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Annotated and Illustrated Survey of the Marine Macroalgae from Motupore Island and Vicinity (Port Moresby area, Papua New Guinea). III. Rhodophyta

Alan J. K. Millar[AD], *Olivier De Clerck*[B], *Eric Coppejans*[B] *and Lawrence M. Liao*[C]

[A]National Herbarium of New South Wales, Royal Botanic Gardens Sydney, Mrs Macquaries Road, Sydney, NSW 2000, Australia.
[B]Vakgroep Biologie, Laboratorium Plantkunde, Universiteit Gent, K. L. Ledeganckstraat 35, B-9000 Gent, Belgium.
[C]Department of Biology, University San Carlos, 6000 Cebu City, Philippines.
[D]Corresponding author; email: alanm@rbgsyd.gov.au

Abstract

The marine benthic red algae of Motupore Island and vicinity (Port Moresby area, Papua New Guinea [PNG]) are documented and 36 of the 161 species are illustrated. All records are listed with bibliographic, biogeographic, taxonomic and nomenclatural comments. Apart from several undescribed taxa, which we are in the process of describing separately, none is endemic to the island at this stage. The discovery of the east Australian species *Gracilaria rhodymenioides* represents a substantial range extension as does *Ceramium lentiforme* from New South Wales. One species of *Gibsmithia* also represents a significant range extension from its Lord Howe Island, Norfolk Island and southern Great Barrier Reef distributions. *Platoma ardreanum* is reported from outside its Hawaiian distribution for the first time, and the Caribbean *Renouxia antillana* represents a major range extension for the Pacific. Forty-four species appear to be newly recorded for the PNG marine flora and 108 are new records for the Island itself. Because all collections were taken during the month of July, many seasonal entities may be missing from this list and the total marine flora is not yet known. Moreover, because previous records are quite detailed with respect to epiphytic and turf algae, we have not concentrated on these species. The non-geniculate coralline algae have only been collected sporadically as part of this survey.

Introduction

Knowledge of the PNG marine algal flora falls far short of that from neighbouring areas such as the Solomon Islands (Womersley and Bailey 1970), Queensland (Cribb 1983; Price and Scott 1992), New South Wales (Millar 1990), Northern Australia (Lewis 1984, 1985, 1987), Indonesia (Coppejans and Prud'homme van Reine 1991; Verheij and Prud'homme van Reine 1993), Taiwan (Lewis and Norris 1987) and the Philippines (Silva *et al.* 1987).

The series of publications listing marine algal records for Motupore Island and its vicinity has treated the benthic Chlorophyta (Coppejans *et al.* 1995*a*) in which 73 taxa were enumerated, the Phaeophyta (Coppejans *et al.* 1995*b*), which listed 42 taxa, and now concludes with this publication covering the largest and most diverse group of seaweeds, the Rhodophyta with 161 species. The published records of Heijs (1985*a*, 1985*b*), King (1990) and Ohba and Enomoto (1992) totalling 48 species are also included.

History of Marine Algal Exploration in Papua New Guinea

Collections and published records of algae from the main island of Papua New Guinea (PNG) are rather scarce, especially in comparison to neighbouring regions (The Admiralty Islands, New Britain, New Ireland and New Hanover), which were frequently visited by 19th century scientific expeditions and received much of the attention. The first algal record was that by William Dampier, who collected two drift *Sargassum* specimens in 1699 (in OXF,

 1030-1887/99/040549

Dampier 1703, Dandy 1958). Several French expeditions [*l'Uranie* and *la Physicienne* (1817–1820), *la Coquille* (1822–1825), *l'Astrolabe* (1826–1829) and *l'Astrolabe* and *la Zélée* (1837–1840)] visited the Admiralty Islands, New Ireland, New Britain and the north coast of PNG and these resulted in the description of *Halymenia durvillaei* Bory de Saint-Vincent, *Sargassum pacificum* Bory de Saint-Vincent and *Sargassum hombrosianum* Montagne (Quoy and Gaimard 1824, Gaudichaud 1826, Bory de Saint-Vincent 1827–1829, Montagne 1845). The English *Challenger Expedition* (1872–1876), visited Torres Strait and the Admiralty Islands, and the botanist on board, Moseley, gave his collections to Dickie (1876*a*, 1876*b*, 1877). Separate publications from this expedition also resulted in lists and monographs by Hemsley (1884), Barton (1891) and Weber-van Bosse (1898). The German *Gazelle* (1874–1876) expedition visited New Ireland and New Hanover with the algae being collected by Naumann and published by Askenasy (1888). Solitary German collectors included Kärnbach (Grunow 1889; Post 1936), Lauterbach (Schmidle 1897), resulting in the description of *Dasya lauterbachii* Askenasy and Schmidle = *Bostrychia moritziana* (Sonder ex Kützing) J.Agardh, see King (1990), and Schneider and Bamler (Heydrich 1892, 1897, 1901*a*, 1901*b*, 1901*c*) who collected Corallinales from the Tami Islands. During this period, Reinbold (1898) published an account of the algae of New Britain collected by Dahl in 1896 and 1897. Schumann and Lauterbach (1901, 1905) later gave a detailed account of the algae from this region. The last German expedition, the *Planet* (1906–1907), visited the northern coast of PNG, the Admiralty Islands and New Britain, with the resulting publication by Schmidt (1928) also including material collected by Schoede in 1910 from the St Matthias Group and the Bismarck Archipelago.

In the middle of this century, a biological station was built on Laing Island in the Madang Province by the Belgian government. More recently, the United States of America set up a biological station near Madang, and another was placed on Motupore Island in the vicinity of Port Moresby by the University of Papua New Guinea. These areas are now receiving much more critical algal surveys, including that by Japanese phycologists of the *Keiten-maru* expeditions (Enomoto and Ajisaka 1984; Ajisaka 1990; Enomoto 1990; Enomoto and Ohba 1992; Ohba and Enomoto 1992), a Dutch team, who studied the seagrass communities and associated epiphytic flora of the Port Moresby area (Brouns and Heijs 1986; Heijs 1983, 1984, 1985*a*, 1985*b*, 1985*c*) and also macroalgae associated with mangroves by Australian researchers (King 1990). The Belgium influence has resulted in publications concentrated mainly on the Chlorophyta of the north coast (Coppejans and Meinesz 1988; Coppejans 1992; Leliaert *et al.* 1998), and the Port Moresby area (Coppejans *et al.* 1995*a*, 1995*b*). The islands of the Bismarck archipelago and large stretches of the PNG coastline still remain phycologically unexplored.

Survey Methods and Format

Collections resulted from two expeditions, the first in July 1986 and the second in July of 1994. Thus, many seasonal entities may be missing from the list. Moreover, because the records by Heijs (1985*b*) are quite detailed with respect to epiphytic and turf algae, we have not concentrated on these species, and the non-geniculate coralline algae have only been collected sporadically. Several taxa were either not identifiable to genus or are potentially new to science and are thus being studied separately and are not included in this list. A map with all collecting sites marked has been published in Coppejans *et al.* (1995*a*).

In total, 520 herbarium specimens have been collected (specimen numbers HEC 6271 to 6359 in 1986, HEC 10126 to 10455 and ODC 198 to 298 in 1994 (HEC = Herbarium Eric Coppejans, ODC = Olivier De Clerck). They include 105 different taxa of red macro-algae of which most are identified to species level. A number of species could not be identified with certainty and are hence only provisionally alligned with a species (as 'cf.'), while some sterile specimens could only be identified to genus. Voucher specimens of Coppejans and De Clerck, filed in GENT, are then cited along with notes regarding various aspects of taxonomy, systematics, nomenclature and distribution. Duplicates are also deposited in the herbarium of the University of Papua New Guinea, Port Moresby (UPNG) and the Royal Botanic Gardens Sydney (NSW).

The systematic arrangement of orders and families essentially follows that of Silva *et al.* (1996). For each species, references are made to publications where a description and or

illustration can be found corresponding to our specimen(s). Previous records from Motupore Island (Heijs 1985*a*, 1985*b*; Ohba and Enomoto 1992; King 1990) are then listed. We have illustrated only those species for which our specimens show some minor or major habit differences from that previously published in the literature. We also wish this publication to stand as much on its own without the need for readers to possess an extensive illustrated library. Because reliable vouchers for many records of species outside the study area are not easily confirmed, we also state the type locality for each species as at least one distributional record.

Marine Red Algae of Motupore Island and its Vicinity

Class **Rhodophyta**
Subclass **Bangiophycidae**

Order **Porphyridiales**
Family **Porphyridiaceae**

Genus ***Chroodactylon*** Hansgirg

Chroodactylon ornatum (C.Agardh) Basson 1979: 67
Cribb (1983: 9, pl. 1, figs 7, 8); Womersley (1994: 23, fig. 1*C*); Heijs (1985*b*: 306).

Type locality: Lake Mälaren, near Stockholm, Sweden.

Voucher: ODC 277b, 4.8.1994: Loloata Island, SE reef (epiphytic on *Dictyota* sp.).

Order **Erythropeltidales**
Family **Erythrotrichiaceae**

Genus ***Erythrotrichia*** Areschoug

Erythrotrichia carnea (Dillwyn) J.Agardh 1883: 15
Cribb (1983: 10, pl. 1, figs 4–6); Womersley (1994: 28, fig. 2*A–D*); Heijs (1985*b*: 306).

Type locality: near Loughor, Glamorgan, Wales.

Voucher: ODC 234b, 4.8.1994: Motupore Island, lagoon (microscopic epiphyte on *Dictyota ciliolata* Sonder ex Kützing).

Subclass **Florideophycidae**
Order **Nemaliales**
Family **Galaxauraceae**

Genus ***Actinotrichia*** Decaisne

Actinotrichia fragilis (Forsskål) Børgesen 1932: 6
Jaasund (1976: 65, fig. 131); Magruder & Hunt (1979: 57, fig. 2, p. 56); Tseng (1984: 58, pl. 32, fig. 1); Verheij & Prud'homme van Reine (1993: 439, pl. 14, fig. 1); Heijs (1985*a*: 301); Ohba & Enomoto (1992: 30).

Type locality: Mokha, Yemen.

Vouchers: HEC 6278, 4.7.1986: Motupore Island, N coast; HEC 10202, 21.7.1994: Motupore Island, S coast, centre of lagoon, close to the passage.

Genus ***Galaxaura*** Lamouroux

Galaxaura divaricata (Linnæus) Huisman & Townsend 1993: 100, fig. 2
Kjellman 1900: 54, pl. 5, figs 10–18, pl. 20, fig. 10 as *G. cohaerens)*; T. Tanaka (1936: 147, figs 5, 6, pl. 34, fig. 3 as *G. fasciculata*); Womersley & Bailey (1970: 303 as *G. fasciculata*); Huisman & Borowitzka (1990: 163, figs 34, 39 as *cohaerens*).

Type locality: Oceano Asiatico.

Vouchers: HEC 6289a, 4.7.1986: Motupore Island, N coast; HEC 6289b, 5.7.1986: Motupore Island, S coast; HEC 10260, 25.7.1994: Loloata Island, SE reef; HEC 10291, 28.7.1994: South Patch Reef.

Note: Ohba and Enomoto (1992: 30) record *Galaxaura fasciculata* Kjellman from this area, but that species has since been shown to be synonymous with *Galaxaura cohaerens* by Huisman and Borowitzka (1990), and still more recently Huisman and Townsend (1993) have determined that *G. divaricata* is an earlier name for this species complex.

Galaxaura marginata (Ellis & Solander) Lamouroux 1816: 264
Papenfuss *et al.* (1982: 411–415, figs 7–9, 24, 36, 37); Tseng (1984: 62, pl. 34, fig. 2, as *G. veprecula* Kjellman); Littler *et al.* (1989: 202, fig. 1, p. 203); Huisman & Borowitzka (1990: 157–161, figs 14–27); Millar (1990: 304–305, fig. 6*A–G*); Allen & Steene (1994: 22).

Type locality: Bahamas.

Vouchers: HEC 10163, 19.7.1994: Motupore Island, S coast, outer reef slope; HEC 10288, 28.7.1994: South Patch Reef.

Note: *Galaxaura veprecula* was reported from the area by Ohba and Enomoto (1992: 30), but is considered to be a synonym of *G. marginata* by Papenfuss *et al.* (1982: 411–415).

Galaxaura obtusata (Ellis & Solander) Lamouroux 1816: 262. (Fig. 1*A*)
Papenfuss *et al.* (1982: 418–421, figs 14–16, 27, 39); Huisman & Borowitzka (1990: 161–163, figs 28–38); Millar (1990: 303, fig. 5*D–E*); Verheij & Prud'homme van Reine (1993: 440, pl. 14, fig. 2).

Type locality: Bahamas.

Vouchers: HEC 10162, 19.7.1994: Motupore Island, S coast, outer reef slope; HEC 10228, 23.7.1994: Motupore Island, S coast, outer reef slope; HEC 10289, 28.7.1994: South Patch Reef; HEC 10356, 30.7.1994: Horse Shoe Reef, W slope.

Note: *Galaxaura robusta* Kjellman was reported from the area by Ohba and Enomoto (1992: 30), but is considered to be a synonym of *G. obtusata* by Papenfuss *et al.* (1982: 418–421).

Galaxaura rugosa (Ellis & Solander) Lamouroux 1816: 263
Magruder & Hunt (1979: 69, fig. 1, p. 68); Papenfuss *et al.* (1982: 421–424, figs 17–19, 29, 40, 41, 45); Huisman & Borowitzka (1990: 153–157, figs 1–13).

Type locality: Jamaica.

Vouchers: HEC 6311, 5.7.1986: Motupore Island, W-coast; HEC 6328; HEC 6329, 6.7.1986: Motupore Island, S coast, inner slope of fringing reef.

Note: *Galaxaura cuculligera* Kjellman and *G. subfruticulosa* Chou were reported from the area by Ohba and Enomoto (1992: 30), but are considered to be synonymous with *G. rugosa*. Heijs (1985*a*: 301) reported *G. elongata* and *G. subverticillata,* but these names are also generally accepted as synonyms of *G. rugosa*. For a detailed discussion on the extensive list of synonyms we refer to Papenfuss *et al.* (1982: 421–425) and Huisman and Borowitzka (1990: 153–157).

Genus ***Scinaia*** Bivona-Bernardi

Scinaia tsinglanensis Tseng 1941: 106–109, fig. 11, pl. 9. (Fig. 1*B*)
Tseng (1941: 106, fig. 11, pl. IX); Tseng (1984: 64, pl. 35, fig. 1); Huisman (1986: 282, 284, figs 36–47).

Type locality: Tsinglan-Kang, Hainan, China.

Voucher: HEC 10410, 4.8.1994: Loloata Island, SE reef.

Genus ***Tricleocarpa*** Huisman & Borowitzka

Tricleocarpa fragilis (Linnaeus) Huisman & Townsend 1993: 100, t. 2. (Fig. 1*C*)
Magruder & Hunt (1979: 67, fig. 2, p. 66, as *G. fastigiata* Decaisne); Tseng (1984: 60, pl. 33, fig. 1, as *G. oblongata* Ellis & Solander); Huisman & Borowitzka (1990: 164–168, figs 40–45, 50–52 as *T. oblongata* (Ellis & Solander) Huisman & Borowitzka).

Type locality: [Oceano Americano] Jamaica *fide* Huisman and Townsend (1993: 99).

Vouchers: HEC 10177, 20.7.1994: Motupore Island, S coast, centre of lagoon, close to the passage; HEC 10227, 23.7.1994: Motupore Island, S coast, outer reef slope; HEC 10290, 28.7.1994: South Patch Reef; HEC 10351, HEC 10352, 30.7.1994: Horse Shoe Reef, W slope; HEC 10373, 31.7.1994: Loloata Island, W-end of the reef platform.

Note: *Galaxaura fastigiata* and *G. oblongata* were reported from the area by Heijs (1985*a*: 301) and Ohba and Enomoto (1992: 30) respectively, but are considered to be synonymous with *T. fragilis* (Huisman and Townsend 1993: 99).

Family **Liagoraceae**

Genus ***Liagora*** Lamouroux

Liagora bella Børgesen 1953: 21–25, figs 5, 6, pl. 2 (lower)

Type locality: Black River, La Preneuse, Mauritius.

Voucher: HEC 10310, 28.7.1994: Loloata Island.

Liagora boergesenii Yamada 1938: 11, figs 5, 6, pl. 2

Syntype localities: various in Japan and Taiwan.

Voucher: HEC 10336, 30.7.1994: Horse Shoe Reef.

Liagora divaricata Tseng 1941: 268–271, figs 2–4
Jaasund (1976: 63, fig. 128).

Type locality: Tsinglan-Kang, Hainan, China.

Voucher: HEC 10254, 25.7.1994: Loloata Island, SE reef; HEC 10337b, 30.7.1994: Horse Shoe Reef.

Liagora valida Harvey 1853: 138, pl. 31*A*
Børgesen (1949: 26–29, fig. 13); Heijs (1985*a*: 301).

Type locality: Sand Key, Florida, USA.

Voucher: HEC 10337a, 30.7.1994: Horse Shoe Reef; HEC 10311, 28.7.1994: Loloata Island, SE reef.

Genus ***Trichogloea*** Kützing

Trichogloea requienii (Montagne) Kützing 1847: 54. (Fig. 1*D*)
Børgesen (1952: 16–21, figs 8, 9, pls I, II); Magruder & Hunt (1979: 95, fig. 3, p. 94); Cribb (1983: 23–24, pl. 47, figs 3, 4, pl. 48, fig. 2); Littler *et al.* (1989: 166, fig. 1, p. 167); Ohba & Enomoto (1992: 30).

Type locality: Red Sea.

Vouchers: HEC 10172, 20.7.1994: Motupore Island, S coast, outer reef slope; HEC 10207, 22.7.1994: Lion Island, reef platform south of the Island; HEC 10237, 25.7.1994: Loloata Island, SE reef.

Order **Gelidiales**
Family **Gelidiaceae**

Genus ***Gelidiella*** J.Feldmann & G.Hamel

Gelidiella acerosa (Forsskål) J.Feldmann & G.Hamel 1934: 533
Jaasund (1976: 71, fig. 142); Magruder & Hunt (1979: 69, fig. 2, p. 68); Cribb (1983: 29–30, pl. 6, fig. 1); Tseng (1984: 64, pl. 35, fig. 4); Littler *et al.* (1989: 172, fig. 1, p. 173); Price & Scott (1992: 25, 27, fig. 4*A–E*); Ohba & Enomoto (1992: 31).

Type locality: Mokha, Yemen.

Voucher: HEC 10353, 30.7.1994: Horse Shoe Reef, W slope.

Gelidiella sp.

Vouchers: HEC 10380a, 2.8.1994: Bootless Bay, Osborne Point; HEC 10389, 2.8.1994: Bootless Inlet.

Genus ***Gelidium*** Lamouroux

Gelidium pusillum (Stackhouse) Le Jolis 1863: 139
Jaasund (1976: 71, fig. 144); Tseng (1984: 68, pl. 37, fig. 1); Littler *et al.* (1989: 170, fig. 2, p. 171); Hatta & Prud'homme van Reine (1991: 364, fig. 8); Womersley (1996: 133–136, figs 35*E*, 39*E–K*). Heijs (1985*a*: 301); Ohba & Enomoto (1992: 30).

Type locality: Sidmouth, Devon, England.

Voucher: HEC 10449, 5.8.1994: Motupore Island.

Gelidium sp.
Heijs (1985*a*: 301); King (1990: 60); Ohba & Enomoto (1992: 30).

Note: only one species of *Gelidium* has been among our recent collections and these records of *Gelidium* sp. may well represent *G. pusillum*.

Genus ***Pterocladiella*** Santelices & Hommersand

Pterocladiella caerulescens (Kützing) Santelices & Hommersand 1997: 118
Santelices (1976: 173 as *Pterocladia caerulescens*); Magruder & Hunt (1979: 91, fig. 1, p. 90 as *Pterocladia caerulescens*); Cribb (1983: 34, pl. 6, fig. 3 as *Pterocladia caerulescens*); Hatta & Prud'homme van Reine (1991: 372–373, fig. 12 as *Pterocladia caerulescens*); Price & Scott (1992: 21–22, fig. 3*A–F* as *Pterocladia caerulescens*).

Type locality: Wagap, New Caledonia.

Voucher: ODC 242k, 27.7.1994, Loloata Island, SE reef.

Note: the genus *Pterocladiella* was recently described to accommodate those species of the genus *Pterocladia* with unequal bilocular cystocarps (Santelices and Hommersand 1997).

Order **Gracilariales**
Family **Gracilariaceae**

Genus ***Gracilaria*** Greville

Gracilaria arcuata Zanardini 1858: 265, pl. V, fig. 2

Type locality: Aqaba, Jordan.

Note: recorded by Heijs (1985*a*: 301), but not among our recent collections.

Gracilaria blodgettii Harvey 1853: 111

Type locality: Key West, Florida, USA.

Note: recorded by Heijs (1985*a*: 301), but not among our recent collections.

Gracilaria canaliculata Sonder 1871: 56
Withell *et al.* (1994: 301, fig. 16*a*, *b*); Heijs (1985*a*: 302 as *G. crassa*); Ohba & Enomoto (1992: 31 as *G. crassa*).

Type locality: Wagap, New Caledonia.

Vouchers: HEC 6275, 4.7.1986: Motupore Island, N coast; HEC 10148, 19.7.1994: Motupore Island, S coast, outer reef slope; HEC 10155, 19.7.1994: Motupore Island, S coast, outer reef slope; HEC 10167, 19.7.1994: Motupore Island, S coast, outer reef slope.

Note: this species was treated as a form of *G. salicornia* (C.Agardh) Dawson by Withell *et al.* (1994: 301) who considered Australian populations to be distinguishable from that species. Xia (1986: 100–107) considered *G. canaliculata* to be conspecific with *G. salicornia*. Wynne (1995: 280) gave solid reasons for the autonomy of both species and the Papua New Guinea populations mirror the anatomical differences pointed out by Wynne.

Gracilaria changii (Xia & Abbott) Abbott, Zhang & Xia 1991: 23
Xia & Abbott (1987: 407, fig. 3, as *Polycavernosa changii*); Phang (1994: 127, fig. 2).

Type locality: near Glugor, Marine Police Jetty, Penang, Malaysia.

Voucher: HEC 6287a, 4.7.1986: Motupore Island, N coast.

Gracilaria edulis (S.G.Gmelin) Silva 1952: 293
Umamaheswara Rao (1972: 681, pl. 1, fig. *F*); Yamamoto (1978: 132, pl. 49, fig. 1); Xia & Abbott (1987: 406, figs 1, 2, as *Polycavernosa fastigiata*); Abbott *et al.* (1991: 23); Ohba & Enomoto (1992: 31).

Type locality: 'India Orientalis'.

Voucher: HEC 6287b, 4.7.1986: Motupore Island, N coast.

Note: the complicated taxonomic history of this species was discussed by Abbott (1994: 113–114, figs 1–4).

Gracilaria eucheumatoides Harvey 1860: 331

Type locality: Ryukyu Retto, Japan.

Note: recorded by Heijs (1985*a*: 302 as *G. eucheumoides*), but not among our recent collections.

Gracilaria rhodymenioides Millar 1997: 114, figs 5–12. (Fig. 1*E*)

Type locality: Coffs Harbour, New South Wales, Australia.

Voucher: HEC 10185, 21.7.1994: Motupore Island, S coast, outer reef slope.

Note: this species shows a superficial similarity to *Gracilaria preissiana* (Sonder) Womersley in Min-Thein and Womersley (1976: 109; see also Withell *et al.* 1994: fig. 11*a–e*), which can be extremely variable in frond shape. The traversing cells in cystocarps of that species, however, are basal to the carposporophyte, whereas in *G. rhodymenioides*, they are predominantly laterally disposed. This record constitutes a major northern range extension of this species. It was recently reported from as far east as Norfolk Island in the Coral Sea (Millar 1999).

Gracilaria stellata Abbott, Zhang & Xia 1991: 22
Xia & Abbott (1987: 409, fig. 4 as *Polycavernosa divergens*).

Type locality: Bulusan, Sorsogon, Philippines.

Voucher: HEC 10384, 2.8.1994: Bootless Bay, Osborne Point.

Note: *Gracilaria stellata* is a *nomen novum* for *P. divergens*, proposed by Abbott *et al.* (loc. cit.) because of the prior existence of *G. divergens* (C.Agardh) J.Agardh.

Gracilaria textorii (Suringar) De Toni 1895: 27
Umamaheswara Rao (1972: 690, pl. 3, fig. *F*); Yamamoto (1978: 123, pl. 42, figs 5–7, pl. 43, figs 1–4).

Type locality: Japan.

Voucher: HEC 10418, 4.8.1994: Loloata Island, SE reef.

Gracilaria verrucosa (Hudson) Papenfuss 1950: 195

Type locality: England.

Note: recorded by Heijs (1985*a*: 301), but not among our recent collections. This is probably a strictly North Atlantic species and this PNG record may well pertain to *G. edulis*.

Gracilaria sp.
Heijs (1985*a*: 301); Ohba & Enomoto (1992: 31).

Voucher: HEC 10419, 4.8.1994: Loloata Island, SE reef.

Order **Bonnemaisoniales**
Family **Bonnemaisoniaceae**

Genus ***Asparagopsis*** Montagne
Asparagopsis taxiformis (Delile) Trevisan 1845: 45

Type locality: Alexandria, Egypt.

Gametophyte
Magruder & Hunt (1979: 59, fig. 3, p. 58); Cribb (1983: 28, pl. 4, figs 1, 2); Tseng (1984: 64, pl. 35, fig. 3); Littler *et al.* (1989: 152, fig. 1, p. 153); De Clerck & Coppejans (1996: 251, fig. 88); Ohba & Enomoto (1992: 30).

Vouchers: HEC 6333, 6.7.1986: Motupore Island, S coast, inner slope of the fringing reef; HEC 10210, 22.7.1994: Lion Island, reef platform S of the Island; HEC 10321, 28.7.1994: Loloata Island, SE reef; HEC 10334, 30.7.1994: Horse Shoe Reef, W slope.

Sporophyte [= *Falkenbergia hillebrandii* (Bornet) Falkenberg]
Jaasund (1976: 69, fig. 140); Lawson & John (1987: 180, pl. 27, figs 2, 3); De Clerck & Coppejans (1996: 251, figs 86, 89).

Vouchers: HEC 10415, 4.8.1994: Loloata Island, SE reef; ODC 242e, 27.7.1994, Loloata Island, SE reef.

Order **Halymeniales**
Family **Halymeniaceae**

Genus ***Carpopeltis*** Schmitz
Carpopeltis formosana Okamura 1931: 110, pl. 12

Type locality: Kotosho, Taiwan.

Note: recorded by Heijs (1985*a*: 301), but not among our recent collections.

Carpopeltis sp.

Note: recorded by Ohba and Enomoto (1992: 31), but not among our recent collections. We have not examined the voucher for this record and cannot confirm whether it represents *C. formosana* as listed by Heijs (1985*a*).

Genus ***Cryptonemia*** J.Agardh

Cryptonemia crenulata (J.Agardh) J.Agardh 1851: 225. (Fig. 2*C*)

Type locality: Bahia, Brazil.

Vouchers: HEC 10160, 19.7.1994: Motupore Island, S coast, outer reef slope; HEC 10317, 28.7.1994: Loloata Island, SE reef; HEC 10406, 2.8.1994: W point of Bootless Inlet.

Note: this species is superficially similar to *C. undulata* Sonder (1855; see Scott *et al.* 1982: 249, figs 27–35; Womersley 1994: 182, 184, figs 53*A*, 54*A–C*), but differs in that the basal stipe does not persist into the blade as a midrib.

Cryptonemia yendoi Weber-van Bosse 1921: 249, fig. 77. (Fig. 2*D*)

Type locality: Salayer Island, Indonesia.

Voucher: HEC 10416, 4.8.1994: Loloata Island, SE reef.

Genus ***Halymenia*** C.Agardh

Halymenia dilatata Zanardini 1851: 35.
R. Norris & Aken (1985: 56, figs 1, 2); Verheij & Prud'homme van Reine (1993: 460, pl. 17, fig. 1); Ohba & Enomoto (1992: 31).

Type locality: Red Sea.

Vouchers: HEC 10312, 28.7.1994: Loloata Island, SE reef; HEC 10420, 4.8.1994: Loloata Island, SE reef.

Halymenia durvillei Bory de Saint-Vincent 1828: 180, pl. 15
Womersley & Bailey (1970: 315); Cribb (1983: 54–55, pl. 12, fig. 1); Wynne (1995: 274, fig. 10); Verheij & Prud'homme van Reine (1993: 460, pl. 17, fig. 3).

Type locality: New Ireland, Papua New Guinea.

Vouchers: HEC 6330, 6.7.1986: Motupore Island, S coast, inner slope of the fringing reef; HEC 10281, HEC 10282, 27.7.1994: Loloata Island, SE reef; HEC 10292, 28.7.1994: South Patch Reef; HEC 10362, 31.7.1994: Loloata Island, W end of the reef platform.

Halymenia maculata J.Agardh 1885: 12. (Fig. 2*F*)
Børgesen (1950: 9–11, figs 2, 3).

Type locality: Mauritius.

Vouchers: HEC 6310, 5.7.1986: Motupore Island, W coast; HEC 10174, 20.7.1994: Motupore Island, S coast, outer reef slope; HEC 10313, 28.7.1994: Loloata Island, SE reef; HEC 10314, 28.7.1994: Loloata Island, SE reef; HEC 10423, 4.8.1994: Loloata Island, SE reef.

Note: comparisons between these specimens and isotype material were undertaken during the 7th Workshop of the Taxonomy of Economic Seaweeds in Phuket, Thailand (1997) by the first author. Both share the distinctive 'rabbit ear' outer cortical cells, whereby two elongate outer cortical cells are borne on each spherical subsurface cell.

Halymenia sp.

Voucher: HEC 6310, 5.7.1986: Motupore Island, W coast.

Family **Sebdeniaceae**

Genus ***Sebdenia*** (J.Agardh) Berthold

Sebdenia flabellata (J.Agardh) Parkinson 1980: 12. (Fig. 3*F*)
R. Norris & Aken (1985: 56, fig. 4 as *S. polydactyla*); Millar (1990: 328).

Type locality: Guadeloupe, West Indies.

Vouchers: HEC 10269, 27.7.1994: Loloata Island, SE reef; HEC 10359, 31.7.1994: Loloata Island, W end of the reef platform.

Order **Corallinales**
Family **Corallinaceae**

Genus ***Amphiroa*** Lamouroux

Amphiroa anceps (Lamarck) Decaisne 1842: 125
Jaasund (1976: 125, fig. 253); Magruder & Hunt (1979: 95, fig. 2, p. 94); Cribb (1983: 135–136, pl. 68, fig. 4); Tseng (1984: 160, pl. 83, fig. 4); Verheij & Prud'homme van Reine (1993: 449, pl. 16, fig. 3); Heijs (1985*a*: 302; 1985*b*: 307); Ohba & Enomoto (1992: 32).

Type locality: les mères Australes ou de la Nouvelle Hollande.

Vouchers: HEC 6285, 4.7.1986: Motupore Island, N coast; HEC 10381, 2.8.1994: Bootless Bay, Osborne Point; HEC 10436, 5.8.1994: Loloata Island, SE reef.

Amphiroa foliacea Lamouroux in Quoy & Gaimard 1824: 268, pl. 93, figs 2, 3
Ohba & Enomoto (1992: 31).

Type locality: Mariana Islands.

Voucher: HEC 102776, 27.7.1994: Loloata Island, SE reef.

Amphiroa fragilissima (Linnaeus) Lamouroux 1816: 298
Jaasund (1976: 79, fig. 158); Magruder & Hunt (1979: 59, fig. 2, p. 58); Cribb (1983: 46–47, pl. 10, fig. 3); Tseng (1984: 86, pl. 46, fig. 2, 3); Littler *et al.* (1989: 208, fig. 1, p. 209); Heijs (1985*a*: 301); Ohba & Enomoto (1992: 31).

Type locality: Jamaica.

Voucher: HEC 6319, 5.7.1986: Motupore Island, S coast.

Amphiroa tribulus (Ellis & Solander) Lamouroux 1816: 302

Type locality: West Indies.

Note: recorded by Heijs (1985*a*: 301), but not among our recent collections.

Amphiroa sp.
Ohba & Enomoto (1992: 31).

Genus ***Cheilosporum*** (Decaisne) Zanardini

Cheilosporum spectabile Harvey ex Grunow 1874: 41
Womersley & Bailey (1970: 314, pl. 26, fig. 22).

Type locality: Tonga.

Voucher: HEC 10233, 23.7.1994: Motupore Island, S coast; outer slope of the fringing reef.

Genus ***Jania*** Lamouroux

Jania adhaerens Lamouroux 1816: 270
Womersley & Bailey (1970: 314); Cribb (1983: 47–48, pl. 10, figs 4, 5); Price & Scott (1992: 48–50, figs 12*A–C*). Heijs (1985*a*: 301); Ohba & Enomoto (1992: 31 as *J. capillacea*).

Type locality: Mediterranean Sea.

Voucher: HEC 10344a, 30.7.1994: Horse Shoe Reef, W slope.

Note: the synonymy of *J. capillacea* Harvey with *J. adhaerens* follows the authority of Cribb (1983: 47).

Jania tenella (Kützing) Grunow 1874: 42
Kützing (1858: 41, pl. 85, fig. II as *Corallina tenella*).

Syntype localities: Golfo di Napoli, Italy, Mexico.

Voucher: HEC 10344b, 30.7.1994: Horse Shoe Reef, W slope.

Genus ***Lithophyllum*** Philippi

Lithophyllum moluccense (Foslie) Foslie 1901: 12

Type locality: Moluccas, Indonesia.

Note: recorded by Ohba and Enomoto (1992: 31), but not among our recent collections.

Lithophyllum sp.
Ohba & Enomoto (1992: 31).

Genus ***Lithothamnion*** Heydrich

Lithothamnion sp.

Note: recorded by Ohba and Enomoto (1992: 31), but not among our recent collections.

Genus ***Mastophora*** Decaisne

Mastophora rosea (C.Agardh) Setchell 1943: 129
Turner & Woelkerling (1982: figs 5–8, 11, 14, 15, 26, 27, 31–35).

Type locality: Guam, Mariana Islands.

Vouchers: HEC 6335, 6.7.1986: Motupore Island, S coast, inner slope of the fringing reef; HEC 10335, 30.7.1994: Horse Shoe Reef, W slope.

Porolithon (Foslie) Foslie

Porolithon sp.

Note: this record of Ohba and Enomoto (1992: 31) is difficult to place as *Porolithon* is a heterotypic synonym of *Spongites* (Penrose and Woelkerling 1988) and the latter has not been among our recent collections.

Order **Gigartinales**
Family **Caulacanthaceae**

Genus ***Catenella*** Greville

Catenella nipae Zanardini 1872: 143, pl. VI*A*
Jaasund (1976: 95, fig. 194); Womersley (1994: 449–450, figs 154*G–I*, 156*D*); King (1990: 60).

Type locality: Sarawak, Malaysia.

Voucher: HEC 10445, 5.8.1994: Motupore Island, mangrove aerial roots.

Family **Corynomorphaceae**

Genus ***Corynomorpha*** J.Agardh

Corynomorpha prismatica (J.Agardh) J.Agardh 1876: 143
Jaasund (1976: 83, fig. 166); Wynne (1995: 271–272, figs 4–8).

Type locality: India.

Voucher: HEC 10424, 4.8.1994: Loloata Island, SE reef.

Family **Dumontiaceae**

Genus ***Dudresnaya*** P.Crouan & H.Crouan

Dudresnaya capricornica Robins & Kraft 1985: 23, figs 90–129

Type locality: One Tree Island, Capricorn Group, Queensland, Australia.

Vouchers: HEC 10226, 23.7.1994: 1.8.1994: Motupore Island, S coast, outer reef slope; HEC 10306, 28.7.1994: Loloata Island, SE reef; HEC 10308, 28.7.1994: Loloata Island, SE reef; HEC 10361, 31.7.1994: Loloata Island, W end of the reef platform; HEC 10412, HEC 10413, 4.8.1994: Loloata Island, SE reef.

Dudresnaya hawaiiensis R.K.S.Lee 1963: 315
Robins & Kraft (1985: 15, figs 44–89); R. Norris (1992: 3–5, figs 7–10).

Type locality: Kaneohe Bay, Oahu, Hawaiian Archipelago.

Vouchers: HEC 10147, 19.7.1994: Motupore Island, S coast, outer reef slope; HEC 10186, 21.7.1994: Motupore Island, S coast, outer reef slope.

Genus ***Gibsmithia*** Doty

Gibsmithia dotyi Kraft & Ricker in Kraft 1986: 433, figs 23–43

Type locality: Phillip Rock, Lord Howe Island, Australia.

Vouchers: HEC 10224, 23.7.1994: Motupore Island, S coast, outer reef slope; HEC 10240, 25.7.1994: Loloata Island, SE reef; HEC 10307, 28.7.1994: Loloata Island, SE reef.

Gibsmithia hawaiiensis Doty 1963: 458–465, figs 1–17. (Fig. 2*A*)
Magruder & Hunt (1979: fig. 2, p. 70).

Type locality: Honolulu, Oahu, Hawaiian Archipelago.

Vouchers: HEC 10173, 20.7.1994: Motupore Island, S coast, outer reef slope; HEC 10208, 22.7.1994: Lion Island, reef platform S of the island; HEC 10286, 27.7.1994: Loloata Island, SE reef; HEC 10411, 4.8.1994: Loloata Island, SE reef.

Gibsmithia larkumii Kraft 1986: 439, figs 44–58. (Fig. 2*B*)

Type locality: Keyhole, One Tree Island, Queensland, Australia.

Voucher: HEC 10273, 27.7.1994: Loloata Island, SE reef.

Gibsmithia sp. nov.

Vouchers: HEC 10220, 23.7.1994: Motupore Island, S coast, outer reef slope; HEC 10249, 25.7.1994: Loloata Island, SE reef.

Note: these plants are strictly peltate with a short (*c.* 2 mm) stipe and have blade margins that are ruffled and slightly lobed. It will be described separately after further critical study.

Family **Hypneaceae**

Genus ***Hypnea*** Lamouroux

Hypnea boergesenii T.Tanaka 1941: 233, figs 6–8, pl. 53, fig. 1

Type locality: Keelung and Tairi, Taiwan.

Note: recorded by Heijs (1985*a*: 302), but not among our recent collections.

Hypnea charoides Lamouroux 1813: 132, pl. 10, figs 1–3

Type locality: 'Nouvelle Hollande'.

Note: recorded by Ohba and Enomoto (1992: 31), but not among our recent collections.

Hypnea musciformis (Wulfen) Lamouroux 1813: 154, pl. 14, fig. 3

Type locality: Trieste, Italy.

Note: recorded by Heijs (1985*a*: 302), but not among our recent collections.

Hypnea nidifica J.Agardh 1851: 451

Type locality: Hawaiian Islands.

Note: recorded by Heijs (1985*a*: 302), but not among our recent collections.

Hypnea pannosa J.Agardh 1847: 14
Jaasund (1976: 97, fig. 196); Cribb (1983: 59–60, pl. 15, figs 2, 3); Tseng (1984: 100, fig. 1); Price & Scott (1992: 38, 40, figs 8*A–D*, 9*A*); Wynne (1995: 274, 276); Heijs (1985*a*: 302); Ohba & Enomoto (1992: 31).

Type locality: San Agustín, Oaxaca, Mexico.

Vouchers: HEC 6277, 4.7.1986: Motupore Island, N coast; HEC 10192, 21.7.1994: Motupore Island, centre of lagoon, close to the passage.

Hypnea saidana Holmes 1895: 256, pl. 11, fig. 3*a*, *b*
Millar (1990: 351, 352, fig. 23*A–C*); Wynne (1995: 276, fig. 16).

Type locality: Enoshima, Kanagawa Prefecture, Japan.

Vouchers: HEC 10161, 19.7.1994: Motupore Island, S coast, outer reef slope HEC 10277d, 27.7.1994: Loloata Island, SE reef; HEC 10315, 28.7.1994: Loloata Island, SE reef.

Hypnea spinella (C.Agardh) Kützing 1847: 23
Magruder & Hunt (1979: 79, fig. 1, p. 78 as *H. cervicornis*); Littler *et al.* (1989: 176, fig. 2, p. 177 as *H. cervicornis*); Cribb (1983: 60, 61, pl. 15, fig. 4); Millar (1990: 352, 353, fig. 23*D*); Price & Scott (1992: 35–36, 40–44, figs 7*A–E*, 9*B*, 10*A–F*, regarding *H. cervicornis* and *H. spinella* as separate species); Wynne (1995: 276, fig. 12); Ohba & Enomoto (1992: 31).

Type locality: West Indies.

Vouchers: HEC 10245, HEC 10246, 26.7.1994: Motupore Island, S coast, lagoon; HEC 10331, 29.7.1994: Patch reef off Loloata Island; HEC 10379, 2.8.1994: Bootless Bay, Osborne Point; HEC 10427, 4.8.1994: Loloata Island, SE reef.

Note: the synonymy of *H. cervicornis and H. spinella* follows Haroun and Prud'homme van Reine (1993: 122) who concluded that these taxa are ecologically induced growth forms between which a clear transition exists. The loosely branched specimens of *H. cervicornis* are more typical for sheltered habitats whereas the dense, compact habit of *H. spinella* occurs more frequently in the intertidal.

Hypnea valentiae (Turner) Montagne 1841: 161

Type locality: Red Sea.

Note: recorded by Heijs (1985*a*: 302), but not among our recent collections.

Family **Kallymeniaceae**

Genus ***Kallymenia*** J.Agardh

Kallymenia cf. ***perforata*** J.Agardh 1872: 9. (Fig. 3*A*)
Ganesan (1976: 170, figs 13, 15).

Type locality: Sri Lanka.

Vouchers: HEC 10394, 2.8.1994: W point of Bootless Inlet; HEC 10423, 4.8.1994: Loloata Island, SE reef; HEC 10430, 5.8.1994: Loloata Island, SE reef.

Kallymenia sp. (Fig. 2*E*)

Vouchers: HEC 10219, 23.7.1994: Barrier reef in front of Motupore Island, outer slope; HEC 10241, HEC 10242, 25.7.1994: Loloata Island, SE reef. This species forms a major component of the large bladed red algal flora and is the focus of further critical studies.

Family **Nemastomataceae**

Genus ***Predaea*** De Toni

Predaea laciniosa Kraft 1984*a*: 11, figs 25–35

Type locality: Heron Island, Queensland, Australia.

Voucher: HEC 10225, 23.7.1994: Motupore Island, S coast, outer reef slope.

Predaea sp.

Voucher: HEC 10240, 25.7.1994: Loloata Island, south-east reef.

Note: these specimens show a similarity to *P. feldmannii* Børgesen, which also has numerous nutritive cells borne in association with auxiliary cells. The Papua New Guinea species, however, has the gonimoblast borne laterally and directly on the auxiliary cell, unlike *P. feldmannii*, where the gonimoblast is borne on the connecting filament. Further study is needed before its precise identity can be ascertained.

Family **Peyssonneliaceae**

Genus ***Peyssonnelia*** Decaisne

Peyssonnelia cf. ***capensis*** Montagne 1847: 177
Millar (1990: 331, figs 15*D*, *E*); Ohba & Enomoto (1992: 31).

Type locality: South Africa.

Vouchers: HEC 10166, 19.7.1994: Motupore Island, S coast, outer reef slope; HEC 10180, 20.7.1994: Motupore Island, S coast, centre of lagoon, close to the passage; HEC 10234, 23.7.1994: Motupore Island, S coast, outer reef slope.

Note: the taxonomy of the genus is in need of critical reassessment, the Motupore specimens matching those from the east coast of Australia in most morphological details.

Family **Rhizophyllidaceae**

Genus ***Portieria*** Zanardini

Portieria hornemannii (Lyngbye) Silva in Silva *et al.* 1987: 129. (Fig. 3*B*)
Jaasund (1976: 75, fig. 149, as *Desmia pulvinata* J.Agardh); Magruder & Hunt (1979: 65, fig. 2, p. 64, as *Desmia hornemannii*); Tseng (1984: 70, pl. 38, fig. 2 as *Chondrococcus hornemannii*); Millar (1990: 359–360, fig. 20*A–B*); Verheij & Prud'homme van Reine (1993: 464, pl. 17, fig. 8); Ohba & Enomoto (1992: 31).

Type locality: probably Red Sea.

Vouchers: HEC 6325, 6.7.1986: HEC 10180, 20.7.1994: Motupore Island, S coast, inner slope of the fringing reef; HEC 10175, 20.7.1994: Motupore Island, S coast, centre of lagoon, close to the passage; HEC 10316, 28.7.1994: Loloata Island, SE reef; HEC 10349, 30.7.1994: Horse Shoe Reef, W slope.

Family **Schizymeniaceae**

Genus ***Platoma*** Schmitz

Platoma ardreanum Kraft & Abbott 1997: 100, figs 1–16. (Fig. 3*D*)

Type locality: Hawaiian Islands.

Voucher: HEC 10221, 23.7.1994: Motupore Island, S coast, outer reef slope.

Note: this constitutes the first record of this species from outside its Hawaiian distribution. Identification of the PNG specimen was confirmed by Kraft.

Platoma sp. nov. (Fig. 3*C*)

Vouchers: HEC 10222, HEC 10223, 23.7.1994: Motupore Island, S coast, outer reef slope; HEC 10266, 27.7.1994: Loloata Island, SE reef; HEC 10357, HEC 10358, 31.7.1994: Loloata Island, W end of the reef platform.

Note: formal description of this species awaits further critical study.

Genus ***Titanophora*** (J.Agardh) J.Feldmann

Titanophora weberae Børgesen 1943: 39, fig. 3. (Fig. 3*E*)
Mshigeni & Papenfuss (1980: 780–788, figs 1, 3–20); Verheij & Prud'homme van Reine (1993: 459, pl. 16, fig. 6); Allen & Steene (1994: 24).

Type locality: Sele Strait, Irian Jaya, Indonesia.

Vouchers: HEC 10153, 19.7.1994: Motupore Island, S coast, outer reef slope; HEC 10294, 28.7.1994: South Patch Reef.

Family **Solieriaceae**

Genus ***Callophycus*** Trevisan

Callophycus densus (Sonder) Kraft 1984*b*: 58, figs 17–32, 56. (Fig. 4*A*)
R. Norris & Aken (1985: 56, 58, figs 6, 7).

Type locality: Cape York, Queensland, Australia.

Voucher: HEC 10267, 27.7.1994: Loloata Island, SE reef.

Callophycus serratus (Harvey ex Kützing) Silva 1957: 143. (Fig. 4*B*)
Womersley & Bailey (1970: 319); Kraft (1984*b*: 54–58, figs 2–16, 50).

Type locality: Tonga.

Vouchers: HEC 10154, 19.7.1994: Motupore Island, S coast, outer slope of the fringing reef; HEC 10284, 27.7.1994: Loloata Island, SE reef.

Genus ***Kappaphycus*** Doty

Kappaphycus striatum (Schmitz) Doty ex Silva *et al.* 1996: 334

Type locality: Zanzibar, Tanzania.

Note: recorded by Heijs (1985*a*: 301 as *Eucheuma striatum*), but not among our recent collections.

Order **Rhodymeniales**
Family **Champiaceae**

Genus ***Champia*** Desvaux

Champia compressa Harvey 1838: 402
Cribb (1954: 25, pl. 4, fig. 3); Millar (1990: 371–373, figs 30*A–D*).

Type locality: Muizenberg, False Bay, South Africa.

Vouchers: HEC 10277b, 27.7.1994: Loloata Island, SE reef; ODC 242i, 27.7.1994, Loloata Island, SE reef.

Champia parvula (C.Agardh) Harvey 1853: 76. (Fig. 4*C*)
Jaasund (1976: 99, fig. 203); Cribb (1983: 70, pl. 21, fig. 1); Tseng (1984: 122, pl. 64, fig. 2); Littler *et al.* (1989: 142: fig. 1, p. 143); Millar (1990: 371, fig. 29*G–H*); Womersley (1996: 131, fig. 54*A–C*); Heijs (1985*a*: 302; 1985*b*: 306); Ohba & Enomoto (1992: 31).

Type locality: Cádiz, Spain.

Vouchers: HEC 10375, HEC 10376, 1.8.1994: Motupore Island, NE reef top.

Champia vieillardii Kützing 1866: 14, pl. 37, figs *e, f*
Dawson (1954: 443, figs 52*e*, 53); Price & Scott (1992: 57, figs 15*A–C*, 16*A–B*).

Type locality: New Caledonia.

Voucher: HEC 6351, 6.7.1986: Motupore Island, S coast.

Genus ***Gastroclonium*** Kützing

Gastroclonium xishaensis Chang & Xia 1978: 210, figs 1(1–5), 2(1–3). (Fig. 4*D*)
Tseng (1984: pl. 64, fig. 3).

Type locality: Xisha Island, Guangdong Province, China.

Vouchers: HEC 10151, 19.7.1994: Motupore Island, S coast, outer reef slope.

Note: only two sterile specimens have so far been collected, yet they display morphological features precisely similar to those described and illustrated by Chang and Xia (1978). Female plants have not been discovered for this species, and its alliance with the genus *Gastroclonium* is based on the presence of a stipe rather than the distinctive bilobed fusion cell characteristic of the genus.

Family **Lomentariaceae**

Genus ***Lomentaria*** Lyngbye

Lomentaria corallicola Børgesen 1939: 113, figs 30–32
Cribb (1983: 71–72, pl. 21, figs 4–6); R. Norris (1987: 36, 37, figs 5–8); Wynne (1995: 285).

Type locality: Kharg Island, Iran.

Voucher: ODC 242b, 27.7.1994: Loloata Island, SE reef.

Family **Rhodymeniaceae**

Genus ***Botryocladia*** (J.Agardh) Kylin

Botryocladia leptopoda (J.Agardh) Kylin 1931: 17–18. (Fig. 4*E*)
Weber-van Bosse (1928: 467–468, fig. 200); Jaasund (1976: 103, fig. 209); R. Norris (1989: 138–139, fig. 24–30, 39, 40); Millar (1990: 363).

Type locality: Moreton Bay, Queensland, Australia.

Voucher: HEC 10409, 4.8.1994: Loloata Island, SE reef.

Genus ***Ceratodictyon*** Zanardini

Ceratodictyon spongiosum Zanardini 1878: 37
Jaasund (1976: 89, fig. 179); Cribb (1983: 55, 56, pl. 12, figs 3, 4); Tseng (1984: 100, pl. 53, fig. 3); Price & Kraft (1991: 107–109, figs 1–13); Heijs (1985*a*: 302); Ohba & Enomoto (1992: 31).

Type locality: Wokam, Aru Islands, Indonesia.

Voucher: HEC 10216, 22.7.1994: Lion Island, reef platform S of the island.

Genus ***Coelothrix*** Børgesen

Coelothrix irregularis (Harvey) Børgesen 1920: 389

Type locality: Key West, Florida, USA.

Note: recorded by Ohba and Enomoto (1992: 31), but not among our recent collections.

Genus ***Gelidiopsis*** Schmitz

Gelidiopsis intricata (C.Agardh) Vickers 1905: 61
Jaasund (1976: 87, fig. 177); Cribb (1983: 56, 57, pl. 13, figs 1, 2); Tseng (1984: 100, pl. 53, fig. 4); Lawson & John (1987: 223, pl. 25, fig. 3); Price & Scott (1992: 51, 52, fig. 13*A–F*). Ohba & Enomoto (1992: 31).

Syntype localities: Mauritius, Hawaiian Archipelago and Ravak, Indonesia.

Vouchers: HEC 6356, 6.7.1986: Motupore Island, N coast; HEC 10380c, 2.8.1994: Bootless Bay, Osborne Point; HEC 10389, 2.8.1994: West point of Bootless Inlet.

Gelidiopsis repens (Kützing) Weber-van Bosse 1928: 425, 426
Ohba & Enomoto (1992: 31).

Type locality: New Caledonia.

Voucher: HEC 10380b, 2.8.1994: Bootless Bay, Osborne Point.

Order **Ceramiales**
Family **Ceramiaceae**

Genus ***Aglaothamnion*** Feldmann-Mazoyer

Aglaothamnion sp.

Voucher: HEC 10328c, 29.7.1994: patch reef E of Loloata Island.

Genus ***Anotrichium*** Nägeli

Anotrichium tenue (C.Agardh) Nägeli 1862: 399
Jaasund (1976: 113, fig. 229 as *Griffithsia tenuis*); Cribb (1983: 72–73, pl. 23, figs 1–5); Tseng (1984: 124, pl. 65, fig. 2); Millar (1990: 407–408, figs 49*A–D*); Wynne (1995: 287); De Clerck & Coppejans (1996: 252, fig. 87).

Type locality: Venezia, Italy.

Voucher: ODC 242m, 27.7.1994: Loloata Island, SE reef.

Genus ***Callithamnion*** Lyngbye

Callithamnion sp.

Voucher: ODC 242l, 27.7.1994: Loloata Island, SE reef.

Genus ***Centroceras*** Kützing

Centroceras clavulatum (C.Agardh) Montagne 1846: 140

Type locality: Callao, Peru.

Note: recorded by Heijs (1985*b*: 307), but not among our recent collections.

Centroceras distichum Okamura 1934: 40, pl. 321, figs 7–10

Type locality: Wagu, Japan.

Note: recorded by Ohba and Enomoto (1992: 31), but not among our recent collections.

Genus ***Ceramium*** Roth

Ceramium camouii Dawson 1944: 319–320, pl. 51, figs 2, 3

Type locality: Isla Turners, Baja California, Mexico.

Note: recorded by Heijs (1985b: 307), but not among our recent collections.

Ceramium codii (Richards) Mazoyer 1938: 324
Jaasund (1976: 107, fig. 216); Cribb (1983: 80, 81, pl. 27, figs 1–4); Millar (1990: 393, 394, figs 41*D–F*, 43*B*); Price & Scott (1992: 86, 87, figs 26*A–D*); Heijs (1985*b*: 307).

Type locality: Bermuda.

Voucher: ODC 242g, 27.7.1994: Loloata Island, SE reef.

Ceramium flaccidum (Kützing) Ardissone 1871: 40
Jaasund (1976: 105, fig. 214*A–E* as *C. taylorii*); Cribb (1983: 82, 83, pl. 31, fig 2, pl. 59, figs 1–4); Millar (1990: 395, 396, figs 42*A–E*, 43*C–E*); Price & Scott (1992: 89, 90, figs 27*A–E*); Wynne (1995: 292–294, fig. 36); Heijs (1985*b*: 307 as *C. gracillimum* and *C. taylorii*).

Type locality: Kilkee, County Clare, Ireland.

Voucher: ODC 242h, 27.7.1994: Loloata Island, SE reef.

Ceramium lentiforme Millar 1990: 391, figs 41*A–C*, 43*A*

Type locality: Coffs Harbour, New South Wales, Australia.

Vouchers: HEC 10408, 2.8.1994: W point of Bootless Inlet; ODC 242f, 27.7.1994, Loloata Island, SE reef.

Note: the presence of this otherwise New South Wales species in PNG is a major range extension, but it has since been collected from Norfolk Island in the Coral Sea by the first author.

Ceramium mazatlanense Dawson 1950: 130, pl. 2, figs 14, 15

Type locality: Mazatlán, Sinaloa, Mexico.

Note: recorded by Heijs (1985*b*: 307), but not among our recent collections.

Ceramium procumbens Setchell & Gardner 1924: 772, pl. 27, figs 51–54

Type locality: Isla Partida, Baja California, Mexico.

Note: recorded by Heijs (1985*b*: 307), but not among our recent collections.

Ceramium sp.

Note: we are unsure as to which of the above species this record by Heijs (1985*a*: 302) refers to.

Genus ***Corallophila*** Weber-van Bosse

Corallophila huysmansii (Weber-van Bosse) R. Norris 1993: 396

Type locality: Indonesia.

Note: recorded by Heijs (1985*b*: 306) as *Ceramiella huysmansii* (Weber-van Bosse) Børgesen, but not among our recent collections.

Genus ***Dasyphila*** Sonder

Dasyphila plumarioides Yendo 1920: 7. (Fig. 4*F*)
Womersley & Bailey (1970: 326, fig. 9); Kraft & Wilson (1997: 139–146, figs 3–31).

Type locality: Hung-t'ou Island, Taiwan.

Vouchers: HEC 10274, 27.7.1994: Loloata Island, SE reef; HEC 10364, 31.7.1994: Loloata Island, W end of the reef platform.

Genus ***Griffithsia*** C.Agardh

Griffithsia ovalis Harvey 1855: 559

Type locality: King George's Sound, Western Australia.

Note: recorded by Heijs (1985*b*: 307), but not among our recent collections.

Griffithsia rhizophora Grunow ex Weber-van Bosse 1923: 313

Syntype localities: Sri Lanka and Indonesia.

Note: recorded by Heijs (1985*b*: 307), but not among our recent collections.

Griffithsia weber-van-bosseae Børgesen 1942: 15–20, figs 1–3

Type locality: Black River Bay, Mauritius.

Note: recorded by Heijs (1985*b*: 307), but not among our recent collections.

Genus ***Haloplegma*** Montagne

Haloplegma duperreyi Montagne 1842: 258–261, pl. 7, fig. 1
Cribb (1983: 92, pl. 28, figs 1–3); Tseng (1984: 130: pl. 68, fig. 4); Littler *et al.* (1989: 168: fig. 2, p. 169); Price & Scott (1992: 127–129, figs 43*A–D*).

Type locality: Martinique, West Indies.

Voucher: HEC 10414, 4.8.1994: Loloata Island, SE reef (tetrasporic).

Genus ***Ptilocladia*** Sonder

Ptilocladia cf. ***vestita*** (Harvey) Wollaston 1968: 263, fig. 11

Type locality: Rottnest Island, Western Australia.

Voucher: HEC 10363, 31.7.1994: Loloata Island, W end of the reef platform.

Note: although sterile, the plants from PNG have all the anatomical features of the species as described by Wollaston (1968).

Genus ***Scageliopsis*** Wollaston

Scageliopsis patens Wollaston 1980: 110, figs 1–11
Athanasiadis (1996: 178, fig. 87).

Type locality: Port Stanvac, St Vincent Gulf, South Australia.

Voucher: ODC 242j, 27.7.1994: Loloata Island, SE reef.

Note: the New South Wales' records of *Antithamnionella breviramosa* by Millar (1990: 388–389, figs 40*A–D*) and Millar and Kraft (1993: 36) have been shown to represent this species (Athanasiadis 1996).

Genus ***Spyridia*** Harvey

Spyridia filamentosa (Wulfen) Harvey 1833: 337
Jaasund (1976: 111, fig. 224); Magruder & Hunt (1979: 93, fig. 3, p. 92); Cribb (1983: 94, pl. 26, figs 2–4); Tseng (1984: 132, pl. 69: fig. 3); Littler *et al.* (1989: 150, fig. 1, p. 151); Heijs (1985*a*: 302; 1985*b*: 307); Ohba & Enomoto (1992: 31).

Type locality: Adriatic Sea.

Vouchers: HEC 6290, 4.7.1986: Motupore Island, N coast; HEC 10146, 19.7.1994: Motupore Island, S coast, outer slope; HEC 10330, 29.7.1994: patch reef E of Loloata Island; HEC 10396, 2.8.1994: W point of Bootless Inlet.

Genus ***Wrangelia*** C.Agardh

Wrangelia argus (Montagne) Montagne 1856: 444

Type locality: Roque del Gando, Canary Islands.

Note: recorded by Heijs (1985*b*: 307), but not among our recent collections.

Wrangelia penicillata (C.Agardh) C.Agardh 1828: 138. (Fig. 5*A*)
Magruder & Hunt (1979: 97, fig. 1, p. 92); Littler *et al.* (1989: 148, fig. 1, p. 149).

Type locality: Italy.

Vouchers: HEC 10239, 25.7.1994: Loloata Island, SE reef; HEC 10441, 5.8.1994: Loloata Island, SE reef.

Family **Dasyaceae**

Genus ***Dasya*** C.Agardh

Dasya iyengarii Børgesen 1937: 345, figs 16, 17. (Fig. 5*B*)
Cribb (1983: 103–104, pl. 64, figs 2–4); Millar (1990: 431–432, fig. 58*A–F*); Price & Scott (1992: 154–156, fig. 53*A–D*).

Type locality: Pamban Bridge, Tamil Nadu, India.

Vouchers: HEC 6343, 6.7.1986: Motupore Island, S coast, inner slope of the fringing reef; HEC 10302, 28.7.1994: South Patch Reef; ODC 242a, 27.7.1994, Loloata Island, SE reef.

Dasya pilosa (Weber-van Bosse) Millar 1990: 433, figs 59*D–G*. (Fig. 5*C*)
Weber-van Bosse (1923: 377, 378, fig. 137 as *Dasyopsis pilosa*); Jaasund (1976: 121, fig. 245*A–C* as *Dasyopsis pilosa*); Heijs (1985*a*: 302 as *Dasyopsis pilosa*).

Type locality: Waru, Seram, Indonesia.

Voucher: HEC 10243, 26.7.1994: Motupore Island, S coast, lagoon.

Genus ***Heterosiphonia*** Montagne

Heterosiphonia crispella (C.Agardh) Wynne 1985: 87
Jaasund (1976: 121, fig. 246 as *H. wurdemannii*); Wynne (1985: 87); De Clerck & Coppejans (1996: 259, fig. 102).

Type locality: near Cádiz, Spain.

Voucher: HEC 10327a, 29.7.1994: patch reef E of Loloata Island.

Genus ***Rhodoptilum*** (J.Agardh) Kylin

Rhodoptilum plumosum (Harvey & Bailey) Kylin 1956: 461

Type locality: Puget Sound, Washington, USA.

Note: this species is strictly endemic to the west coast of the United States of America and we suggest that this record by Ohba and Enomoto (1992: 31) most probably represents a *Dasya* or *Eupogodon* species.

Family **Delesseriaceae**

Genus ***Caloglossa*** (Harvey) Martens

Caloglossa leprieurii (Montagne) Martens 1869: 234, 237
Jaasund (1976: 117, fig. 238); Tseng (1984: 136, pl. 71, fig. 3); J. Tanaka & Chihara (1988: 98, fig. 10); King & Puttock (1994: 112–115); King (1990: 60).

Type locality: Cayenne, French Guiana.

Voucher: HEC 10452a, 5.8.1994: Motupore Island: high level in mangrove vegetation.

Genus ***Hypoglossum*** Kützing

Hypoglossum subsimplex Wynne 1994: 257, figs 1–10

Type locality: Florida Keys, Florida, USA.

Vouchers: HEC 10283, 27.7.1994: Loloata Island, SE reef; HEC 10328a, 29.7.1994: patch reef E of Loloata Island.

Genus ***Martensia*** Hering

Martensia fragilis Harvey 1854: 145. (Fig. 5*D*)
Littler *et al.* (1989: 134, fig. 1, p. 135 as *M. pavonia*); Millar (1990: 418–420, figs 53*C–E*); Price & Scott (1992: 143–144, figs 49*A–D* as *M. pavonia*); Yoshida & Mikami (1996: 101–103, figs 4–18).

Type locality: Belligam, Sri Lanka.

Voucher: ODC 255, 29.7.1994: patch reef E of Loloata Island.

Note: the synonymy of *M. denticulata* Harvey and *M. pavonia* (J.Agardh) J.Agardh with *M. fragilis* was proposed by Millar (1990).

Genus ***Neomartensia*** Yoshida & Mikami

Neomartensia flabelliformis (Harvey ex J.Agardh) Yoshida & Mikami 1996: 105, 106, fig. 3, 25–36. (Fig. 5*E*)

Type locality: Tonga.

Voucher: HEC 10428, 5.8.1994: Loloata Island, SE reef.

Genus ***Vanvoorstia*** Harvey

Vanvoorstia spectabilis Harvey 1854: 144, pl. V. (Fig. 5*F*)
Papenfuss (1937: 31–54, figs 28–54); Jaasund (1976: 119, fig. 240); Cribb (1983: 100, pl. 32, fig. 1, pl. 63, fig. 4).

Type locality: Belligam, Sri Lanka.

Vouchers: HEC 10309, 28.7.1994: Loloata Island, SE reef; HEC 10429, 5.8.1994: Loloata, SE reef.

Genus ***Zellera*** Martens

Zellera tawallina Martens 1868: 33, pl. VIII, fig. 3. (Fig. 6*A*)
Verheij & Prud'homme van Reine (1993: 443, pl. 14, fig. 8); Allen & Steene (1994: 24); Ohba & Enomoto (1992: 31).

Type locality: Tawaliketjil, Indonesia.

Vouchers: HEC 6340, 6.7.1986: Motupore Island, S coast, inner slope of fringing reef; HEC 10218, 23.7.1994: barrier reef in front of Motupore Island, outer slope; HEC 10275, 27.7.1994: Loloata Island, SE reef; HEC 10348, 30.7.1994: Horse Shoe Reef, W slope; HEC 10360, 31.7.1994: Loloata Island, W end of reef platform.

Family **Rhodomelaceae**

Genus ***Acanthophora*** Lamouroux

Acanthophora spicifera (Vahl) Børgesen 1910: 201
Jaasund (1976: 137, fig. 276); Magruder & Hunt (1979: 57, fig. 1, p. 56); Cribb (1983: 105, 106, pl. 32, fig. 2); Tseng (1984: 142, pl. 74, fig. 2); Littler *et al.* (1989: 188, fig. 1, p. 189); Verheij & Prud'homme van Reine (1993: 444, pl. 15, fig. 2); Heijs (1985*a*: 302); Ohba & Enomoto (1992: 32).

Type locality: St Croix, Virgin Islands.

Vouchers: HEC 6276, 4.7.1986: Motupore Island, N coast; HEC 6318, 5.7.1986: Motupore Island, S coast; HEC 10244, 26.7.1994: Motupore Island, S coast, lagoon; HEC 10378, 2.8.1994: Bootless Bay, Osborne Point.

Genus ***Bostrychia*** Montagne

Bostrychia cf. ***pinnata*** J.Tanaka & Chihara 1984: 122–125, figs 4, 5
King & Puttock (1989: 21–24, figs 9, 10*a*, 11*a*).

Type locality: Shiira River, Iriomote Island, Japan.

Voucher: HEC 10452b, 5.8.1994: Motupore Island: high level in mangrove vegetation.

Bostrychia tenella (Lamouroux) J.Agardh 1863: 869–871
Jaasund (1976: 127, fig. 258); Cribb (1983: 106, 107, pl. 66, figs 3, 4); Tseng (1984: 144, pl. 75, fig. 3); King & Puttock (1989: 34–37, fig. 15*A–D*); Littler *et al.* (1989: 174, fig. 1, p. 175); King (1990: 59).

Type locality: St Croix, Virgin Islands.

Voucher: HEC 10443, HEC 10444, 5.8.1994: Motupore Island, N coast; on mangrove aerial roots; high intertidal.

Note: the synonymy of *B. binderi* Harvey with *B. tenella* is included on the authority of King *et al.* (1988: 18, 19).

Genus ***Chondria*** C.Agardh

Chondria armata (Kützing) Okamura 1907: 69, pl. XVI, figs 9–19
Jaasund (1976: 135, fig. 272); Cribb (1983: 107, 108, pl. 33, figs 1); Tseng (1984: 144, pl. 75, fig. 4); Millar (1990: 459, 460, figs 71*A–B*); Heijs (1985*a*: 302).

Type locality: Wagap, New Caledonia.

Voucher: HEC 6320, 5.7.1986: Motupore Island, S coast.

Chondria collinsiana Howe 1920: 568

Type locality: Mariguana, Bahamas.

Note: recorded by Heijs (1985*b*: 307), but not among our recent collections.

Chondria dasyphylla (Woodward) C.Agardh 1817: xviii

Type locality: Yarmouth, England.

Note: recorded by Heijs (1985*b*: 307), but not among our recent collections. Gordon-Mills (1987) regards all non-European records with doubt.

Chondria ryukyuensis Yamada 1935: 27, pl. XI

Type locality: Ryukyu, Japan.

Note: recorded by Ohba and Enomoto (1992: 32), but not among our recent collections.

Genus ***Chondrophycus*** (Tokida & Saito) Garbary & Harper

Chondrophycus cartilaginea (Yamada) Garbary & Harper 1998: 194
Yamada (1931: 230, fig. *o*, pl. 19, fig. *a*, as *Laurencia cartilaginea*); Ohba & Enomoto (1992: 32).

Type locality: Chikuzen and Iyo Prefectures, Japan.

Voucher: HEC 10385, 2.8.1994: Bootless Bay, Osborne Point.

Chondrophycus intermedius (Yamada) Garbary & Harper 1998: 195
Yamada (1931: 191, pl. 1, fig. *e*, pl. 2 as *Laurencia intermedia*).

Type locality: Enoshima, Province Sagami, Japan.

Voucher: HEC 10333, 29.7.1994: patch reef E of Loloata Island.

Chondrophycus papillosus (C.Agardh) Garbary & Harper (Fig. 6*C*)
Jaasund (1976: 139, fig. 281 as *Laurencia papillosa*); Lawson & John (1987: 320 as *Laurencia papillosa*); Littler *et al.* (1989: 182, fig. 2, p. 183 as *Laurencia papillosa*); De Clerck & Coppejans (1996: 263, figs 113, 114 as *Laurencia papillosa*); Heijs (1985*b*: 307 as *Laurencia papillosa*).

Type locality: Mokha, Yemen.

Vouchers: HEC 6301, 4.7.1986: Motupore Island, W coast; HEC 10164, 19.7.1994: Motupore Island, SE reef.

Chondrophycus parvipapillatus (Tseng) Garbary & Harper 1998: 195
Tseng (1943: 204, 205, pl. IV as *Laurencia parvipapillata*).

Type locality: Cape d'Aguilar, Hong Kong.

Note: recorded by Heijs (1985*a*: 302) and Ohba and Enomoto (1992: 32), but not among our recent collections.

Genus ***Endosiphonia*** Zanardini

Endosiphonia horrida (C.Agardh) P.Silva in Silva *et al.* 1996: 494
Børgesen (1943: 62, 63, figs 32*a*, *b*) as *Hypnea horrida* (C.Agardh) J.Agardh.

Type locality: Mauritius.

Voucher: HEC 6318, 5.7.1986: Motupore Island, S coast.

Genus ***Herposiphonia*** Nägeli

Herposiphonia secunda (C.Agardh) Ambronn 1880: 197
Hollenberg (1968*a*: 555, fig. 14); Jaasund (1976: 129, fig. 262); Millar (1990: 451–452, figs 68*A–C*); Heijs (1985*b*: 307).

Type locality: Mediterranean Sea.

Vouchers: HEC 10327b, 29.7.1994: patch reef E of Loloata Island; ODC 242c, 27.7.1994: Loloata Island, SE reef.

Herposiphonia variabilis Hollenberg 1968*a*: 557, figs 1*F*, 2*G*, 17, 18, 21

Type locality: North Island, Johnston Island, Pacific Ocean.

Note: recorded by Heijs (1985*b*: 307), but not among our recent collections.

Genus ***Laurencia*** Lamouroux

Laurencia majuscula (Harvey) Lucas 1935: 223. (Fig. 6*B*)
Saito & Womersley (1974: 820, figs 1*A*, 6); Cribb (1983: 120, 121, pl. 37, fig. 3); Tseng (1984: 152, fig. 3); Wynne (1995: 310, 316, fig. 63); Heijs (1985*a*: 302).

Type locality: Rottnest Island, Western Australia.

Vouchers: HEC 10374, 1.8.1994: Motupore Island, NE reef top; HEC 10374, 1.8.1994: Motupore Island, NE reef top.

Laurencia cf. ***obtusa*** (Hudson) Lamouroux 1813: 130
Jaasund (1976: 143, fig. 289); Magruder & Hunt (1979: 81, fig. 2, p. 80); Tseng (1984: 152, pl. 79, fig. 4); Littler *et al.* (1989: 182, fig. 1, p. 183); De Clerck & Coppejans (1996: 263, fig. 110–112).

Type locality: unspecified, probably England.

Voucher: HEC 10277a, 27.7.1994: Loloata Island, SE reef.

Note: the sterile specimens are tentatively referred to *L. obtusa*, a widespread species in temperate and tropical waters.

Laurencia pedicularioides Børgesen 1933: 136, pl. IX. (Fig. 6*D*)

Type locality: Dwarka, Gujarat, India.

Voucher: HEC 10271, 27.7.1994: Loloata Island, SE reef.

Laurencia perforata (Bory de Saint-Vincent) Montagne 1841: 155
Jaasund (1976: 137, fig. 279); Cribb (1983: 124, pl. 40, fig. 3); Price & Scott (1992: 189–192, fig. 67*A–B*).

Type locality: Canary Islands.

Vouchers: HEC 10447, HEC 10448c, 5.8.1994: Motupore Island; HEC 10452c, 5.8.1994: Motupore Island: high level in mangrove vegetation.

Laurencia sp.
Heijs (1985*a*: 302; 1985*b*: 307); Ohba & Enomoto (1992: 32).

Voucher: HEC 10332, 29.7.1994: patch reef E of Loloata Island.

Genus ***Leveillea*** Decaisne

Leveillea jungermannioides (Hering & Martens) Harvey 1855: 539
Jaasund (1976: 131, fig. 265); Cribb (1983: 127128, pl. 32, fig. 4); Tseng (1984: 156, pl. 81, fig. 3); Wynne (1995: 315, fig. 71); De Clerck & Coppejans (1996: 265, figs 127, 128); Heijs (1985*a*: 302); Ohba & Enomoto (1992: 32).

Type locality: El Tor, Egypt.

Vouchers: HEC 6341, 6.7.1986: 5.8.1994: Motupore Island, S coast, inner slope of the fringing reef; HEC 10320, 28.7.1994: Loloata Island, SE reef.

Genus ***Melanamansia*** R.Norris

Melanamansia glomerata (C.Agardh) R.Norris 1995: 66. (Fig. 6*E*)
Magruder & Hunt (1979: 59, fig. 1, p. 58 as *Amansia glomerata* C.Agardh); Cribb (1983: 106, pl. 31, fig. 1 as *A. glomerata*); Tseng (1984: 142, pl. 74, fig. 4 as *A. glomerata*); Verheij & Prud'homme van Reine (1993: 444, pl. 15, fig. 3 as *A. glomerata*); Heijs (1985*a*: 302 as *A. glomerata*); Ohba & Enomoto (1992: 32 as *A. glomerata*).

Type locality: Hawaiian Archipelago.

Vouchers: HEC 6317, 5.7.1986: Motupore Island, S coast, centre of lagoon, close to the passage; HEC 10159, 19.7.1994: Motupore Island, S coast; HEC 10405, 2.8.1994: W point of Bootless Inlet.

Note: R. Norris (1988*a*: 209–223) described the genus *Melanamansia* on the basis of the presence of two dorsal pseudopericentral cells, differing from *Amansia* in which the representatives lack pseudopericentral cells.

Melanamansia pumila (Sonder) R.Norris 1988*a*: 222

Type locality: Cape York, Queensland, Australia.

Voucher: HEC 10417, 4.8.1994: Loloata Island, SE reef.

Genus ***Murrayella*** Schmitz

Murrayella periclados (C.Agardh) Schmitz 1893: 227
Jaasund (1976: 127, fig. 256); Lawson & John (1987: 328, pl. 57, figs 6, 7); Wynne (1995: 315, figs 72, 73).

Type locality: St Croix, Virgin Islands.

Voucher: HEC 10448b, 5.8.1994: Motupore Island, N coast; on mangrove aerial roots; high intertidal.

Genus ***Neurymenia*** J.Agardh

Neurymenia fraxinifolia (Mertens ex Turner) J.Agardh 1863: 1135
Jaasund (1976: 133, fig. 271); R. Norris (1988*b*: 273–276, figs 8–10).

Type locality: 'East Indies.'

Vouchers: HEC 10322, 29.7.1994: patch reef E of Loloata Island; HEC 10369, 31.7.1994: Loloata Island, W end of the reef platform.

Genus ***Osmundea*** Stackhouse

Osmundea sinicola (Setchell & Gardner) Nam in Nam *et al.* 1994: 393. (Fig. 6*F*)
Setchell & Gardner (1924: 764, pl. 29, figs 65, 66, pl. 50*A* as *Laurencia sinicola* Setchell & Gardner); Nam *et al.* (1994: 393).

Type locality: Eureka, near La Paz, Baja California, Mexico.

Vouchers: HEC 10229, 23.7.1994: barrier reef in front of Motupore Island, outer slope; HEC 10272, 27.7.1994: Loloata Island, SE reef.

Genus ***Polysiphonia*** Greville

Polysiphonia sp.
Ohba & Enomoto (1992: 32).

Voucher: ODC 242d, 27.7.1994, Loloata Island, SE reef [male gametophyte].

Note: these specimens are fragmentary and difficult to identify to species.

The genus was not well represented in our recent collections, but Heijs (1985*b*: 307) has reported the following five species from Motupore Island.

Polysiphonia crassicollis Børgesen 1939: 126–129, figs 39, 40

Type locality: near Bushire, Iran.

Polysiphonia delicatula Hollenberg 1968*b*: 62, fig. 1*F*

Type locality: Poka Bay, Oahu, Hawaiian Archipelago.

Polysiphonia japonica Harvey var. ***savatieri*** (Hariot) Yoon 1986: 34

Type locality: Yokosuka, Kanagawa Prefecture, Japan.

Polysiphonia sparsa (Setchell) Hollenberg 1968b: 87

Type locality: Arue Reef, Tahiti.

Polysiphonia sphaerocarpa Børgesen 1918: 271–274, figs 267–271

Type locality: St Thomas, Virgin Islands.

Genus ***Stictosiphonia*** J.Hooker & Harvey

Stictosiphonia sp.

Voucher: HEC 10452d, 5.8.1994: Motupore Island: high level in mangrove vegetation.

Genus ***Tolypiocladia*** Schmitz

Tolypiocladia calodictyon (Harvey ex Kützing) Silva 1952: 308
Heijs (1985*a*: 302).

Type locality: Tonga.

Vouchers: HEC 6285, 4.7.1986: Motupore Island, N coast; HEC 10381, 2.8.1994: Bootless Bay, Osborne Point.

Tolypiocladia glomerulata (C.Agardh) Schmitz in Schmitz & Falkenberg 1897: 441–442
Jaasund (1976: 125, fig. 253); Magruder & Hunt (1979: 95, fig. 2, p. 94); Cribb (1983: 135–136, pl. 68, fig. 4); Tseng (1984: 160, pl. 83, fig. 4); Verheij & Prud'homme van Reine (1993: 449, pl. 16, fig. 3); Heijs (1985*a*: 302; 1985*b*: 307); Ohba & Enomoto (1992: 32).

Type locality: Shark Bay, Western Australia.

Voucher: HEC 10436, 5.8.1994: Loloata Island, SE reef.

Order **Rhodogorgonales**
Family **Rhodogorgonaceae**

Genus ***Renouxia*** Fredericq & J.N.Norris

Renouxia antillana Fredericq & J.Norris 1995: 329, figs 1–42. (Fig. 7*A*)

Type locality: Ilet à Caret, Guadeloupe.

Vouchers: HEC 10270, 27.7.1994: Loloata Island, SE reef; HEC 10171, 20.7.1994: Motupore Island, S coast, outer reef slope.

Note: this otherwise Caribbean species has since been discovered throughout the tropical Pacific (M. and D. Littler, pers. comm.).

Incertae sedis
Family **Wurdemanniaceae**

Genus ***Wurdemannia*** Harvey

Wurdemannia miniata (Sprengel) J.Feldmann & G.Hamel 1934: 544
Jaasund (1976: 73, fig. 148*A*, *B*); Price & Scott (1992: 31–34, fig. 6*A–E*).

Type locality: Montpellier, France.

Voucher: HEC 10448a, 5.8.1994: Motupore Island.

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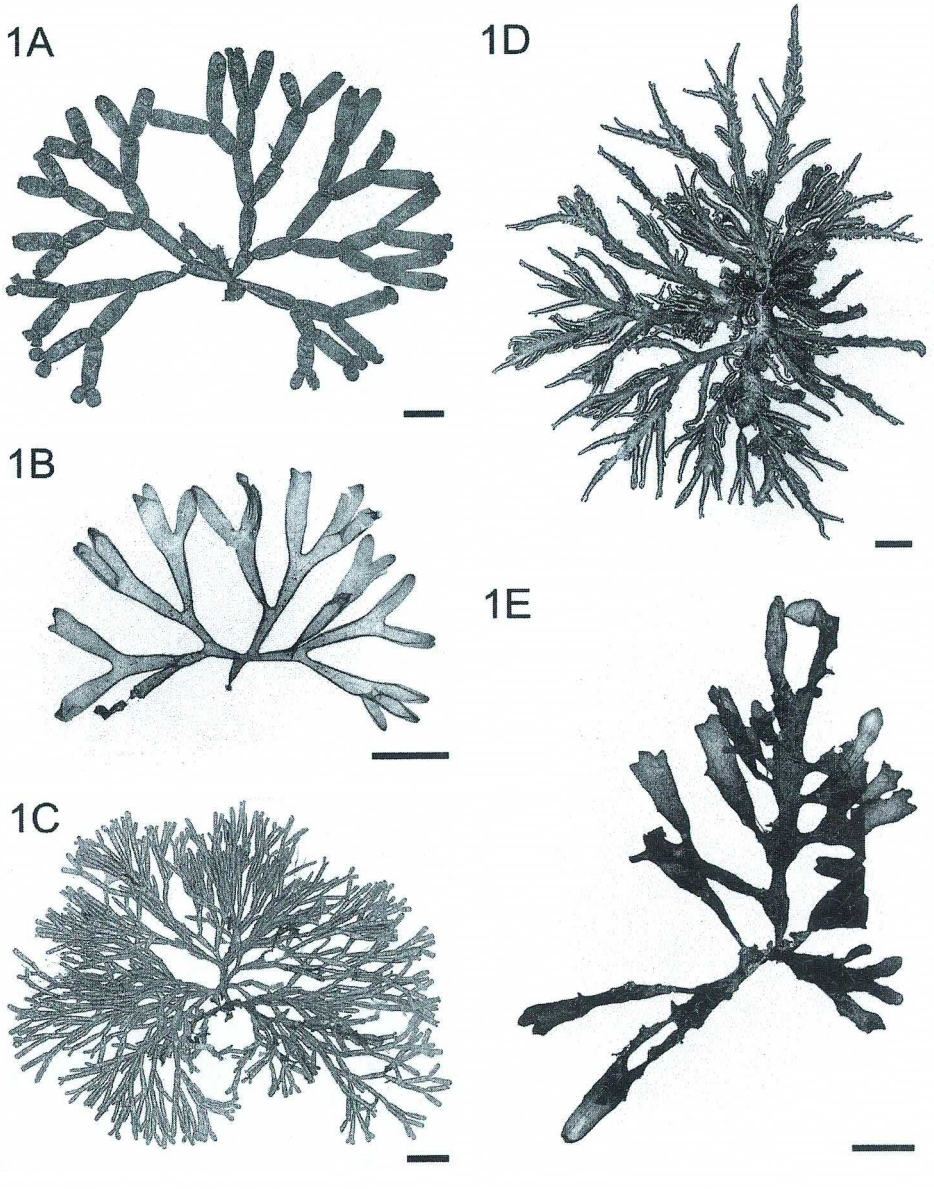

Fig. 1. *A*, *Galaxaura obtusata* (Ellis & Solander) Lamouroux [HEC 10289, scale bar: 1 cm]; *B*, *Scinaia tsinglanensis* Tseng [HEC 10410, scale bar: 1 cm]; *C*, *Tricleocarpa fragilis* (Linnaeus) Huisman & Townsend [HEC 10290, scale bar: 1 cm]; *D*, *Trichogloea requienii* (Montagne) Kützing [HEC 10172, scale bar: 1 cm]; *E*, *Gracilaria rhodymenioides* Millar [HEC 10185, scale bar: 1 cm].

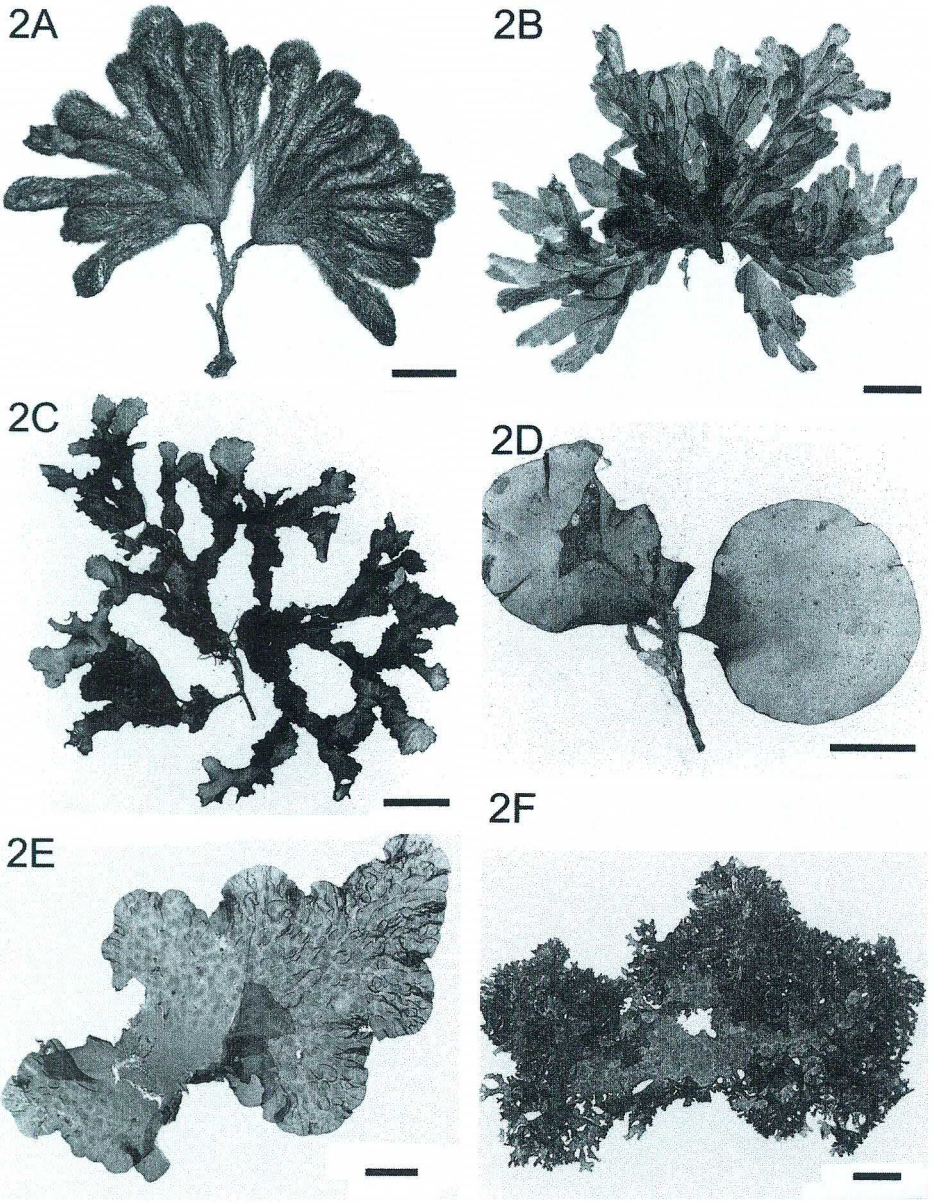

Fig. 2. *A*, *Gibsmithia hawaiiensis* Doty [HEC 10411, scale bar: 1 cm]; *B*, *Gibsmithia larkumii* Kraft [HEC 10273, scale bar: 1 cm]; *C*, *Cryptonemia crenulata* (J.Agardh) J.Agardh [HEC 10317, scale bar: 1 cm]; *D*, *Cryptonemia yendoi* Weber-van Bosse [HEC 10416, scale bar: 1 cm]; *E*, *Kallymenia* sp. [HEC 10219, scale bar: 1 cm]; *F*, *Halymenia maculata* J.Agardh [HEC 10174, scale bar: 1 cm].

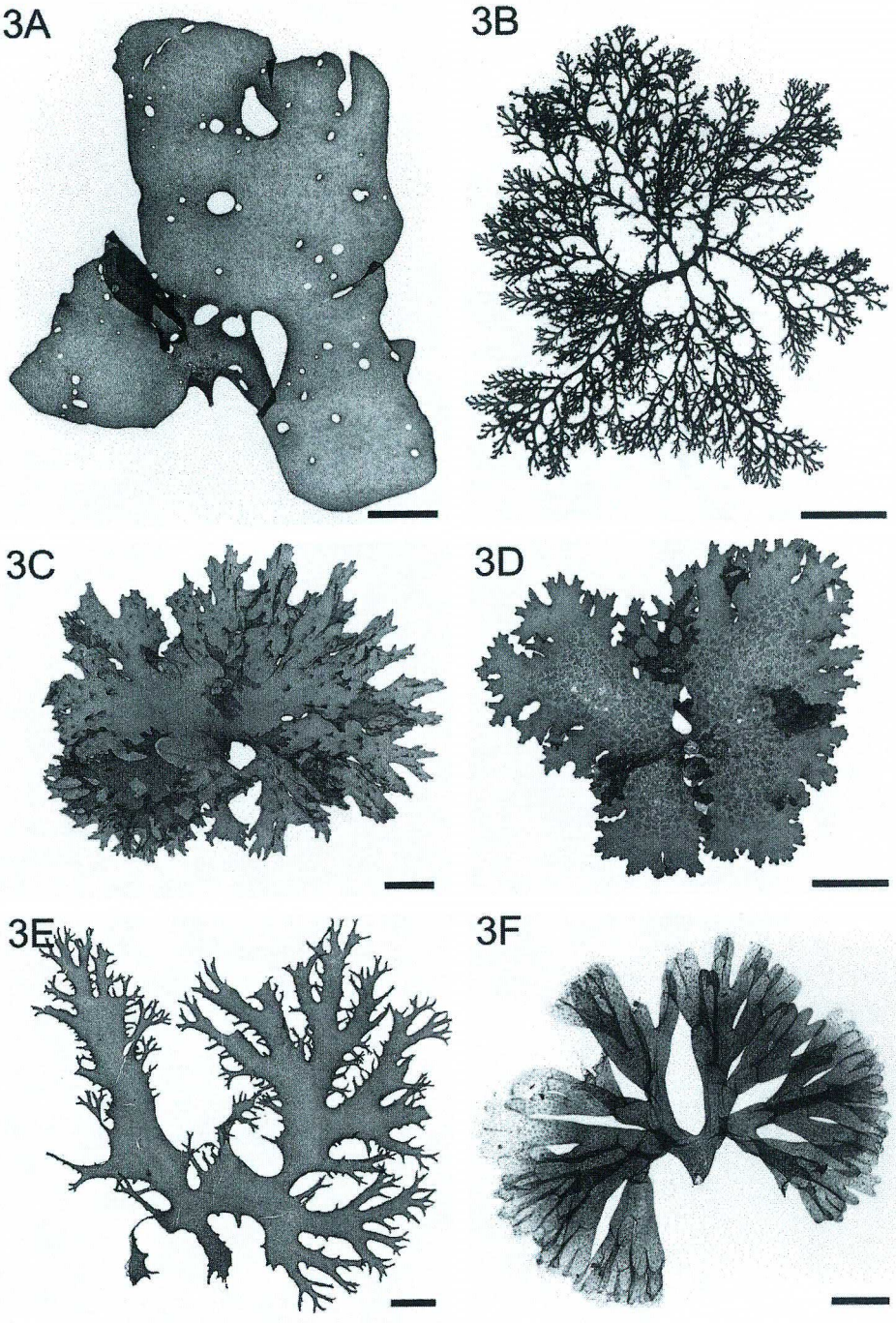

Fig. 3. *A*, *Kallymenia* cf. *perforata* J.Agardh [HEC 10430, scale bar: 1 cm]; *B*, *Portieria hornemanii* (Lyngbye) P.Silva [HEC 10175, scale bar: 1 cm]; *C*, *Platoma* sp. [HEC 10222, scale bar: 1 cm]; *D*, *Platoma ardreanum* Kraft & Abbott [HEC 10221, scale bar: 1 cm]; *E*, *Titanophora weberae* Børgesen [HEC 10294, scale bar: 1 cm]; *F*, *Sebdenia flabellata* (J.Agardh) Parkinson [HEC 10359, scale bar: 1 cm].

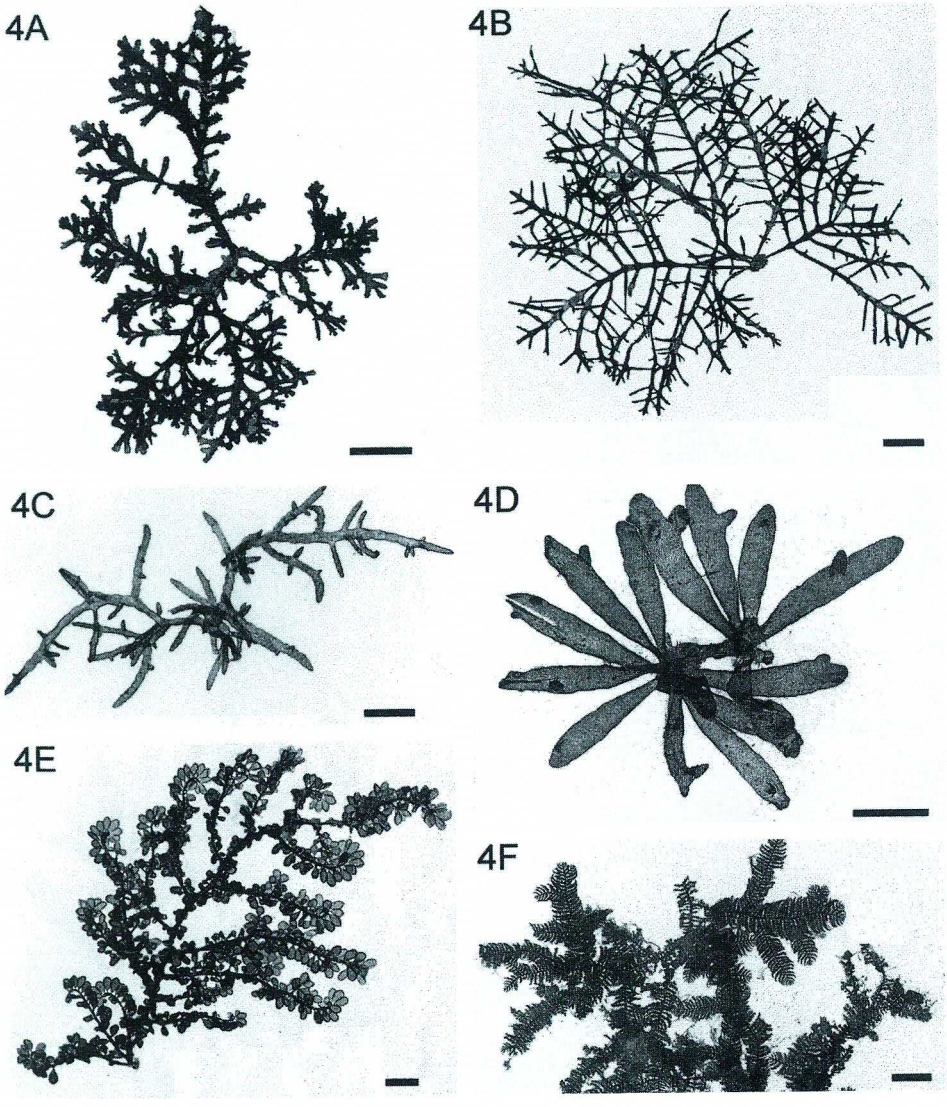

Fig. 4. *A*, *Callophycus densus* (Sonder) Kraft [HEC 10267, scale bar: 1 cm]; *B*, *Callophycus serratus* (Harvey ex Kützing) P.Silva [HEC 10284, scale bar: 1 cm]; *C*, *Champia parvula* (C.Agardh) Harvey [HEC 10376, scale bar: 0.5 cm]; *D*, *Gastroclonium xishaensis* Chang & Xia [HEC 10151, scale bar: 0.5 cm]; *E*, *Botryocladia leptopoda* (J.Agardh) Kylin [HEC 10409, scale bar: 1 cm]; *F*, *Dasyphila plumarioides* Yendo [HEC 10364, scale bar: 0.5 cm].

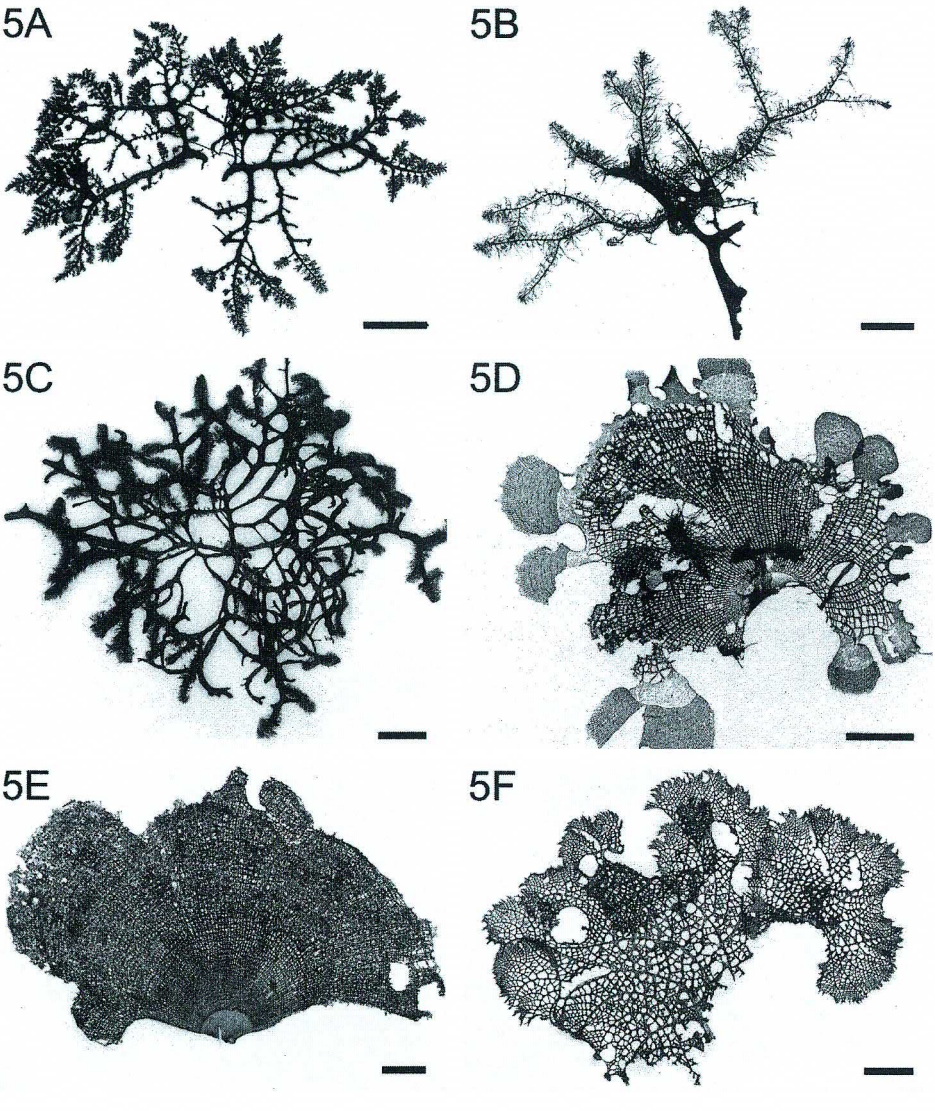

Fig. 5. *A*, *Wrangelia penicillata* (C.Agardh) C.Agardh [HEC 10441, scale bar: 1 cm]; *B*, *Dasya iyengarii* Børgesen [HEC 10302, scale bar: 0.5 cm]; *C*, *Dasya pilosa* (Weber-van Bosse) Millar [HEC 10243, scale bar: 1 cm]; *D*, *Martensia fragilis* Harvey [ODC 255, scale bar: 0.5 cm]; *E*, *Neomartensia flabelliformis* (Harvey ex J.Agardh) Yoshida & Mikami [HEC 10428, scale bar: 0.5 cm]; *F*, *Vanvoorstia spectabilis* Harvey [HEC 10309, scale bar: 0.5 cm].

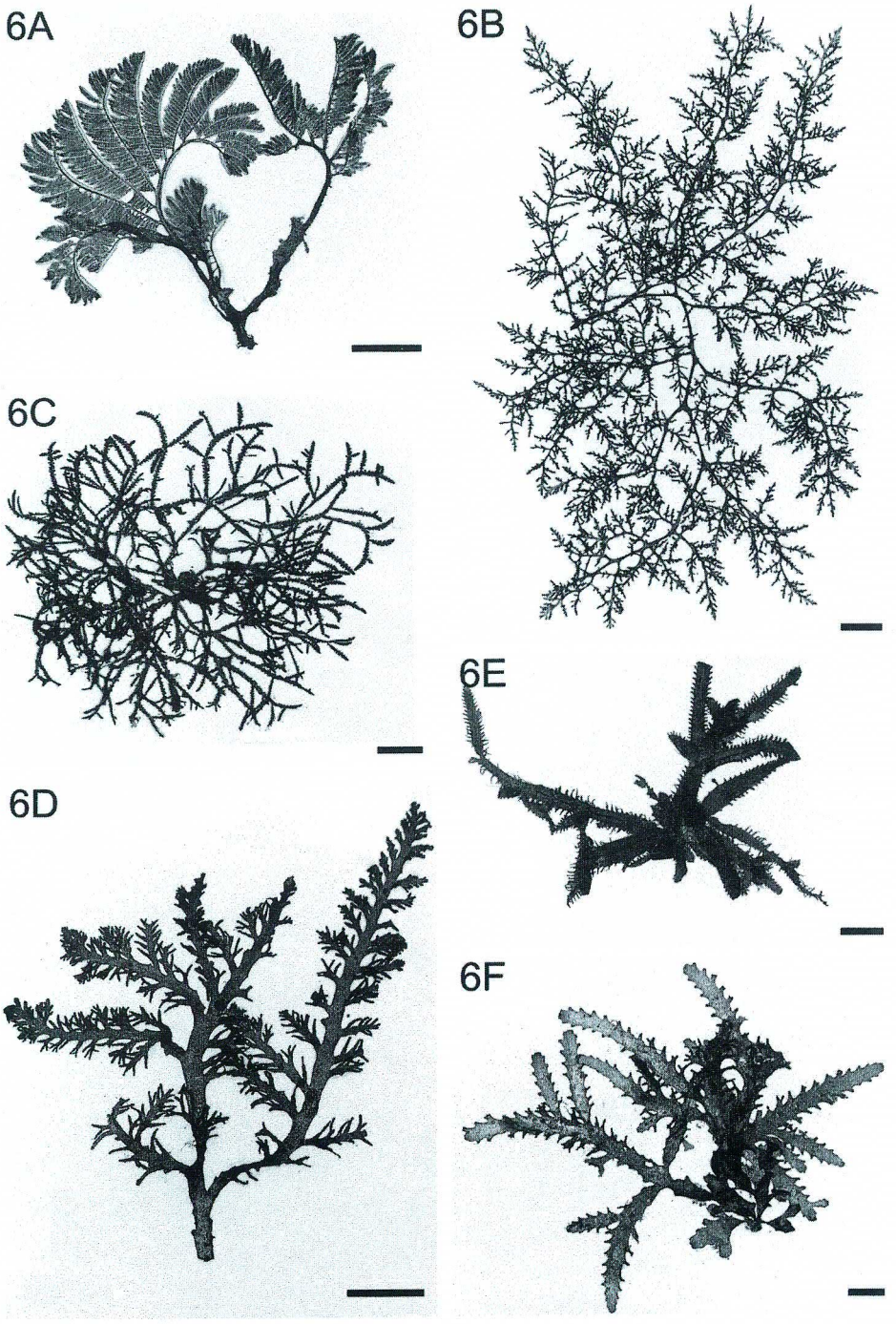

Fig. 6. *A*, *Zellera tawallina* Martens [HEC 10275, scale: 1 cm]; *B*, *Laurencia majuscula* (Harvey) Lucas [HEC 10374, scale bar: 1 cm]; *C*, *Chondrophycus papillosus* (C.Agardh) Garbary & Harper [HEC 10164, scale bar: 1 cm]; *D*, *Laurencia pedicularioides* Børgesen [HEC 10271, scale bar: 1 cm]; *E*, *Melanamansia glomerata* (C.Agardh) R.Norris [HEC 10159, scale bar: 0.5 cm]; *F*, *Osmundea sinicola* (Setchell & Gardner) Nam [HEC 10272, scale bar: 0.5 cm].

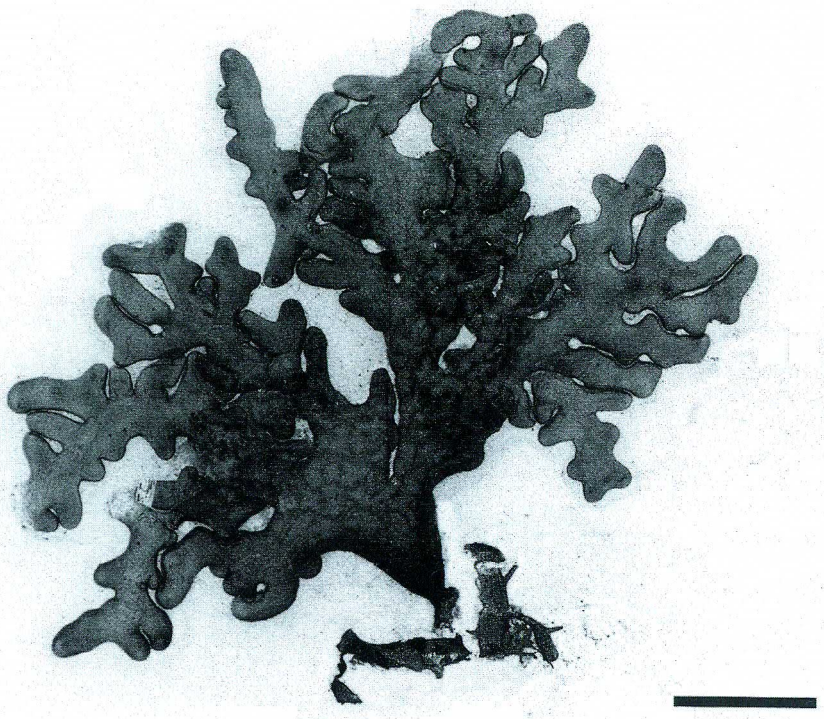

Fig. 7. *Renouxia antillana* Fredericq & J.Norris [HEC 10171, scale bar: 1 cm].

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Taxonomic Index

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