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Checklist of seaweeds of Cyprus (Mediterranean Sea)

Abstract: This paper provides the first comprehensive checklist of the seaweeds of Cyprus, based on both literature records and new collections. The total number of species and infraspecific taxa currently accepted is 313, including 53 green algae (Ulvophyceae), 90 brown algae (Phaeophyceae), and 170 red algae (Rhodophyta). Among them, 30 taxa are reported for the first time from Cyprus: 7 green algae, 9 brown algae, and 14 red algae, while 9 taxa are regarded as aliens. In addition, 10 *taxa* pending confirmation of their presence, 3 *excludenda*, and 3 *inquirenda* are briefly discussed.

Keywords: alien algae; checklist; marine vegetation; seaweeds.

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Introduction

The marine benthic flora of Cyprus remains poorly explored, as only a few studies have been carried out until today. Den Hartog (1972) was the first to report a marine plant from Cyprus, the Lessepsian seagrass *Halophila stipulacea* (Forsskål) Ascherson, followed by Lipkin (1975), who also focused on seagrasses of the island. Prud'homme van Reine (1982) reported two brown algal species [*Sphacelaria rigidula* Kützinger and *Sphacelaria cirrosa* (Roth) C. Agardh] from Cape Pyla. A more detailed study was provided by Cirić et al. (2000), who included numerous marine plant records from the northern coasts. Taşkın et al. (2008) published a list of alien algae of the northern coasts of the island. More recently, the same authors provided a detailed catalog of seaweeds from the northern coasts (Taşkın et al. 2013). Later on, two

alien green algae – *Caulerpa racemosa* and *Caulerpa taxifolia* var. *distichophylla* – were also recorded from the Cypriot coasts (Argyrou et al. 1999, 2003, Çiçek et al. 2013; Aplikioti, personal communication). Finally, scattered records of marine plants from Cyprus can also be found in a few studies dealing either with other groups of marine biota (Hadjichristophorou et al. 1997, Russo 1997, Katsanevakis et al. 2009) or with the use of macroalgae as bioindicators (Stavrou and Orfanidis 2012). All these studies cover only a fraction of the total coastline and different habitats of Cyprus, which is mostly due to the unresolved political situation prevailing over almost four decades, constituting a significant obstacle to more comprehensive marine biodiversity studies and conservation efforts for the island's inshore marine communities.

Over the last decade, numerous surveys of marine plants of Cyprus have been conducted by the authors, within the framework of the TOTAL Foundation-sponsored project “Brown algal biodiversity and ecology in the Eastern Mediterranean Sea”, the implementation of the Water Framework directive (WFD, 2000/60/EC), and via personal collections. In this paper, we provide a comprehensive and updated checklist of green, brown, and red macroalgae of the island based on both literature data and personal collections.

Materials and methods

The study areas

Field work was performed at several coastal sites around Cyprus (Figure 1): in the years 2003–2004 at Akamas (35°2'32.60"N/32°16'35.60"E) and Liopetri (34°57'38.70"N/33°53'50.51"E); in summer 2007 and 2008 at Liopetri; in spring 2012 at Akamas, Cavo Greco (34°57'39.47"N/34°4'50.12"E), Famagusta (35°10'N/33°55'E), Karpasia (35°41'N/34°35'E), Kyrenia (35°20'N/33°17'E), Liopetri and Varosha (35°07'22"N/33°57'26"E), and in late summer 2013 at Zenobia wreck (34°53'6"N/33°39'5"E) and northern Akamas (35°04'N/32°19'E). Sampling was carried out



Figure 1 Sampling locations around Cyprus, conducted in the years 2003–2004, 2007, 2008, 2012, and 2013.

by free diving in rocky midlittoral and upper sublittoral levels (0–3 m depth) and by scuba diving down to 42 m depth. All specimens were collected by destructive sampling (picking or scraping the macroalgae off the substratum). The material collected was preserved in 4% buffered formalin/seawater and/or mounted on Bristol paper, pressed, air dried, and prepared as herbarium specimens.

In the laboratory, specimens were observed under dissecting or compound microscopes. When necessary, they were sectioned manually with a razor blade. In several cases, permanent material was prepared as microscope slides using Karo™ corn syrup (ACH Food Companies, Memphis, TN, USA). Herbarium specimens have been deposited in the East Mediterranean Seaweed Herbarium at the Department of Botany, Faculty of Biology, University of Athens (Greece), and in the seaweed herbarium at the Faculty of Arts and Sciences, Department of Biology, Celal Bayar University (Manisa, Turkey). For nomenclature purposes, the following taxonomic databases were used: Index Nominum Algarum (Silva 2014) and Algae-Base (Guiry and Guiry 2014).

Reference sources used

Marine macroalgal taxa reported in scientific journals and conference proceedings have been critically reviewed

from present-day taxonomic and nomenclatural aspects, taking into account the on-line data provided by Silva (2014) and Guiry and Guiry (2014). On the other hand, technical reports, Bachelor and Master dissertations have not been considered here as they lack a rigorous peer review process in their preparation.

Definitions used

All taxa have been grouped in four categories: accepted, pending confirmation of their presence, *excludenda*, and *inquirenda*. Taxa are listed alphabetically for each group (green, brown, red algae) in order to make their detection easier. The locations at which each taxon was found in the present study are given. Previous literature records are also provided for each taxon.

Results

In total, 151 marine macroalgae were identified from all of our sampling expeditions (Table 1), including 30 green algae (Ulvophyceae), 53 brown algae (Phaeophyceae), and 68 red algae (Rhodophyta). Among our collections, 7 green, 9 brown, and 14 red macroalgae are reported for the first time from Cyprus, raising the

Table 1 Accepted marine seaweed taxa hitherto recorded in the Cypriot coasts, based on both our collections and previous known literature.

Ulvophyceae	Present study	Previous references
<i>Acetabularia acetabulum</i> (Linnaeus) P.C. Silva	Famagusta, Karpasia, Kyrenia	Cirik et al. 2000, Taşkın et al. 2013
<i>Anadyomene stellata</i> (Wulfen) C. Agardh	Famagusta, Karpasia, Kyrenia, Liopetri	Cirik et al. 2000, Taşkın et al. 2013
<i>Bryopsis corymbosa</i> J. Agardh		Taşkın et al. 2013
<i>Bryopsis cupressina</i> J.V. Lamouroux		Cirik et al. 2000, Taşkın et al. 2013
= <i>Bryopsis cupressoides</i> J. Agardh <i>nom. illeg.</i>		
<i>Bryopsis duplex</i> De Notaris	Varosha	
<i>Bryopsis hypnoides</i> J.V. Lamouroux		Taşkın et al. 2013
<i>Bryopsis pennata</i> J.V. Lamouroux	Liopetri	Cirik et al. 2000
<i>Bryopsis plumosa</i> (Hudson) C. Agardh	Famagusta, Liopetri	Taşkın et al. 2013
<i>Caulerpa prolifera</i> (Forsskål) J.V. Lamouroux	Cavo Greco, Famagusta, Karpasia, Kyrenia	Cirik et al. 2000, Argyrou et al. 2003, Taşkın et al. 2010, 2013
^a <i>Caulerpa cylindracea</i> Sonder	Cavo Greco,	Hadjichristophorou et al. 1997, Argyrou et al. 1999, 2003, Cirik et al. 2000, Verlaque et al. 2003, Taşkın et al. 2008, 2013
= <i>Caulerpa racemosa</i> var. <i>cylindracea</i> (Sonder) M. Verlaque, J.M. Huisman et C.F. Boudouresque	Famagusta, Karpasia, Kyrenia, Liopetri	Verlaque et al. 2000
^a <i>Caulerpa racemosa</i> var. [<i>lamourouxii</i>] f. <i>requienii</i> (Montagne) Weber-van Bosse		
^a <i>Caulerpa taxifolia</i> (M. Vahl) C. Agardh var. <i>distichophylla</i> (Sonder) M. Verlaque, J.M. Huisman et Procaccini	Famagusta, Cavo Greco	Çiçek et al. 2013, Aplikioti, personal communication
<i>Chaetomorpha ligustica</i> (Kützinger) Kützinger	Akamas	
<i>Chaetomorpha linum</i> (O.F. Müller) Kützinger	Kyrenia, Liopetri	Taşkın et al. 2013
= <i>Chaetomorpha aerea</i> (Dillwyn) Kützinger		
<i>Cladophora albida</i> (Nees) Kützinger	Liopetri	
<i>Cladophora coelothrix</i> Kützinger = <i>Cladophoropsis modonensis</i> (Kützinger) Reinbold		Cirik et al. 2000, Taşkın et al. 2013
<i>Cladophora dalmatica</i> Kützinger	Kyrenia	Taşkın et al. 2013
<i>Cladophora echinus</i> (Bischoff) Kützinger	Cavo Greco	
<i>Cladophora glomerata</i> (Linnaeus) Kützinger		Taşkın et al. 2013
<i>Cladophora laetevirens</i> (Dillwyn) Kützinger		Taşkın et al. 2013
<i>Cladophora lehmanniana</i> (Lindenberg) Kützinger		Taşkın et al. 2013
<i>Cladophora pellucida</i> (Hudson) Kützinger	Famagusta, Kyrenia, Liopetri	Cirik et al. 2000, Taşkın et al. 2013
<i>Cladophora prolifera</i> (Roth) Kützinger	Akamas, Famagusta, Karpasia, Kyrenia, Liopetri	Taşkın et al. 2013
<i>Cladophora sericea</i> (Hudson) Kützinger	Akamas, Liopetri	Cirik et al. 2000
<i>Cladophora vagabunda</i> (Linnaeus) Hoek	Liopetri	Argyrou 2000
<i>Cladophoropsis membranacea</i> (Hofman Bang ex C. Agardh) Børgesen		Taşkın et al. 2013
<i>Codium bursa</i> (Oliv.) C. Agardh		Taşkın et al. 2013
<i>Codium decorticatum</i> (Woodward) M.A. Howe		Cirik et al. 2000
<i>Dasycladus vermicularis</i> (Scopoli) Krasser	Akamas, Famagusta, Karpasia, Kyrenia, Liopetri	Russo 1997, Cirik et al. 2000, Taşkın et al. 2013
= <i>Dasycladus claviformis</i> (« <i>clavaeformis</i> ») (Roth) C. Agardh		
<i>Derbesia tenuissima</i> (Moris et De Notaris) P.L. Crouan et H.M. Crouan		Taşkın et al. 2013
<i>Didymosporangium repens</i> F.D. Lambert		Taşkın et al. 2013
<i>Flabellia petiolata</i> (Turra) Nizamuddin	Akamas, Famagusta, Karpasia, Kyrenia	Russo 1997, Cirik et al. 2000, Taşkın et al. 2013
= <i>Udotea petiolata</i> (Turra) Børgesen		Taşkın et al. 2013
<i>Gayralia oxysperma</i> (Kützinger) K.L. Vinogradova ex Scagel et al.		
<i>Halimeda tuna</i> (J. Ellis et Solander) J.V. Lamouroux	Famagusta, Karpasia, Kyrenia	Russo 1997, Cirik et al. 2000, Taşkın et al. 2013
<i>Palmophyllum crassum</i> (Naccari) Rabenhorst		Cirik et al. 2000, Argyrou et al. 2003

(Table 1 Continued)

Ulvophyceae	Present study	Previous references
<i>Percursaria percursea</i> (C. Agardh) Rosenvinge		Taşkın et al. 2013
<i>Phaeophila dendroides</i> (P.L. Crouan et H.M. Crouan) Batters	Famagusta, Kyrenia, Liopetri	Cirik et al. 2000, Taşkın et al. 2013
<i>Pseudobryopsis myura</i> (J. Agardh) Berthold ex Oltmanns		Taşkın et al. 2013
<i>Pseudochlorodesmis furcellata</i> (Zanardini) Børgesen	Liopetri	
<i>Siphonocladus pusillus</i> (C. Agardh ex Kützinger) Hauck	Liopetri	
<i>Ulothrix implexa</i> (Kützinger) Kützinger	Famagusta	Taşkın et al. 2013
<i>Ulva clathrata</i> (Roth) C. Agardh	Famagusta	Cirik et al. 2000
= <i>Enteromorpha clathrata</i> (Roth) Greville		
<i>Ulva compressa</i> Linnaeus		Taşkın et al. 2013
<i>Ulva flexuosa</i> Wulfen	Liopetri	
<i>Ulva intestinalis</i> Linnaeus var. <i>intestinalis</i>	Famagusta, Kyrenia, Liopetri	Cirik et al. 2000, Taşkın et al. 2013
= <i>Enteromorpha intestinalis</i> (Linnaeus) Nees		
<i>Ulva intestinalis</i> f. <i>cylindracea</i> (J. Agardh) M.J. Wynne		Taşkın et al. 2013
<i>Ulva intestinalis</i> f. <i>ramosa</i> (Vinogradova) E. Taşkın		Taşkın et al. 2013
<i>Ulva linza</i> Linnaeus	Famagusta, Kyrenia	Cirik et al. 2000, Taşkın et al. 2013
= <i>Enteromorpha linza</i> (Linnaeus) J. Agardh		
<i>Ulva rigida</i> C. Agardh	Liopetri	Russo 1997
<i>Ulvella lens</i> P.L. Crouan et H.M. Crouan		Taşkın et al. 2013
<i>Ulvella repens</i> (Pringsheim) R. Nielsen, C.J. O'Kelly et B. Wylor		Cirik et al. 2000
= <i>Acrochaete repens</i> Pringsheim		
<i>Umbraulva olivascens</i> (P.J.L. Dangeard) G. Furnari		Taşkın et al. 2013
<i>Valonia utricularis</i> (Roth) C. Agardh	Liopetri	Cirik et al. 2000
PHAEOPHYCEAE		
<i>Acinetospora crinita</i> (Carmichael) Sauvageau		Taşkın et al. 2013
<i>Arthrocladia villosa</i> (Hudson) Duby	Cavo Greco	
<i>Choristocarpus tenellus</i> Zanardini	Cavo Greco	
<i>Cladosiphon cylindricus</i> (Sauvageau) Kylin	Akamas	
<i>Cladosiphon irregularis</i> (Sauvageau) Kylin		Taşkın et al. 2013
<i>Cladosiphon mediterraneus</i> Kützinger	Liopetri	Taşkın et al. 2013
<i>Cladostephus spongiosum</i> (Hudson) C. Agardh		Taşkın et al. 2013
<i>Colpomenia sinuosa</i> (Mertens ex Roth) Derbès et Solier	Famagusta, Liopetri	Cirik et al. 2000, Taşkın et al. 2013
<i>Corynophlaea flaccida</i> (C. Agardh) Kützinger	Famagusta	Taşkın et al. 2010, 2013
<i>Corynophlaea umbellata</i> (C. Agardh) Kützinger		Taşkın et al. 2013
<i>Cutleria adspersa</i> (Mertens ex Roth) De Notaris		Taşkın et al. 2013
<i>Cutleria multifida</i> (Turner) Greville	Karpasia	Taşkın et al. 2013
<i>Cystoseira amentacea</i> (C. Agardh) Bory var. <i>stricta</i> Montagne		Cirik et al. 2000, Taşkın et al. 2013
<i>Cystoseira barbata</i> (Stackhouse) C. Agardh	Akamas, Famagusta, Kyrenia	Russo 1997, Cirik et al. 2000, Stavrou and Orfanidis 2012, Taşkın et al. 2013
<i>Cystoseira barbatula</i> Kützinger emend. Cormaci, G. Furnari et Giaccone	Akamas, Karpasia, Liopetri	
<i>Cystoseira brachycarpa</i> J. Agardh emend. Giaccone	Akamas, Cavo Greco, Karpasia	
<i>Cystoseira compressa</i> (Esper) Gerloff et Nizamuddin f. <i>compressa</i>	Akamas, Famagusta, Karpasia, Liopetri	Cirik et al. 2000, Taşkın et al. 2013
<i>Cystoseira compressa</i> f. <i>plana</i> (Ercegovič) Cormaci, G. Furnari, Giaccone, Scammacca et Serio	Akamas, Karpasia, Kyrenia	Taşkın et al. 2013
<i>Cystoseira corniculata</i> (Turner) Zanardini	Akamas, Famagusta, Kyrenia	Taşkın et al. 2013
<i>Cystoseira crinita</i> Duby	Famagusta	Cirik et al. 2000, Taşkın et al. 2013
<i>Cystoseira elegans</i> Sauvageau	Akamas, Liopetri	Cirik et al. 2000
<i>Cystoseira foeniculacea</i> (Linnaeus) Greville f. <i>foeniculacea</i>	Akamas, Cavo Greco, Famagusta, Karpasia, Kyrenia, Varosha	Cirik et al. 2000, Taşkın et al. 2013
<i>Cystoseira foeniculacea</i> f. <i>latiramosa</i> (Ercegovič) Gómez Garreta, Barceló, Ribera et Rull Lluch	Akamas	

(Table 1 Continued)

Phaeophyceae	Present study	Previous references
<i>Cystoseira foeniculacea</i> f. <i>schiffneri</i> (Hamel) Gómez Garreta, Barceló, Ribera et Rull Lluch = <i>Cystoseira schiffneri</i> Hamel		Cirik et al. 2000
<i>Cystoseira foeniculacea</i> f. <i>tenuiramosa</i> (Ercegovič) Gómez Garreta, Barceló, Ribera et Rull Lluch	Akamas, Karpasia	Taşkın et al. 2013
<i>Cystoseira humilis</i> Schousboe ex Kützinger var. <i>humilis</i>		Taşkın et al. 2013
<i>Cystoseira humilis</i> var. <i>myriophylloides</i> (Sauvageau) J.H. Price et D.M. John		Taşkın et al. 2013
<i>Cystoseira mediterranea</i> Sauvageau		Taşkın et al. 2013
<i>Cystoseira spinosa</i> Sauvageau var. <i>spinosa</i>	Akamas, Famagusta, Liopetri, Varosha	Taşkın et al. 2013
<i>Cystoseira spinosa</i> var. <i>compressa</i> (Ercegovič) Cormaci, G. Furnari, Giaccone, Scammacca et Serio		Cirik et al. 2000
<i>Cystoseira zosteroides</i> (Turner) C. Agardh		Taşkın et al. 2013
<i>Dictyopteris lucida</i> Ribera Siguán, Gómez Garreta, Pérez Ruzafa, Barceló Martí et Rull Lluch		Taşkın et al. 2013
<i>Dictyopteris polypodioides</i> (A.P. De Candolle) J.V. Lamouroux	Famagusta, Karpasia, Kyrenia, Liopetri	Cirik et al. 2000, Taşkın et al. 2013
<i>Dictyota dichotoma</i> (Hudson) J.V. Lamouroux var. <i>dichotoma</i>	Akamas, Famagusta, Karpasia, Kyrenia, Liopetri	Cirik et al. 2000, Taşkın et al. 2013
<i>Dictyota dichotoma</i> var. <i>intricata</i> (C. Agardh) Greville	Cavo greco, Famagusta, Kyrenia, Liopetri, Zenobia	Cirik et al. 2000, Taşkın et al. 2013
<i>Dictyota fasciola</i> (Roth) J.V. Lamouroux var. <i>fasciola</i> = <i>Dilophus fasciola</i> (Roth) Howe	Akamas, Famagusta, Karpasia, Kyrenia, Liopetri	Cirik et al. 2000, Taşkın et al. 2013
<i>Dictyota fasciola</i> var. <i>repens</i> (J. Agardh) Ardissonne = <i>Dilophus repens</i> (J. Agardh) J. Agardh	Famagusta	Cirik et al. 2000
<i>Dictyota linearis</i> (C. Agardh) Greville	Cavo Greco, Kyrenia, Liopetri	Cirik et al. 2000, Taşkın et al. 2013
<i>Dictyota mediterranea</i> (Schiffner) G. Furnari = <i>Dilophus mediterraneus</i> Schiffner	Akamas, Cavo Greco, Famagusta, Karpasia, Liopetri	Cirik et al. 2000
<i>Dictyota spiralis</i> Montagne	Akamas, Famagusta, Karpasia, Kyrenia, Liopetri	Taşkın et al. 2013
<i>Ectocarpus crouaniorum</i> Thuret		Taşkın et al. 2013
<i>Ectocarpus fasciculatus</i> Harvey	Famagusta	Taşkın et al. 2013
<i>Ectocarpus siliculosus</i> (Dillwyn) Lyngbye var. <i>siliculosus</i>		Taşkın et al. 2013
<i>Ectocarpus siliculosus</i> var. <i>penicillatus</i> C. Agardh		Taşkın et al. 2013
<i>Eudesme virescens</i> (Carmichael ex Berkeley) J. Agardh		Taşkın et al. 2013
<i>Feldmannia irregularis</i> (Kützinger) G. Hamel	Famagusta, Kyrenia, Liopetri	Taşkın et al. 2013
<i>Feldmannia lebelii</i> (P.L. Crouan et H.M. Crouan) G. Hamel		Taşkın et al. 2013
<i>Feldmannia padinae</i> (Buffham) G. Hamel		Taşkın et al. 2013
<i>Feldmannia paradoxa</i> (Montagne) Hamel var. <i>paradoxa</i>		Taşkın et al. 2013
<i>Feldmannia paradoxa</i> var. <i>caespitula</i> (J. Agardh) Cormaci et G. Furnari		Taşkın et al. 2013
<i>Halopteris filicina</i> (Grateloup) Kützinger	Cavo Greco, Famagusta, Karpasia, Kyrenia, Liopetri	Taşkın et al. 2013
<i>Halopteris scoparia</i> (Linnaeus) Sauvageau	Akamas, Cavo Greco, Famagusta, Karpasia, Kyrenia, Liopetri, Zenobia	Cirik et al. 2000, Taşkın et al. 2013

(Table 1 Continued)

Phaeophyceae	Present study	Previous references
<i>Hapalospongidion macrocarpum</i> (Feldmann) León-Álvarez et González-González	Famagusta	Taşkın et al. 2013
<i>Hincksia mitchelliae</i> (Harvey) P.C. Silva	Famagusta, Karpasia, Kyrenia	Taşkın et al. 2013
<i>Hydroclathrus clathratus</i> (Bory ex C. Agardh) M.A. Howe	Famagusta	Cirik et al. 2000, Taşkın et al. 2013
<i>Kuetzingiella battersii</i> (Bornet ex Sauvageau) Kornmann		Taşkın et al. 2013
<i>Lobophora variegata</i> (J.V. Lamouroux) Womersley ex E.C. Oliveira	Akamas, Cavo Greco	Cirik et al. 2000
<i>Microspongium stilophorae</i> (P.L. Crouan et H.M. Crouan) Cormaci et G. Furnari		Taşkın et al. 2013
<i>Mikrosyphar polysiphoniae</i> Kuckuck		Taşkın et al. 2013
<i>Myriactula arabica</i> (Kützinger) J. Feldmann		Taşkın et al. 2013
<i>Myriactula rivulariae</i> (Suhr) J. Feldmann		Taşkın et al. 2013
<i>Myrionema orbiculare</i> J. Agardh		Taşkın et al. 2013
<i>Myrionema strangulans</i> Greville	Famagusta, Kyrenia	Taşkın et al. 2013
<i>Myriotrichia claviformis</i> ("clavaeformis") Harvey		Taşkın et al. 2013
<i>Nemacystus flexuosus</i> (C. Agardh) Kylin var. <i>giraudyi</i> (J. Agardh) de Jong	Famagusta	Taşkın et al. 2013
<i>Nereia filiformis</i> (J. Agardh) Zanardini	Akamas	Taşkın et al. 2013
<i>Padina ditristromatica</i> Ni-Ni-Win et Kawai		Taşkın et al. 2013
<i>Padina pavonica</i> (Linnaeus) Thivy	Akamas, Famagusta, Karpasia, Kyrenia, Liopetri	Russo 1997, Cirik et al. 2000, Taşkın et al. 2013
<i>Petalonia fascia</i> (O.F. Müller) Kuntze	Famagusta, Kyrenia	Taşkın et al. 2013
<i>Protectocarpus speciosus</i> (Børgesen) Kornmann		Taşkın et al. 2013
<i>Pseudolithoderma adriaticum</i> (Hauck) M. Verlaque		Taşkın et al. 2013
<i>Punctaria tenuissima</i> (C. Agardh) Greville		Taşkın et al. 2013
= <i>Punctaria latifolia</i> Greville		
= <i>Hecatonema terminale</i> (Kützinger) Kylin		
<i>Ralfsia verrucosa</i> (Areschoug) Areschoug		Taşkın et al. 2013
<i>Sargassum acinarium</i> (Linnaeus) Setchell	Akamas, Cavo Greco, Famagusta, Karpasia, Kyrenia, Zenobia	Taşkın et al. 2013
<i>Sargassum hornschurchii</i> C. Agardh		Cirik et al. 2000, Taşkın et al. 2013
<i>Sargassum trichocarpum</i> J. Agardh	Akamas	
<i>Sargassum vulgare</i> C. Agardh nom. illeg.	Akamas, Famagusta, Kyrenia, Liopetri	Russo 1997, Cirik et al. 2000, Taşkın et al. 2013
<i>Scytosiphon lomentaria</i> (Lyngbye) Link	Famagusta, Kyrenia, Liopetri	Taşkın et al. 2013
<i>Spermatocnus paradoxus</i> (Roth) Kützinger	Akamas	Taşkın et al. 2013
<i>Sphacelaria cirrosa</i> (Roth) C. Agardh	Akamas, Cavo Greco, Liopetri	Prud'homme van Reine (1982), Cirik et al. 2000, Taşkın et al. 2013
<i>Sphacelaria fusca</i> (Hudson) S.F. Gray		Taşkın et al. 2013
<i>Sphacelaria rigidula</i> Kützinger	Famagusta, Karpasia, Liopetri	Prud'homme van Reine (1982), Cirik et al. 2000, Taşkın et al. 2013
<i>Sphacelaria tribuloides</i> Meneghini	Famagusta, Liopetri	Cirik et al. 2000, Taşkın et al. 2013
<i>Sporocnusus pedunculatus</i> (Hudson) C. Agardh	Cavo Greco	
<i>Stilophora tenella</i> (Esper) P.C. Silva		Taşkın et al. 2013
<i>Striaria attenuata</i> (Greville) Greville	Karpasia	
^a <i>Stypopodium schimperi</i> (Buchinger ex Kützinger) M. Verlaque et Boudouresque	Akamas, Cavo Greco, Famagusta, Karpasia, Kyrenia, Liopetri, Zenobia	Verlaque and Boudouresque 1991, Cirik et al. 2000, Taşkın et al. 2008, 2013
<i>Taonia atomaria</i> (Woodward) J. Agardh	Akamas, Kyrenia, Liopetri	Taşkın et al. 2013
<i>Taonia pseudociliata</i> (J.V. Lamouroux) Nizamuddin et Godeh	Liopetri	Taşkın et al. 2013

(Table 1 Continued)

Phaeophyceae	Present study	Previous references
<i>Zanardinia typus</i> (Nardo) P.C. Silva		Taşkın et al. 2013
RHODOPHYCEAE		
<i>Acanthophora nayadiformis</i> (Delile) Papenfuss	Liopetri	Cirik et al. 2000
<i>Acrodiscus vidovichii</i> (Meneghini) Zanardini	Akamas, Cavo Greco	
<i>Acrochaetium mediterraneum</i> (Levring) Athanasiadis		Cirik et al. 2000
= <i>Audouinella mediterranea</i> (Levring) G. Furnari		
<i>Acrochaetium microscopicum</i> (Nägeli ex Kützinger) Nägeli	Karpasia	Taşkın et al. 2013
<i>Acrochaetium savianum</i> (Meneghini) Nägeli		Taşkın et al. 2013
<i>Acrochaetium secundatum</i> (Lyngbye) Nägeli		Taşkın et al. 2013
<i>Acrochaetium virgatulum</i> (Harvey) Batters		Taşkın et al. 2013
<i>Aglaothamnion bipinnatum</i> (P.L. Crouan et H.M. Crouan)		Taşkın et al. 2013
Feldmann et G. Feldmann		
<i>Alsidium corallinum</i> C. Agardh		Cirik et al. 2000
<i>Alsidium helminthochorton</i> (Schwendemann) Kützinger	Liopetri	
<i>Amphiroa beauvoisii</i> J.V. Lamouroux		Cirik et al. 2000, Taşkın et al. 2013
<i>Amphiroa cryptarthrodia</i> Zanardini		Taşkın et al. 2013
<i>Amphiroa rigida</i> J.V. Lamouroux	Famagusta, Liopetri	Cirik et al. 2000, Taşkın et al. 2013
<i>Anotrichium tenue</i> (C. Agardh) Nägeli	Famagusta, Karpasia, Liopetri	Cirik et al. 2000, Taşkın et al. 2013
<i>Antithamnion cruciatum</i> (C. Agardh) Nägeli		Taşkın et al. 2013
^a <i>Asparagopsis armata</i> Harvey		Cirik et al. 2000, Taşkın et al. 2013
^b <i>Bangia fuscopurpurea</i> (Dillwyn) Lyngbye		Taşkın et al. 2013
<i>Boergesenella fruticulosa</i> (Wulfen) Kylin		Taşkın et al. 2013
<i>Botryocladia botryoides</i> (Wulfen) Feldmann		Cirik et al. 2000, Taşkın et al. 2013
^a <i>Botryocladia madagascariensis</i> G. Feldmann		Taşkın et al. 2013
<i>Callithamnion corymbosum</i> (J.E. Smith) Lyngbye	Cavo Greco, Famagusta, Liopetri	Taşkın et al. 2013
<i>Calosiphonia vermicularis</i> (J. Agardh) F. Schmitz		Cirik et al. 2000
<i>Caulacanthus ustulatus</i> (Mertens ex Turner) Kützinger		Taşkın et al. 2013
<i>Ceramium ciliatum</i> (J. Ellis) Ducluzeau var. <i>ciliatum</i>	Liopetri	Cirik et al. 2000, Taşkın et al. 2013
<i>Ceramium ciliatum</i> var. <i>robustum</i> (J. Agardh) Mazoyer		Cirik et al. 2000, Taşkın et al. 2013
<i>Ceramium cimbricum</i> H.E. Petersen		Cirik et al. 2000
= <i>Ceramium fastigiatum</i> Harvey nom. illeg.		
<i>Ceramium circinatum</i> (Kützinger) J. Agardh		Taşkın et al. 2013
<i>Ceramium codii</i> (H. Richards) Mazoyer		Taşkın et al. 2013
<i>Ceramium diaphanum</i> (Lightfoot) Roth	Cavo Greco, Famagusta, Liopetri	Cirik et al. 2000, Taşkın et al. 2013
= <i>Ceramium tenuissimum</i> (Roth) Areschoug nom. illeg.		
<i>Ceramium gaditanum</i> (Clemente) J. Cremades var. <i>mediterraneum</i> (F. Debray) J. Cremades		Taşkın et al. 2013
<i>Ceramium giacconeii</i> Cormaci et G. Furnari		Taşkın et al. 2013
<i>Ceramium secundatum</i> Lyngbye		Taşkın et al. 2013
<i>Ceramium siliquosum</i> (Kützinger) Maggs et Hommersand var. <i>lophophorum</i> (G. Feldman-Mazoyer) Serio		Taşkın et al. 2013
<i>Ceramium siliquosum</i> var. <i>zostericola</i> (G. Feldmann-Mazoyer) G. Furnari	Liopetri	
<i>Ceramium tenerrimum</i> (G. Martens) Okamura var. <i>tenerrimum</i>	Liopetri	
<i>Ceramium tenerrimum</i> var. <i>brevizonatum</i> (H.E. Petersen) Mazoyer		Cirik et al. 2000, Taşkın et al. 2013
<i>Champia parvula</i> (C. Agardh) Harvey	Akamas, Liopetri	Cirik et al. 2000, Taşkın et al. 2013
<i>Chondracanthus acicularis</i> (Roth) Fredericq		Cirik et al. 2000, Taşkın et al. 2013
= <i>Gigartina acicularis</i> (Roth) J.V. Lamouroux		
<i>Chondria capillaris</i> (Hudson) M.J. Wynne	Cavo Greco, Liopetri	Cirik et al. 2000, Taşkın et al. 2013
= <i>Chondria tenuissima</i> (Withering) C. Agardh		
<i>Chondria coerulescens</i> (J. Agardh) Falkenberg		Katsanevakis et al. 2009
<i>Chondria dasyphylla</i> (Woodward) C. Agardh		Taşkın et al. 2013
<i>Chondria mairei</i> G. Feldmann		Taşkın et al. 2013
<i>Choreonema thuretii</i> (Bornet) F. Schmitz		Taşkın et al. 2013

(Table 1 Continued)

Rhodophyta	Present study	Previous references
<i>Chroodactylon ornatum</i> (C. Agardh) Basson	Akamas, Liopetri	Cirik et al. 2000, Taşkın et al. 2013
<i>Chylocladia verticillata</i> (Lightfoot) Bliding	Akamas, Famagusta, Karpasia	Cirik et al. 2000, Taşkın et al. 2013
<i>Colaonema daviesii</i> (Dillwyn) Stegenga	Famagusta, Karpasia, Kyrenia	Taşkın et al. 2013
<i>Colaonema endophyticum</i> (Batters) J.T. Harper et G.W. Saunders		Taşkın et al. 2013
<i>Corallina officinalis</i> Linnaeus		Taşkın et al. 2013
<i>Corallophila cinnabarina</i> (Grateloup ex Bory de Saint-Vincent) R.E. Norris		Taşkın et al. 2013
<i>Crouania attenuata</i> (C. Agardh) J. Agardh		Cirik et al. 2000, Taşkın et al. 2013
<i>Dasya corymbifera</i> J. Agardh		Taşkın et al. 2013
<i>Dasya ocellata</i> (Grateloup) Harvey	Famagusta	Taşkın et al. 2013
<i>Dasya rigidula</i> (Kützinger) Ardissonne	Famagusta, Karpasia, Kyrenia, Liopetri	Cirik et al. 2000, Taşkın et al. 2013
<i>Digenea simplex</i> (Wulfen) C. Agardh	Akamas	Cirik et al. 2000, Taşkın et al. 2013
<i>Dipterosiphonia rigens</i> (Shousboe ex C. Agardh) Falkenberg	Akamas, Liopetri	Taşkın et al. 2013
<i>Ellisolandia elongata</i> (J. Ellis et Solander) K. Hind et G.W. Saunders	Famagusta, Karpasia, Kyrenia, Liopetri, Varosha	Taşkın et al. 2013
= <i>Corallina elongata</i> Ellis et Solander		
<i>Erythrocytis montagnei</i> (Derbès et Solier) P.C. Silva		Taşkın et al. 2013
<i>Erythrotrichia carnea</i> (Dillwyn) J. Agardh	Famagusta, Karpasia, Kyrenia, Liopetri	Cirik et al. 2000, Taşkın et al. 2013
<i>Erythrotrichia reflexa</i> (P.L. Crouan et H.M. Crouan) Thuret ex De Toni		Taşkın et al. 2013
<i>Erythrotrichia rosea</i> P.J.L. Dangeard nom. inval.		Taşkın et al. 2013
<i>Eupogodon planus</i> (C. Agardh) Kützinger		Taşkın et al. 2013
<i>Ganonema farinosum</i> (J.V. Lamouroux) K.C. Fan et Yung C. Wang	Famagusta, Karpasia, Kyrenia, Liopetri	Cirik et al. 2000, Taşkın et al. 2013
= <i>Liagora farinosa</i> J.V. Lamouroux		
Gastroclonium clavatum (Roth) Ardissonne	Liopetri	
<i>Gastroclonium reflexum</i> (Chauvin) Kützinger		Taşkın et al. 2013
‘ <i>Gayliella mazoyerae</i> T.O. Cho, Fredericq et Hommersand	Akamas, Liopetri	Cirik et al. 2000, Taşkın et al. 2013
<i>Gelidiella lubrica</i> (Kützinger) Feldmann et G. Hamel	Liopetri, Zenobia	Cirik et al. 2000, Taşkın et al. 2013
<i>Gelidiella nigrescens</i> (J. Feldmann) Feldmann et G. Hamel		Taşkın et al. 2013
<i>Gelidiella ramellosa</i> (Kützinger) J. Feldmann et G. Hamel		Taşkın et al. 2013
<i>Gelidium corneum</i> (Hudson) J.V. Lamouroux		Taşkın et al. 2013
<i>Gelidium pusillum</i> (Stackhouse) Le Jolis	Liopetri	Cirik et al. 2000
Gelidium serra (S.G. Gmelin) E. Taşkın et W.J. Wynne	Cavo Greco	
<i>Gelidium spathulatum</i> (Kützinger) Bornet		Taşkın et al. 2013
<i>Griffithsia schousboei</i> Montagne		Taşkın et al. 2013
<i>Gymnogongrus griffithsiae</i> (Turner) Martius		Taşkın et al. 2013
<i>Halopithys incurva</i> (Hudson) Batters	Akamas, Karpasia	Taşkın et al. 2013
<i>Halymenia floresii</i> (Clemente) C. Agardh		Cirik et al. 2000
<i>Halymenia latifolia</i> P.L. Crouan et H.M. Crouan ex Kützinger		Taşkın et al. 2013
<i>Haraldiophyllum bonnemaisonii</i> (Kyllin) A.D. Zinova		Taşkın et al. 2013
<i>Herposiphonia secunda</i> (C. Agardh) Ambronn	Akamas, Liopetri	Cirik et al. 2000, Taşkın et al. 2013
<i>Herposiphonia tenella</i> (C. Agardh) Ambronn	Liopetri	Taşkın et al. 2013
<i>Heterosiphonia crispella</i> (C. Agardh) M.J. Wynne	Akamas, Famagusta, Karpasia	Cirik et al. 2000, Taşkın et al. 2013
= <i>Heterosiphonia wurdemannii</i> (J. Bailey ex Harvey) Falkenberg		
<i>Hydrolithon cruciatum</i> (Bressan) Y.M. Chamberlain		Taşkın et al. 2013
<i>Hydrolithon farinosum</i> (J.V. Lamouroux) D. Penrose et Y.M. Chamberlain var. <i>farinosum</i>	Akamas, Liopetri	Cirik et al. 2000, Taşkın et al. 2013
= <i>Fosliella farinosa</i> (J.V. Lamouroux) M.A. Howe		
<i>Hydrolithon farinosum</i> var. <i>chalicodictyum</i> (W.R. Taylor) D. Serio		Cirik et al. 2000

(Table 1 Continued)

Rhodophyta	Present study	Previous references
= <i>Fosliella farinosa</i> var. <i>chalicodictya</i> W.R. Taylor		
<i>Hypnea musciformis</i> (Wulfen) J.V. Lamouroux	Famagusta, Karpasia, Kyrenia, Liopetri	Argyrou 2000, Cirik et al. 2000, Taşkın et al. 2013
^a <i>Hypnea spinella</i> (C. Agardh) Kützting	Liopetri	
<i>Hypoglossum hypoglossoides</i> (Stackhouse) F.S. Collins et Hervey		Taşkın et al. 2013
<i>Irvinea boergesenii</i> (J. Feldmann) R.J. Wilkes, L.M. McIvor et Guiry	Cavo Greco	Taşkın et al. 2013
<i>Jania adhaerens</i> J.V. Lamouroux		Cirik et al. 2000
<i>Jania longifurca</i> Zanardini		Taşkın et al. 2013
<i>Jania rubens</i> (Linnaeus) J.V. Lamouroux	Akamas, Famagusta, Karpasia, Kyrenia, Liopetri, Varosha	Russo 1997, Cirik et al. 2000, Stavrou and Orfanidis 2012, Taşkın et al. 2013
<i>Jania squamata</i> (Linnaeus) J.H. Kim, Guiry et H.-G. Choi		Cirik et al. 2000
= <i>Haliptilon squamatum</i> (Linnaeus) Johansen, L. Irvine et Webster		
<i>Jania virgata</i> (Zanardini) Montagne	Cavo Greco, Liopetri	Taşkın et al. 2013
= <i>Haliptilon attenuatum</i> (Kützting) Garbary et H.W. Johansen		
<i>Laurencia microcladia</i> Kützting	Akamas, Karpasia, Liopetri	Cirik et al. 2000, Taşkın et al. 2013
= <i>Laurencia obtusa</i> var. <i>gracilis</i> (C. Agardh) Zanardini		
^d <i>Laurencia minuta</i> Vandermeulen, Garbary et Guiry ssp. <i>scammaccae</i> G. Furnari et Cormaci		Taşkın et al. 2013
<i>Laurencia obtusa</i> (Hudson) J.V. Lamouroux	Famagusta, Karpasia, Kyrenia, Liopetri	Russo 1997, Argyrou 2000, Cirik et al. 2000, Stavrou and Orfanidis 2012, Taşkın et al. 2013
<i>Laurencia pyramidalis</i> Bory de Saint-Vincent ex Kützting		Taşkın et al. 2013
<i>Lejolisia mediterranea</i> Bornet	Liopetri	
<i>Liagora viscida</i> (Forsskål) C. Agardh		Cirik et al. 2000
<i>Lithophyllum corallinae</i> (P.L. Crouan et H.M. Crouan) Heydrich		Taşkın et al. 2013
<i>Lithophyllum cystoseirae</i> (Hauck) Heydrich		Cirik et al. 2000, Taşkın et al. 2013
= <i>Titanoderma cystoseirae</i> (Hauck) Woelkerling, Y.M. Chamberlain et P.C. Silva		
<i>Lithophyllum incrustans</i> R.A. Philippi		Cirik et al. 2000
<i>Lithophyllum pustulatum</i> (J.V. Lamouroux) Foslie		Cirik et al. 2000
= <i>Titanoderma pustulatum</i> (J.V. Lamouroux) Nägeli		
<i>Lithophyllum stictaeforme</i> (J.E. Areschoug) Hauck	Akamas	Cirik et al. 2000, Taşkın et al. 2013
<i>Lithothamnion corallioides</i> (P.L. Crouan et H.M. Crouan) P.L. Crouan et H.M. Crouan	Akamas	
<i>Lithothamnion philippii</i> Foslie		Taşkın et al. 2013
<i>Lomentaria chylocradiella</i> Funk		Taşkın et al. 2013
<i>Lomentaria clavellosa</i> (Lightfoot ex Turner) Gaillon		Cirik et al. 2000, Taşkın et al. 2013
^a <i>Lophocladia lallemandii</i> (Montagne) F. Schmitz	Akamas	Cirik et al. 2000
<i>Lophosiphonia cristata</i> Falkenberg	Liopetri	Cirik et al. 2000, Taşkın et al. 2013
<i>Lophosiphonia obscura</i> (C. Agardh) Falkenberg	Famagusta, Kyrenia, Liopetri	Cirik et al. 2000, Taşkın et al. 2013
<i>Lophosiphonia reptabunda</i> (Suhr) Kylin		Cirik et al. 2000
<i>Melobesia membranacea</i> (Esper) J.V. Lamouroux	Liopetri	Cirik et al. 2000, Taşkın et al. 2013
<i>Meredithia microphylla</i> (J. Agardh) J. Agardh		Taşkın et al. 2013
<i>Mesophyllum lichenoides</i> (J. Ellis) Me. Lemoine		Taşkın et al. 2013
<i>Neogoniolithon brassica-florida</i> (Harvey) Setchell et L.R. Mason		Taşkın et al. 2013
<i>Neogoniolithon mamillosum</i> (Hauck) Setchell et L.R. Mason		Taşkın et al. 2013
<i>Neosiphonia elongella</i> (Harvey) M.S. Kim et I.K. Lee		Taşkın et al. 2013
<i>Neosiphonia sphaerocarpa</i> (Børgesen) M.S. Kim et I.K. Lee		Katsanevakis et al. 2009
<i>Neurocaulon foliosum</i> (Meneghini) Zanardini	Akamas	
<i>Nitophyllum punctatum</i> (Stackhouse) Greville	Famagusta, Karpasia	Taşkın et al. 2013
<i>Osmundaria volubilis</i> (Linnaeus) R.E. Norris	Akamas	Cirik et al. 2000

(Table 1 Continued)

Rhodophyta	Present study	Previous references
= <i>Vidalia volubilis</i> (Linnaeus) J. Agardh		
<i>Osmundea pinnatifida</i> (Hudson) Stackhouse	Akamas	
<i>Palisada perforata</i> (Bory de Saint-Vincent) K.W. Nam	Famagusta, Karpasia, Kyrenia, Liopetri	Russo 1997, Argyrou 2000, Cirik et al. 2000, Taşkın et al. 2013
= <i>Laurencia papillosa</i> (C. Agardh) Greville		Cirik et al. 2000
<i>Palisada thuyoides</i> (Kützinger) Cassano, Senties, Gil-Rodríguez et M.T. Fujii		
= <i>Laurencia paniculata</i> (C. Agardh) J. Agardh <i>nom. illeg.</i>		
<i>Parviphyicus pannosus</i> (Feldmann) G. Furnari		Cirik et al. 2000, Taşkın et al. 2013
<i>Peyssonnelia bornetii</i> Boudouresque et Denizot		Cirik et al. 2000
<i>Peyssonnelia rosa-marina</i> Boudouresque et Denizot		Taşkın et al. 2013
<i>Peyssonnelia rubra</i> (Greville) J. Agardh	Cavo Greco	Taşkın et al. 2013
<i>Peyssonnelia squamaria</i> (S.G. Gmelin) Decaisne	Akamas, Karpasia	Cirik et al. 2000, Taşkın et al. 2013
<i>Peyssonnelia stoechas</i> Boudouresque et Denizot		Taşkın et al. 2013
<i>Platoma cyclocolpum</i> (Montagne) F. Schmitz		Cirik et al. 2000
<i>Pleonosporium borneri</i> (Smith) Nägeli		Cirik et al. 2000
<i>Pneophyllum fragile</i> Kützinger	Liopetri	Cirik et al. 2000, Taşkın et al. 2013
<i>Polysiphonia atlantica</i> Kapraun et J.N. Norris		Taşkın et al. 2008, 2013
<i>Polysiphonia atra</i> Zanardini		Taşkın et al. 2013
<i>Polysiphonia breviarticulata</i> (C. Agardh) Zanardini		Taşkın et al. 2013
<i>Polysiphonia denudata</i> (Dillwyn) Greville ex Harvey		Cirik et al. 2000, Taşkın et al. 2013
= <i>Polysiphonia variegata</i> (C. Agardh) Zanardini		
<i>Polysiphonia deusta</i> (Roth) Sprengel		Taşkın et al. 2013
<i>Polysiphonia elongata</i> (Hudson) Sprengel	Famagusta	Taşkın et al. 2013
<i>Polysiphonia fucoides</i> (Hudson) Greville		Taşkın et al. 2008, 2013
<i>Polysiphonia opaca</i> (C. Agardh) Moris et De Notaris	Akamas, Famagusta, Liopetri	Taşkın et al. 2013
<i>Polysiphonia scopulorum</i> Harvey	Liopetri	Cirik et al. 2000
<i>Polysiphonia tenerima</i> Kützinger		Cirik et al. 2000, Taşkın et al. 2013
<i>Polysiphonia tripinnata</i> J. Agardh	Liopetri	Cirik et al. 2000
<i>Porphyra umbilicalis</i> Kützinger		Taşkın et al. 2013
<i>Pterocladia capillacea</i> (S.G. Gmelin) Santelices et Hommersand	Famagusta, Kyrenia	Cirik et al. 2000
= <i>Pterocladia capillacea</i> (Gmelin) Bornet		
<i>Pterocladia melanoidea</i> (Schousboe ex Bornet) Santelices et Hommersand		Cirik et al. 2000
= <i>Gelidium melanoideum</i> Schousboe ex Bornet		
<i>Ptilothamnion pluma</i> (Dillwyn) Thuret		Cirik et al. 2000, Taşkın et al. 2013
<i>Pyropia leucosticta</i> (Thuret) Neefus et J. Brodie		Taşkın et al. 2013
<i>Radicilingua thysanorhizans</i> (Holmes) Papenfuss		Cirik et al. 2000
<i>Rodriguezella strafforelloii</i> F. Schmitz ex J.J. Rodriguez var. <i>crassicaulis</i> Ercegovič		Cirik et al. 2000
<i>Rytidhlaea tinctoria</i> (Clemente) C. Agardh	Akamas, Karpasia, Kyrenia, Liopetri	Cirik et al. 2000, Taşkın et al. 2013
<i>Sahlingia subintegra</i> (Rosenvinge) Kornmann		Taşkın et al. 2013
<i>Seirospora giraudyi</i> (Kützinger) De Toni		Cirik et al. 2000
<i>Spermothamnion flabellatum</i> Bornet		Cirik et al. 2000
<i>Spermothamnion repens</i> (Dillwyn) Rosenvinge		Taşkın et al. 2013
<i>Sphondylothamnion multifidum</i> (Hudson) Nägeli	Akamas	
<i>Spongites fruticosus</i> Kützinger	Cavo Greco, Zenobia	
<i>Spyridia filamentosa</i> (Wulfen) Harvey	Famagusta, Kyrenia, Liopetri	Cirik et al. 2000, Taşkın et al. 2013
<i>Stylonema alsidii</i> (Zanardini) K.M. Drew	Famagusta, Karpasia, Kyrenia, Liopetri	Cirik et al. 2000, Taşkın et al. 2013
<i>Stylonema cornu-cervi</i> Reinsch	Famagusta, Liopetri	Taşkın et al. 2013
<i>Taenioma nanum</i> (Kützinger) Papenfuss		Taşkın et al. 2013
<i>Tenarea tortuosa</i> (Esper) Me. Lemoine		Cirik et al. 2000

(Table 1 Continued)

Rhodophyta	Present study	Previous references
= <i>Tenarea undulosa</i> Bory		
<i>Titanoderma trochanter</i> (Bory de Saint-Vincent) Benhissoune, Boudouresque, Perret-Boudouresque et Verlaque		Taşkın et al. 2013
<i>Tricleocarpa cylindrica</i> (J. Ellis et Solander) Huisman et Borowitzka		Cirik et al. 2000
= <i>Galaxaura cylindrica</i> (J. Ellis et Solander) J.V. Lamouroux		
<i>Tricleocarpa fragilis</i> (Linnaeus) Huisman et R.A. Townsend		Cirik et al. 2000
= <i>Galaxaura oblongata</i> (J. Ellis et Solander) J.V. Lamouroux		
^a <i>Womersleyella setacea</i> (Hollenberg) R.E. Norris		Taşkın et al. 2008, 2013
<i>Wrangelia penicillata</i> (C. Agardh) C. Agardh	Cavo Greco	Cirik et al. 2000, Taşkın et al. 2013
<i>Wurdemannia miniata</i> (Sprengel) Feldmann et G. Hamel	Liopetri	

Frequently used synonyms in previous publications are also given. New records for Cyprus are given in bold; alien taxa are marked with ^a;

^bReported by Taşkın et al. (2013) as *Bangia atropurpurea* (Mertens ex Roth) C. Agardh. It should be noted that Müller et al. (2003: 217) propose that *B. atropurpurea* should be re-recognized as a distinct species, separate from *Bangia* populations found in the marine environment, with the latter still recognized as *B. fuscopurpurea* until their complex relationships can be resolved (Guiry and Guiry 2014).

^cThis includes also previously published records of *Ceramium flaccidum* (Kützinger) Ardissonne from Cyprus (Cirik et al. 2000), as Mediterranean records of the latter species have to be considered a misidentification of *G. mazoyerae* (Cho et al. 2008).

^dReported by Taşkın et al. (2013) as *Laurencia minuta* Vandermeulen, Garbary et Guiry.

total number of seaweed species recorded in Cyprus to 313 taxa (53 green, 90 brown, and 170 red algae – see Table 1).

Taxa pending confirmation of their presence

Aglaothamnion pseudobyssoides (P.L. Crouan et H.M. Crouan) Halos

The single record by Taşkın et al. (2013), which lacks description or illustration, should be confirmed as this species is not known to occur elsewhere in the Mediterranean Sea.

Botryocladia skottsbergii (Børgesen) Levring

In the absence of a detailed description, the single record by Taşkın et al. (2013) should be confirmed, as this species is not known to occur in the Mediterranean Sea.

Centroceras clavulatum (C. Agardh) Montagne

According to Won et al. (2009), Mediterranean records of *Centroceras clavulatum* are misidentifications of *Centroceras gasparrinii* (Meneghini) Kützinger and/or *Centroceras micracanthum* Kützinger, while *Centroceras clavulatum* is restricted to the Pacific Ocean. Consequently,

the Cypriot records of *Centroceras clavulatum* by Cirik et al. (2000) and Taşkın et al. (2013) most probably belong to another taxon and require re-examination.

Ceramium cupulatum Womersley

This species does not occur in the Mediterranean Sea and the single record by Taşkın et al. (2013) from Cyprus should be confirmed as neither description nor illustration was provided.

Cladophora patentiramea (Montagne) Kützinger

This green alga was reported by Argyrou (2000) from southern Cyprus based on a doubtful identification. However, according to Hoek et al. (2000) *Cladophora patentiramea* could represent calm-water plants of *Cladophora coelothrix*, while according to Kraft (2007: 85) *C. patentiramea* should belong to a highly variable species complex with imprecise taxonomic distinctions.

Codium tomentosum Stackhouse

This species does not seem to occur in the Eastern Mediterranean Sea (Furnari et al. 1999), and we agree with Athanasiadis (1987) that numerous records of *Codium tomentosum* are probably misidentifications of *Codium*

vermilara (Olivi) Delle Chiaje. Therefore, the single Cypriot record by Cirik et al. (2000) should be treated as debatable, pending new documented records.

***Colpomenia peregrina* Sauvageau**

A small thallus was encountered during our samplings at the upper rocky sublittoral zone in Cavo Greco in 2012. Owing to the lack of reproductive structures we prefer to cite our specimen with reservations.

***Gayliella taylorii* (E.Y. Dawson) T.O. Cho et S.M. Boo**

Taking into account the revision of the newly erected genus *Gayliella* T. O. Cho, L. McLvor et S. M. Boo (Cho et al. 2008), the single Cypriot record by Cirik et al. (2000); as *Ceramium taylorii* E.Y. Dawson) should be re-examined.

***Polysiphonia kampsaxii* Børgesen**

The single record by Cirik et al. (2000) should be confirmed as the occurrence of this species in the Mediterranean is doubtful (Gómez Garreta et al. 2001).

***Ulva lactuca* Linnaeus**

Despite numerous Mediterranean records, including the Cypriot ones (Russo 1997, Taşkın et al. 2013), its occurrence in the Mediterranean Sea needs to be confirmed (Gallardo et al. 1993). It should be noted that the molecular identity of the holotype does not match that of N. European specimens that have since been assigned to this binomial (Butler 2007). Molecular analyses by Wolf et al. (2012) mention that old specimens from the Adriatic Sea should be assigned to *Ulva rigida*.

Taxa excludenda

***Anadyomene rhizoidifera* A.B. Joly et S. Pereira**

In the absence of description and illustrations, the record by Cirik et al. (2000) should be excluded from the Cypriot flora, as this species does not occur elsewhere in the Mediterranean Sea.

***Griffithsia devoniensis* Harvey**

The single record by Cirik et al. (2000) should be excluded as the occurrence of this North Atlantic species in the Mediterranean Sea is rather doubtful (Gómez Garreta et al. 2001).

***Uronema confervicola* Lagerheim**

Reported by Cirik et al. (2000), this freshwater green alga should be excluded from the marine flora of Cyprus.

Taxa inquirenda

***Caulerpa racemosa* var. *turbinata* (J. Agardh) Eubank – *uvifera* (C. Agardh) J. Agardh**

Caulerpa racemosa var. *turbinata* (J. Agardh) Eubank is currently considered as a synonym of *Caulerpa chemnitzia* (Esper) J.V. Lamouroux, while *C. racemosa* var. *uvifera* (C. Agardh) J. Agardh is currently considered as a synonym of *C. racemosa* (Forsskål) J. Agardh (Belton et al. 2014). Thus, we state that the taxon *C. racemosa* var. *turbinata* (J. Agardh) Eubank – *uvifera* (C. Agardh) J. Agardh, reported from Cyprus by Verlaque et al. (2000), should be considered as *taxon inquirendum*.

***Laurencia obtusa* var. *laxa* (Turner) Ardissonne and *Laurencia papillosa* var. *subsecunda* Kützinger**

Both reported by Cirik et al. (2000) but without description and illustrations, are both uncertain records, while their taxonomic identity should be clarified.

Alien species

In total, nine marine benthic algae of Cyprus are currently considered as alien species, including three green algae, one brown alga, and five red algae (Table 1). Among them, *Hypnea spinella* is reported for the first time from Cyprus.

Conclusions

Cirik et al. (2000) reported 135 taxa of marine seaweeds at specific and infraspecific level from Cyprus northern

coasts. Later on, Taşkın et al. (2013) cited 242 seaweeds, again from the northern coasts of Cyprus. The 30 new taxa reported in the present study, combined with the aggregation and revision of all literature records concerning the seaweeds of Cyprus as a whole, raise the total number of Cyprus seaweeds recorded to 313 taxa (53 green, 90 brown, and 170 red algae). Still, there is no doubt that this number is an underestimate, as most parts of the island and particularly the deeper parts of the euphotic benthos remain totally unexplored. Also, nothing is known about fungal, oomycete, and other eukaryotic pathogens of seaweeds in Cyprus waters, despite their likely considerable ecological impact – a recent survey in the Aegean Sea (the area closest to Cyprus where such work has been conducted) has resulted in records of *Eurychasma dicksonii* (E.P. Wright) Magnus, *Anisulpidium sphacellarum* (Kny) Karling and *Anisulpidium ectocarpii* Karling in a region previously

totally unexplored in this respect (Strittmatter et al. 2013). Therefore, additional surveys are crucial for further exploration of the marine benthic flora of Cyprus.

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