | 14 | 40 | 36 | 27 | 30 |
| <i>Rhodophyta</i> (R) | 204 | 131 | 222 | 198 | 204 | 201 |
| <i>Ochrophyta</i> (O) | 82 | 62 | 99 | 74 | 78 | 73 |
| <i>Chlorophyta</i> (C) | 74 | 52 | 73 | 67 | 72 | 73 |
| <i>Magnoliophyta</i> | 5 | 5 | 5 | 5 | 5 | 5 |
| Total | 401 | 264 | 439 | 380 | 386 | 382 |

Species of *Sargassum*, *Cystoseira*, *Zanardinia* and *Styopodium schimperi* are the most encountered algae along the Mersin shore. *Corallina mediterranea*, *Callithamnion corymbosum*, *Herposiphonia secunda* f. *tenella*, *Laurencia obtusa* var. *obtusa*, *Polysiphonia sertularioides* (*Rhodophyceae*), *Ectocarpus siliculosus* var. *siliculosus* (*Fucophyceae*), *Enteromorpha linza* var. *linza*, *E. prolifera* subsp. *prolifera*, *Ulva rigida* f. *rigida* and some of *Cladophora* species (*Chlorophyta*) are the common algae of the area.

As seen in Table 3, number of *Cyanophyta* species is low in Mersin as same as the other Mediterranean cities (Adana and Hatay). This division was not sufficiently investigated in these cities before from this study. Especially, Adana and Hatay shores in the İskenderun Bay have been polluted by domestic and industrial pollution.

While common taxa of the seagrasses *Posidonia*, *Zostera* and *Cymodocea* are also found in Mersin shores, some algae, such as taxa of *Herposiphonia*, *Polysiphonia*, *Ceramium*, *Ectocarpus*, *Enteromorpha* and *Cladophora* are common as epiphytically on macro algae (*Gracilaria*, *Hypnea*, *Cystoseira*, *Cladostephus*, *Halopteris*, *Dictyopteris*, *Dictyota*, *Cladophora*, *Ulva*, *Codium* etc.) and marine phanerogams.

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

| Division | Dominancy as cities in division level from the mediterranean shores of Turkey | | | | | |
|----------|---|-------|-------|-------|-------|-------|
| | MR | MR* | MU | AN | AD | HT |
| R/O | 2.487 | 2.112 | 2.242 | 2,675 | 2.615 | 2.753 |
| R/C | 2.756 | 2.519 | 3.041 | 2,955 | 2.833 | 2.753 |
| R/CY | 5.666 | 9.357 | 5.550 | 5,500 | 7.555 | 6.700 |
| O/C | 1.108 | 1.192 | 1.356 | 1,104 | 1.083 | 1 |
| O/CY | 2.277 | 4.428 | 2.475 | 2,055 | 2.888 | 2.433 |
| C/CY | 2.055 | 3.714 | 1.825 | 1,861 | 2.666 | 2.433 |

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. (same as Antalya).

Özet

Bu araştırmada, Mersin (Türkiye'nin akdeniz kıyıları) kıyılarının üst infralittoralinde yayılış gösteren deniz algleri ve deniz çayırları çalışılmıştır. Toplam 396 alg ve 5 deniz çayırı tayin edilmiştir. Bunların 36 tanesi Mavi-yeşil bakteriler (*Cyanophyceae*), 204 tanesi kırmızı algler [*Rhodellophyceae* (2), *Compsopogonophyceae* (2), *Bangiophyceae* (6), *Florideophyceae*(194)], 82 tanesi kahverengi algler (*Fucophyceae*), 74 tanesi yeşil alglere [*Chlorophyceae* (7), *Ulvophyceae* (19), *Trentepohliophyceae* (1), *Cladophorophyceae* (25), *Bryopsidophyceae* (20), *Dasycladophyceae* (2)] ve 5 tanesi deniz çayırdır (*Liliopsida*).

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