

## MARINE FLORA (ALGAE AND SEAGRASSES) IN THE REFERENCE COLLECTION OF THE PHUKET MARINE BIOLOGICAL CENTER, THAILAND

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### ABSTRACT

A total of 180 algal and 36 seagrass records, exclusively collected from the Andaman Sea area off the coast of Thailand, are deposited in the Reference Collection of the Phuket Marine Biological Center (PMBC). The collection consists of 113 algal species representing 37 families and 10 seagrass species representing two families. Among these is included the paratype of the green alga *Pseudostruvea siamensis* Egerod, 1975 [= *Struveopsis siamensis* (Egerod) Silva ex Silva, Basson and Moe, 1996]. A new combination is proposed: *Mesophyllum erubescens* var. *subflabellata* (Foslie) Aungtonya and L.M. Liao, comb. nov. Names applied to the species found in the collection have been updated following current usage. Each record is provided with the PMBC accession number and locality data.

### INTRODUCTION

The role of algae and seagrasses in the economic life of humans and ecosystems is relatively well known. The use of algae as food, as raw materials in the production of industrial phycocolloids and as natural feeds for economically important aquaculture species has received much attention in Thailand and in many other countries around the world. Seagrasses serve as food for marine herbivores *e.g.*, sea urchins, fish, green turtles, sirenians (manatees and dugongs) and other grazers (Valentine and Heck, 1999). Despite the above, however, interest in the study of the marine flora of Thailand has been limited.

Algae and seagrass specimens deposited in the Reference Collection of the Phuket Marine Biological Center (PMBC) constitute a small portion of the whole marine biodiversity collection from Thai waters, and only represent samples collected from localities bordering the Andaman Sea. Algae were mainly made available by the collecting efforts of foreign researchers who visited PMBC during 1971–76, 1986 and 1997 while seagrasses were collected during 1975–76,

1989 and 1996 by PMBC scientists. Taxonomic studies of seagrass and algal species found in the Andaman Sea were made by Christensen and Wium-Andersen (1977) as a result of an expedition to the Surin Islands. Egerod (1974, 1975) published taxonomic accounts of the marine algae collected during the Fifth Thai-Danish Expedition. In both these studies new records were documented while a new genus and a new species were collected during the latter survey. All specimens or duplicates are deposited in the PMBC collection.

A preliminary checklist of the marine flora deposited in the Reference Collection of the PMBC was published by Nateewathana *et al.* (1981) ten years after the establishment of the PMBC. The list included 83 algal species representing 32 families and three seagrass species representing two families. The algal list was later included in the extensive checklist of Thai marine algae compiled by Lewmanomont *et al.* (1995). Some of the earlier records of benthic marine algae were documented by Egerod (1971) and Velasquez and Lewmanomont (1975). At present, the marine flora of Thailand accounts for about 333 algal species and 12 seagrass species (Lewmanomont

*et al.*, 1995, Lewmanomont and Ogawa, 1995). Papers on seagrasses have been published by Chansang and Poovachiranon (1994) and Poovachiranon and Chansang (1994).

The purpose of this study is to provide a revised and updated list of identified algae and seagrasses in the Reference Collection and to discuss the status of species diversity and distribution based on collections at PMBC. These materials are useful as reference sources for the study of the marine flora in the eastern Andaman Sea and the South East Asian region.

#### MATERIALS AND METHODS

Information on algal and seagrass specimens deposited in the PMBC Reference Collection is searched and retrieved from the electronic database maintained at PMBC. PMBC accession numbers and collection localities are collated. Database entries without voucher specimens are denoted as missing records. All locality names are verified with locality lists of Thailand and various gazetteers except only one is a vernacular name, *i.e.*, Susan Hoi (Krabi Province). Some unverifiable localities are indicated following the original spellings found on the labels, *i.e.*, Leamka Singha Beach and Ban Taku Beach (both are in Phuket Province). The systematic arrangement of algae follows the scheme of Silva *et al.* (1987, 1996) and Lewmanomont and Ogawa (1995) whereas seagrass classification follows Cook (1996). The table presented here is organized by class, order, family, under each division, and listed alphabetically. We have indicated our comments and identifications in the remarks column. Genera and species under each family are listed alphabetically.

#### RESULTS AND DISCUSSION

A total of 180 algal records and 36 seagrass records, exclusively collected from the Andaman Sea coastal area and offshore islands of Thailand, are deposited in the PMBC Reference Collection (Table 1). The present list consists of 113 algal species representing 37 families and 10 seagrass species representing two families. Among these, 81 species of algae and seagrasses have been listed previously by Lewmanomont *et al.* (1995). A species

of the Division Xanthophyta is listed here for the first time.

All marine flora in the PMBC Reference Collection comprise specimens from the Andaman Sea area, off the coast of Thailand. Algal specimens are recorded from six provinces along the southwest coast of Thailand: Ranong, Phang-nga, Phuket, Krabi, Trang and Satul (Fig. 1). Seagrasses are also recorded in all provinces except Trang and Satul.

Taxonomic studies on the marine flora of the southwest coast of Thailand are still incomplete. Among the 35 localities sampled for marine algae, the Surin Islands (Phang-nga province) yield 40 algal records. This might be attributed to the fact that an expedition to the Islands was conducted by the Siam Society in 1977 (Christensen and Wium-Andersen, 1977). Furthermore, collections in the Surin Islands were also made using scuba diving down to a depth of 30 m whereas in other localities the collection was done mainly in shallower waters.

Seagrass collections consist of few records. Seagrass records are mainly from Phang-nga province. Among the eight seagrass localities, the highest number of nine records was documented for Yao Yai Island (Phang-nga province) followed by five records for Tang Khen Bay (Phuket province), with far fewer records in the remaining localities. However, the distribution and species composition of seagrass beds along the Andaman Sea coast of Thailand have been well documented by Chansang and Poovachiranon (1994) and Poovachiranon and Chansang (1994). Ten species of seagrasses were found in these surveys from the 25 localities sampled. Unfortunately, no seagrass voucher specimens were deposited by these authors in the PMBC Reference Collection.

To date, most of the taxonomic works of marine flora in Thailand have been done by foreign scientists. More effort should be paid by Thai scientist. In 1997, one of the authors (LML) visited the PMBC Reference Collection and attempted a verification study of the various algal and seagrass records thereat. Additional collections were also made by him in some islands fronting the PMBC which resulted to more new records (for example, Liao and Aungtonya, 2000). These specimens are deposited in the PMBC Reference Collection where they were examined more critically.

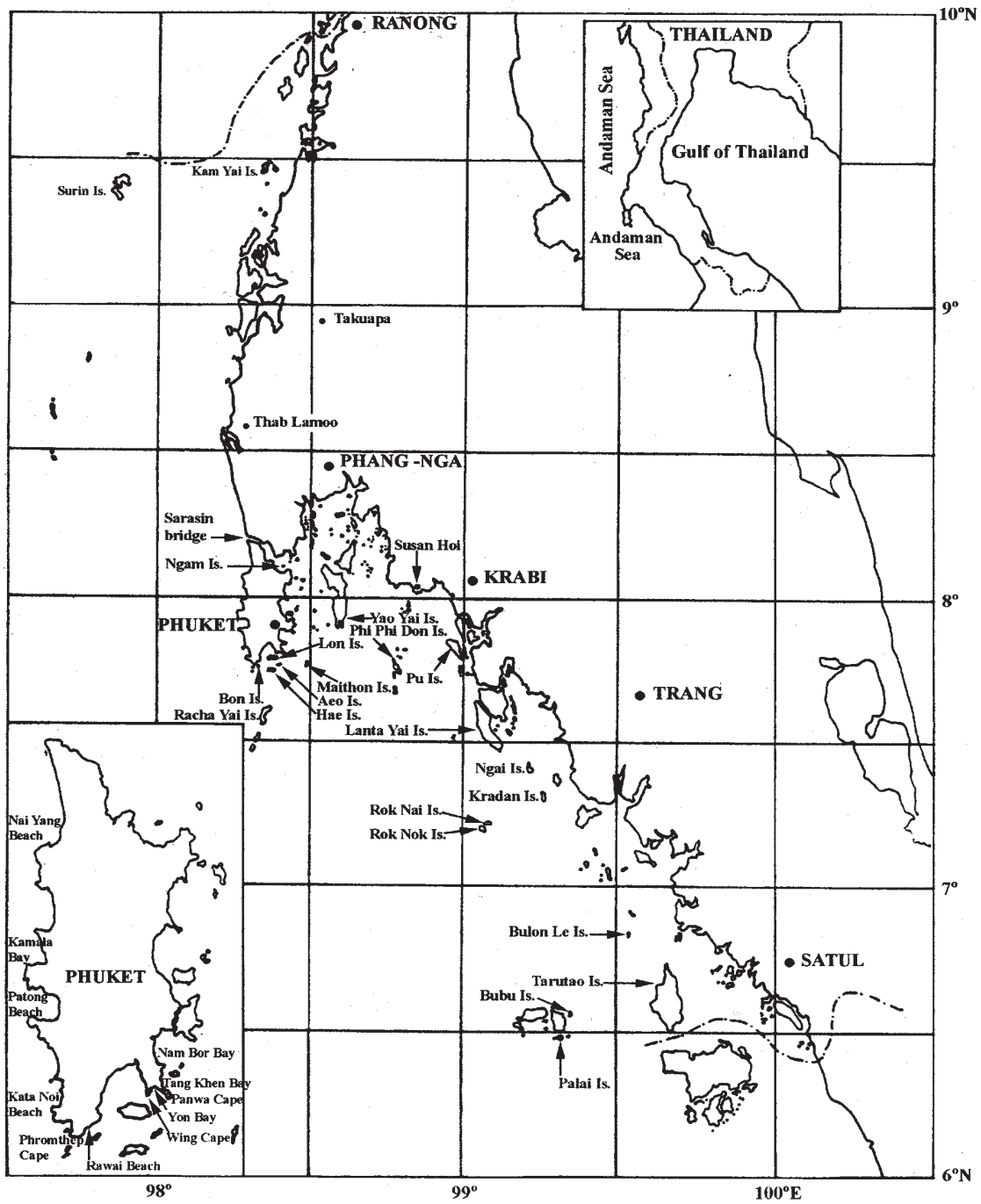


Figure 1 Collecting sites of marine flora in Phuket and southwest coast of Thailand.

**Table 1** The list of flora lots in the Reference Collection database of the Phuket Marine Biological Center, Thailand. Families are listed in alphabetical order. AI = Aeo Island, Phuket; BIP = Bon Island, Phuket; BIS = Bubu Island, Satui; BLI = Bulon Le Island, Satui; BTB = Ban Taku Beach Phuket; HI = Hae Island, Phuket; KB = Kamala Bay, Phuket; KI = Kradan Island, Trang; KNB = Kata Noi Beach, Phuket; KYI = Kam Yai Island, Ranong; LJ = Lon Island, Phuket; LSB = Leamka Singha Beach, Phuket; LYI = Lanta Yai Island, Krabi; MJI = Mai Thon Island, Phuket; NBB = Nam Bor Bay, Phuket; NIP = Ngam Island, Phuket; NIT = Ngai Island, Trang; NYB = Nai Yang Beach, Phuket; PB = Patong Beach, Phuket; PC = Panwa Cape, Phuket; PI = Phuket; PIK = Pu Island, Krabi; PIS = Palai Island, Satui; PPDI = Phi-Phi Don Island, Krabi; PTC = Phromthep Cape, Phuket; RB = Rawai beach, Phuket; RNI = Rok Nai Island, Trang; RNIT = Rok Nok Island, Trang; RYI = Racha Yai Island, Phuket; SB = Sarasin Bridge, Phuket; SH = Susan Hoi, Krabi; SI = Surin Islands, Ranong; TI = Tarutao Island, Satui; TKB = Tang Khen Bay; TL = Thab Lamoo, Phang-nga; TP = Takuapa, Phang-nga; WC = Wing Cape, Phuket; YB = Yon Bay, Phuket; YVI = Yao Yai Island, Phang-nga.

Family	Species	PMBC cat.no.	Locality	Remarks
SEAGRASSES Class MONOCOTYLEDONAE Order HELOBIAE				
<b>CYMODOCEACEAE</b>	<i>Cymodocea rotundata</i> Ehrenberg and Hemprich ex Ascherson, 1871	7259, 14440	YVI	specimen was previously placed under family Potamogetonaceae
		7544	TKB	same as above
		14448	-	same as above
	<i>Cymodocea serrulata</i> (R. Brown) Ascherson and Magnus, 1871	7260, 14447	YVI	same as above
		14443	TKB	same as above
	<i>Halodule pinifolia</i> (Miki) den Hartog, 1964	7257	YVI	same as above
	<i>Halodule uninervis</i> (Forsskål) Ascherson, 1882	125	SB	missing (specimen was previously recorded as <i>Diplanthera uninervis</i> (Forsskål) Ascherson and placed under family Potamogetonaceae by B. Christensen in 1976)
		7255, 7256	YVI	specimen was previously placed under family Potamogetonaceae
	<i>Syringodium isoetifolium</i> (Ascherson) Dandy, 1939	7543, 14445	TKB	same as above
		7258	PIK	same as above
		14446	YVI	same as above
<b>HYDROCHARITACEAE</b>	<i>Enhalus acoroides</i> (Linnaeus f.) Royle, 1840	7249, 7250, 7251, 14439	YVI	
	<i>Halophila beccarii</i> Ascherson, 1871	7246	YVI	
	<i>Halophila decipiens</i> Ostenfeld, 1902	8017	TL	

## Marine flora in the Reference Collection of Phuket Marine Biological Center

Table 1 (continued)

Family	Species	PMBC cat.no.	Locality	Remarks
HYDROCHARITACEAE	<i>Halophila ovalis</i> (R. Brown) Hooker f., 1860	120	SI	
		121	SB	missing
		122	WC	missing
		7247, 7248, 14441	YI	
		7545, 14442	TKB	
		123	SI	
		124	PC	missing
		7252, 7253, 7254	YI	
		7546, 14444	TKB	
			<i>Thalassia hemprichii</i> (Ehrenberg) Ascherson, 1871	
ALGAE	Division CYANOPHYTA Class CYANOPHYCEAE Order NOSTOCALES			
NOSTOCAEAE	<i>Hormothamnium solutum</i> Bornet and Grunow ex Bornet and Flahault, 1888	64	PC	specimen was annotated as <i>H. solutum</i> Bornet and Flahault, 1888 by B. Christensen in 1975
		67	WC	specimen was annotated as <i>L. majuscula</i> Gomont, 1893
OSCILLATORIACEAE	<i>Lyngbya majuscula</i> (Dillwyn) Harvey, 1833	68	SI	same as above
		13770	MTI	same as above
		13771	NIP	same as above
		69	PC	
		65	WC	specimen was annotated as <i>O. margaritifera</i> Gomont, 1893 by B. Christensen in 1975
		13772	NIP	
OSCILLATORIACEAE	<i>Phormidium</i> sp. <i>Symploca hydroides</i> (Harvey) Kützing, 1849	70	SI	specimen was annotated as <i>S. hydroides</i> Gomont, 1893
		13773	NIP	same as above
PSEUDANABAENACEAE	<i>Leibleinia epiphytica</i> (Hieronymus) Anagnostidis and Komarek, 1988	66	WC	specimen was previously recorded as <i>Lyngbya epiphytica</i> (Hieronymus ex Kirchner in Engler and Prantl, 1898 and classified under family Oscillatoriaceae by B. Christensen in 1975

Table 1 (continued)

Family	Species	PMBC cat.no.	Locality	Remarks
PSEUDANABAENACEAE	<i>Calothrix</i> sp.	82	PC	specimen was previously placed under family Rivulariaceae
Division RHODOPHYTA				
Class RHODOPHYCEAE				
Order BANGIALES				
BANGIACEAE	<i>Porphyra</i> sp.	2	SI	
ERYTHROPELTIACEAE	<i>Erythrotrichia parietalis</i> Tanaka, 1952	54	PC	
Order CERAMIALES				
CERAMIAACEAE	<i>Ceramium</i> sp.	13755	NIP	
	<i>Griffithsia</i> sp.	20	YB	
DASYACEAE	<i>Dasya baillouviana</i> (S.G. Gmelin) Montagne, 1841	41	SI	specimen was previously recorded as <i>Dasya pedicillata</i> (C. Agardh) C. Agardh by B. Christensen in 1976
	<i>Dasya pilosa</i> (Weber-van Bosse) Millar, 1990	42	SI	specimen was previously identified as <i>Dasyopsis pilosa</i> Weber-van Bosse, 1923 by B. Christensen and S.W. Andersen, 1976
		43	RB	specimen was previously identified as <i>Dasyopsis pilosa</i> Weber-van Bosse, 1923 by B. Christensen, 1975
		44	PC	same as above
DELESSERIAACEAE	<i>Caloglossa</i> sp.	13757	AI	
RHODOMELACEAE	<i>Acanthophora spicifera</i> (Vahl) Bergesen, 1910	76	SI	
	<i>Acrocystis nana</i> Zanardini, 1872	79	PC	
	<i>Bostrychia</i> sp.	81	NBB	
	<i>Herposiphonia insidiosa</i> (Greville ex J. Agardh) Falkenberg, 1901	80	WC	
	<i>Herposiphonia secunda</i> (C. Agardh) Ambrogn f. <i>tenella</i> (C. Agardh) Wynne, 1985	78	WC	specimen was annotated as <i>H. tenella</i> by B. Christensen in 1975
	<i>Laurencia corymbosa</i> J. Agardh, 1852	77	SI	the name applied to this species is at best tentative pending further studies.



Table 1 (continued)

Family	Species	PMBC cat.no.	Locality	Remarks
RHODOMELACEAE	<i>Laurencia</i> sp.	13777	PC	
	<i>Lophosiphonia</i> sp.	13778	HI	
	<i>Polysiphonia scopulorum</i> Harvey var. <i>villum</i> (J. Agardh) Hollenberg, 1968	74	SI	specimen was previously identified as <i>Lophosiphonia villum</i> (J. Agardh) Setchell and Gardner, 1903 by B. Christensen and S.W. Andersen in 1976
	<i>Polysiphonia</i> sp.	13779	PC	
	<i>Tolyptocladia glomerulata</i> (C. Agardh) Schmitz, 1897	75	SI	
Order CORALLINALES				
CORALLINACEAE	<i>Amphiroa foliacea</i> Lamouroux ex Quoy and Gaimard, 1824	36	SI	
	<i>Jania unguolata</i> (Yendo) Yendo var. <i>brevior</i> (Yendo) Yendo, 1905	39	LSB	specimen was previously recorded as <i>Jania unguolata</i> f. <i>brevior</i> Yendo by B. Christensen in 1974
	<i>Lithophyllum</i> sp.	37	SI	
	<i>Mesophyllum erubescens</i> var. <i>subflabellatum</i> (Foslie) Aungtonya and L.M. Liao, <b>comb. nov.</b>	38	RY1	specimen was previously recorded by B. Christensen in 1975 under the basionym <i>Lithothamnion erubescens</i> var. <i>subflabellatum</i> Foslie 1904: 31-36, pl. III, fig. 23; as <i>Lithothamnion erubescens</i> Foslie is now recognized as <i>Mesophyllum erubescens</i> (Foslie) Lemoine, 1928, it becomes necessary to move the former under the latter, hence this new combination
Order CRYPTONEMIALES				
PEYSSONNELIACEAE	<i>Peyssonnelia rubra</i> (Greville) J. Agardh, 1851	13774	NIP	specimen was previously placed under family Oscillariaceae
Order GELIDIALES				
GELIDIACEAE	<i>Gelidium crinale</i> (Turner) Gaillon, 1828	55	SI	specimen was annotated as <i>G. crinale</i> (Turner) Lamouroux, 1825 by B. Christensen 1976
	<i>Gelidium pusillum</i> (Stackhouse) Le Jolis, 1863	56	PTC	
	<i>Gelidium</i> sp.	13761	NIP	

Table 1 (continued)

Family	Species	PMBC cat.no.	Locality	Remarks
Order GIGARTINALES				
CAULACANTHACEAE	<i>Catenella</i> sp. 1	72	NBB	specimen was placed under family Rhabdoniaceae
	<i>Catenella</i> sp. 2	73	NBB	same as above
HYPNEACEAE	<i>Hypnea musciformis</i> (Wulfen) Lamouroux var. <i>esperi</i> J. Agardh, 1851	60	SI	specimen was identified as <i>Hypnea esperi</i> Bory, 1829 by B. Christensen and S.W. Andersen in 1976
	<i>Hypnea pannosa</i> J. Agardh, 1847	13766	NIP	
	<i>Hypnea</i> sp.	13767	PC	
NEMASTOMATACEAE		61	SI	
	<i>Titanophora pulchra</i> Dawson, 1954	62	SI	
		63	WC	
		13768	PC	
PHYLLOPHORACEAE		13769	HI	
	<i>Ahnfeltiopsis serenei</i> (Dawson) Masuda, 1994	71	LSB	specimen was identified as <i>Gymnogongrus serenei</i> Dawson, 1954 by B. Christensen in 1976
	<i>Ahnfeltiopsis</i> sp.	13775	PC	
Order GRACILARIALES				
GRACILARIACEAE	<i>Gracilaria canaliculata</i> Sonder, 1871	58	-	specimen was previously recorded as <i>Gracilaria crassa</i> Harvey ex J. Agardh, 1876 by B. Christensen in 1975
	<i>Gracilaria eucheumatoides</i> Harvey, 1860	59	PB	
	<i>Gracilaria</i> sp.	57	-	specimen was initially identified as <i>Gracilaria</i> <i>verrucosa</i> (Hudson) Papenfuss, 1950 by B. Christensen in 1975; the name initially applied to this sample is erroneous since the species name is only applicable to materials from western Europe and which was recently renamed as <i>Gracilaria gracilis</i> (Stackhouse) Steentoft, Irvine and Farnham, 1995; the samples from Phuket are sterile which render accurate identification difficult, if not impossible
	<i>Gracilaria vieillardii</i> Silva, 1987	13762	LI	



## Marine flora in the Reference Collection of Phuket Marine Biological Center

Table 1 (continued)

Family	Species	PMBC cat.no.	Locality	Remarks
Order HALYMIENIALES				
ALYMIENACEAE	<i>Halymenia durvillei</i> Bory de Saint-Vincent, 1828	13764, 13765	NIP	specimen was previously placed under family Cryptonemaliaceae
	<i>Halymenia maculata</i> J. Agardh, 1885	40	WC	
Order NEMALIALES				
GALAXAURACEAE	<i>Galaxaura vietnamensis</i> Dawson, 1954	21	SI	specimen was previously placed under family Chaetangiaceae
	<i>Tricleocarpa fragilis</i> (Linnaeus) Huisman and Townsend, 1993	22	LSB	specimen was identified as <i>Galaxaura fastigiata</i> Kjellman and placed under family Chaetangiaceae by B. Christensen in 1975
		23	PB	specimen was identified as <i>Galaxaura fastigiata</i> Kjellman and placed under family Chaetangiaceae by B. Christensen in 1974
Order RHODOGORGONALES				
RHODOGORGONACEAE	<i>Renouzia antillana</i> Fredericq and Norris, 1995	13776	HI	new record for Thailand (see Liao and Aungtonya 2000)
Order RHODYMIENIALES				
CHAMPIACEAE	<i>Champia compressa</i> Harvey, 1838	24	WC	specimen was previously recorded as <i>Champia vieillardii</i> Kürzing, 1866 by B. Christensen in 1975
RHODYMIENACEAE	<i>Ceratodictyon spongiosum</i> Zanardini, 1878	13780	NIP	
	<i>Gelidiopsis intricata</i> (C. Agardh) Vickers, 1905	13781	NIP	
Incertae Sedis				
WURDEMANNIACEAE	<i>Wurdemannia miniata</i> (Sprengel) Feldmann and Hamel, 1934	13790	NIP	
		13791	YB	

Table 1 (continued)

Family	Species	PMBC cat.no.	Locality	Remarks
Division PHAEOPHYTA				
Class PHAEOPHYCEAE				
Order DICTYOTALES				
<b>DICTYOTACEAE</b>				
	<i>Dictyota dichotoma</i> (Hudson) Lamouroux, 1809	49	SI	
	<i>Lobophora variegata</i> (Lamouroux) Womersley ex Oliveira, 1977	52	SI	specimen was previously recorded as <i>Pocockiella variegata</i> (Lamouroux) Papenfuss, 1943 by B. Christensen and S.W. Andersen in 1976
		13758	NIP	
		13759	HI	
	<i>Padina boryana</i> Thivy ex Taylor, 1966	50	SI	specimen was identified as <i>Padina tenuis</i> Bory by B. Christensen and S.W. Andersen in 1976
		51	PC	specimen was identified as <i>Padina tenuis</i> Bory by B. Christensen in 1975
	<i>Padina</i> sp.	13760	LI	
Order ECTOCARPALES				
<b>ECTOCARPACEAE</b>	<i>Ectocarpus</i> sp.	53	PC	
Order FUCALES				
<b>SARGASSACEAE</b>				
	<i>Sargassum crassifolium</i> (C. Agardh) J. Agardh, 1848	85	LSB	
	<i>Sargassum granuliferum</i> C. Agardh, 1820	86	TP	this material represents an immature specimen; previously recorded as <i>Sargassum</i> sp. 1 by B. Christensen in 1974
	<i>Sargassum siliquosum</i> J. Agardh, 1864	87	TP	specimen was previously recorded as <i>Sargassum</i> sp. 2 by B. Christensen in 1974
		88	PB	this material represents an immature specimen; previously recorded as <i>Sargassum</i> sp. 3 by B. Christensen in 1974
	<i>Turbinaria conoides</i> (J. Agardh) Kützing, 1860	7529	TI	



Table 1 (continued)

Family	Species	PMBC cat.no.	Locality	Remarks
Order SCYTOSIPHONALES				
SCYTOSIPHONACEAE	<i>Colpomenia sinuosa</i> (Mertens ex Roth) Derbès and Solier in Castagne, 1851	89	LSB	
	<i>Hydroclathrus clathratus</i> (C. Agardh) Howe, 1920	90	KYI	
Division XANTHOPHYTA				
Class XANTHOPHYCEAE				
Order VAUCHERIALES				
VAUCHERIAEAE	<i>Vaucheria</i> sp.	119	YB	
Division CHLOROPHYTA				
Class CHLOROPHYCEAE				
Order BRYOPSIDALES				
BRYOPSIDACEAE	<i>Bryopsis pennata</i> Lamouroux, 1809	5	SI	some authors recognize this species under the segregate genus <i>Caulerpella</i> Prud'homme van Reine and Lockhorst because of its unique vegetative features; however it is retained under <i>Caulerpa</i> pending further investigation
CAULERPACEAE	<i>Caulerpa ambigua</i> Okamura, 1897	8	HI	
	<i>Caulerpa fastigiata</i> Montagne, 1837	6	TP	Egerod (1974) cited the year of initial description by Montagne as 1845, which is apparently an oversight same as above
	<i>Caulerpa mexicana</i> Sonder ex Kützing, 1849	7	TP	
	<i>Caulerpa microphysa</i> (Weber-van Bosse) J. Feldmann, 1955	9	SI	
	<i>Caulerpa racemosa</i> (Forsskål) J. Agardh var. <i>macrophysa</i> (Sonder ex Kützing) Taylor, 1928	10	NYB	
	<i>Caulerpa racemosa</i> (Forsskål) J. Agardh var. <i>peltata</i> (Lamouroux) Eubank, 1946	16	SI	
		11, 12	NYB	
		13	SI	
		14	HI	
		15	SI	

Table 1 (continued)

Family	Species	PMBC cat.no.	Locality	Remarks
CAULERPACEAE	<i>Caulerpa serrulata</i> (Forsskål) J. Agardh emend. Børgesen, 1932	17	SI	
	<i>Caulerpa sertularioides</i> (S.G. Gmelin) Howe, 1905	18	RYI	
	<i>Caulerpa verticillata</i> J. Agardh, 1847	19	PB	
		13753, 13754	AJ	
	<i>Codium arabicum</i> Kützting, 1856	31	RB	
CODIACEAE		32	SH	
	<i>Codium geppiorum</i> O.C. Schmidt, 1923	33	LI	the name, <i>Codium geppii</i> O.C. Schmidt, was proposed for a species originally described as <i>Codium divaricatum</i> A. and E.S. Gepp (1911) but which is a latter homonym of <i>Codium divaricatum</i> (C. Agardh) Biasoletto (1841); the present species epithet ( <i>Codium geppiorum</i> ) was proposed to conform with the recommendations put forward by the International Code of Botanical Nomenclature
		34	SI	same as above
HALIMEDACEAE	<i>Halimeda incrassata</i> (Ellis) Lamouroux, 1816	101	PC	specimen was previously placed under family Udoteaceae
		102	RB	same as above
		103	LI	same as above
	<i>Halimeda macroloba</i> Decaisne, 1841	104	PI	same as above
		105	SI	same as above
		13763	NIP	same as above
	106	RB	specimen was previously placed under family Udoteaceae as <i>H. opuntia</i> var. <i>opuntia</i> Hillis by L. Egerod in 1974	
UDOTEACEAE		107, 108	PI	same as above
		109	SI	specimen was previously placed under family Udoteaceae as <i>H. opuntia</i> var. <i>opuntia</i> Hillis by B. Christensen and S.W. Andersen in 1976
	<i>Halimeda</i> sp.	111	SI	specimen was previously placed under family Udoteaceae
	<i>Avrainvillea amadelpha</i> (Montagne) A. Gepp and E.S. Gepp, 1908	97	SI	

Table 1 (continued)

Family	Species	PMBC cat.no.	Locality	Remarks
UDOTEACEAE	<i>Avrainvillea erecta</i> (Berkeley) A. Gepp and E.S. Gepp, 1911	95	RB	
		96	PC	
		13784	LI	
	<i>Chlorodesmis fastigiata</i> (C. Agardh) Duckert, 1969	13785	HI	
	<i>Chlorodesmis hildebrandtii</i> A. Gepp and E.S. Gepp, 1911	30	SI	specimen was previously placed under family Codiaceae
		98, 99	NYB	
		100	LI	
		13786, 13787	HI	
		13788	NIP	
	<i>Chlorodesmis</i> sp.	35	PC	specimen was previously placed under family Codiaceae
	<i>Penicillus sibogae</i> A. Gepp and E.S. Gepp, 1911	110	BTB	
	<i>Rhipidosiphon javense</i> Montagne, 1842	112	SI	this was recorded under its former name <i>Udotea javensis</i> (Montagne) A. Gepp and E.S. Gepp by B. Christensen in 1976
Order CLADOPHORALES				
ANADYOMENACEAE	<i>Anadyomene wrightii</i> Harvey ex J.E. Gray, 1866	1	SI	
CLADOPHORACEAE	<i>Chaetomorpha</i> sp.	29	KNB	
CLADOPHORACEAE	<i>Cladophora fascicularis</i> (Mertens ex C. Agardh) Kützing, 1843	25	TP	
		26	PI	
	<i>Cladophora rugulosa</i> Martens, 1868	27	TP	
	<i>Rhizoclonium grande</i> Børgesen, 1935	28	TP	
SIPHONOCLADACEAE	<i>Boodlea composita</i> (Harvey) Brand, 1904	3	NYB	
	<i>Cladophoropsis sundanensis</i> Reinbold, 1905	91	TP	
		92	LI	
	<i>Phyllocladon anastomosans</i> (Harvey) Kraft and Wynne, 1996	4	SI	specimen was recorded under its previous name as <i>Struvea anastomosans</i> (Harvey) Piccone and Grunow ex Piccone and classified within the family Boodleaceae by B. Christensen and S.W. Andersen in 1976

Table 1 (continued)

Family	Species	PMBC cat.no.	Locality	Remarks
<b>SIPHONOCLADACEAE</b>	<i>Struveopsis siamensis</i> (Egerod) Silva ex Silva, Basson and Moe, 1996	94	TP	paratype, specimen was originally recorded as <i>Pseudostruvea siamensis</i> , a new species collected from Phang-nga, Thailand by the Danish phycologist L. Egerod in 1974; this species is the type of the new genus <i>Pseudostruvea</i> Egerod but which is antedated by the heterotypic genus <i>Struveopsis</i> Rhyne and H. Robinson, hence the transfer of the Thai species under the latter
<b>VALONIACEAE</b>	<i>Dictyosphaeria cavernosa</i> (Forsskål) Børgesen, 1932	113	SI	
		114	RB	
	<i>Dictyosphaeria versluisii</i> Weber-van Bosse, 1905	118	SI	
	<i>Valonia utricularis</i> (Roth) C. Agardh, 1822	115	PC	
	<i>Ventricaria ventricosa</i> (J. Agardh) Olsen and J. West, 1987	116	SI	specimen was previously recorded under the basionym, <i>Valonia ventricosa</i> J. Agardh same as above
		117	BIP	same as above
		13789	HI	same as above
	<i>Valoniopsis pachynema</i> (Martens) Børgesen, 1934	93	TP	specimen was previously placed under family Siphonocladaceae
Order DASYCLADALES				
<b>POLYPHYSAEAE</b>	<i>Acetabularia clavata</i> Yamada, 1934	45	RB	specimen was previously placed under family Dasycladaceae
	<i>Acetabularia exigua</i> Solms-Laubach, 1895	48	SI	same as above
	<i>Acetabularia parvula</i> Solms-Laubach, 1895	46	NYB	same as above
		47	SI	same as above



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