



A CHECKLIST ON THE STUDY
OF THE BENTHIC MARINE ALGAE
OF THAILAND

by

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and

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KASETSART UNIVERSITY FISHERY RESEARCH BULLETIN NUMBER 8

เอกสารวิชาการประมง มหาวิทยาลัยเกษตรศาสตร์ ฉบับที่ ๘

JULY 15, 1975—๑๕ กรกฎาคม ๒๕๑๘

PREFACE

Thailand which was formerly known as Siam has an area of 518,000 square kilometers with the seaward coastlines along the Gulf of Thailand towards the south and Andaman Sea bordering the Indian Ocean in the southeast. The Gulf is the westernmost extension of the vast Pacific Ocean from the east. It has also its coastlines about as long as the boundary which separates the country from the rest of the Southeast Asia. And yet, with such an extensive exposure to the sea, it is apparently surprising to know that not very much study had been done of the benthic marine algae. This is presently important in the global ecology of the distribution and estimate of the marine algae resources in both basic and economic potentialities now being enjoyed for many years in other countries. Hence, it is very timely that some cooperative work is arranged in order to study the greater number of the algal population of the region before the delicate and susceptible species are harmed and die slowly from the effects of pollution in the tropical seas.

The first phase of study of the marine benthic algae of Thailand now kept in several Cryptogamic Herbaria abroad were mostly in enumeration forms with the localities where they were collected. This was from the early part of the second half of the nineteenth century to the middle of the twentieth century.

Georg von Martens, 1866, of the Die Preussische Expedition nach Ost-Asien reported 13 species collected at Simaharadscha, Gulf of Siam. *Acetabularia major* Martens and *Polysiphonia siamensis* Martens were new species in the knowledge of the marine algae. In 1899-1900, the Dutch Expedition which left Copenhagen, October 1, 1899, after passing Singapore and Bangkok made extensive collections of the marine algae at Koh Chang and vicinity, off from Trat of the southeastern part of Thailand in the Gulf of Siam. This was during the last week of December, 1899 to the end of March, 1900. Johs. Schmidt, 1900-1916, reported these collections in the Flora of Koh Chang to be 10 species and 4 forms of the Corallineae studied by M. Foslie. The other parts of the report studied by Th. Reinbold are composed of 25 species, 2 forms and 5 varieties of the Chlorophyceae, 16 species of Phaeophyceae and 22 species and 1 form of Rhodophyceae. There were also 27 species and 3 varieties of the filamentous Myxophyceae studied by M. Gomont included in the report. It may be interesting to note that some of the species of this collection were of freshwater habitat. All these algae were deposited in the Botanical Museum of the University of Copenhagen.

In the list of Myxophyceae of the Siboga Expedition, 1913, A. Weber van Bosse mentioned in the geographical distribution 6 filamentous species from Koh Chang, Gulf of Thailand. Much later, 1954, E.Y. Dawson reported from his single collection at Saen Soek, northernmost part of the Gulf of Thailand 20 species where 15 were additional record. His collection was deposited in the Herbarium of the Allan Hancock Foundation.

The second phase of collection and study made during the last quarter of the twentieth century were largely the work of L. Egerod. In 1971, she had the first report out of a single collection, October 25, 1956 at Koh Charn 8 km off from Khlong Wan Village near Prachuap Fisheries Station in the Gulf of Thailand. Of the 13 species studied, 9 were new record. Also, Egerod joined the Fifth Thai-Danish Expedition of 1966 in the Andaman Sea, Southwestern coast of Thailand, but did not report her collections until 1974. There were 28 species of Chlorophyceae and 9 of Phaeophyceae where 20 species were additional record. So far, her collections of the Rhodophyceae have not been available yet. The last addition of 6 *Padina* species to the marine algae of Thailand were those of Y. Maneerat in her Master of Science Thesis, 1974, Chulalongkorn University.

The publication of the checklist is hoped to guide in a way some members of the Faculty and students of the high school and university level, including others who may want to develop the interest of knowing further the relationship of the algae with other marine organisms. It can serve equally well the visiting biologists and phycologists who might come to study the marine algae of Thailand.

The checklist tried to bring together as much as possible the scientific name of the algae from the available literature, the important references of each species, collectors' names with field numbers, if any, and the localities including the nature of the habitats.

CHLOROPHYTA CHAETOPHORACEAE

Protoderma Kütz.

Protoderma sp.

Distribution : Lem Ngob, on dead shells in the mangrove.

CLADOPHORACEAE

Chaetomorpha Kütz.

C. antennina (Bory) Kütz. References: Börgesen, 1940, p. 37; Durairatnam, 1961, p. 20; Valet, 1968, pl. 12, fig. 1; Womersley & Bailey, 1970, p. 262.

Collection : LE 4038, on sloping rock exposed to strong surf, Koh Ra.

C. capillaris (Kütz.) Börgesen References : Dawson, 1954, Notes Trop. Pac. Mar. Alg., p. 1.

Collecton : EYD 11471, Saen Soek, northernmost part of the Gulf of Thailand.

C. linum (Müller) Kütz. References : Pham-hoang Ho, 1966, p. 1417, fig. 4.22; Dawson, 1954, Notes Trop. Pac. Mar. Alg., p. 1.

Collection : LE 3955, mixed with *Caulerpa microphysa* (3953) on sale in the Phuket -Market, Koh Phuket; EYD 11465, Saen Soek, northernmost part of the Gulf of Thailand.

Rhizoclonium Kütz.

R. africanum Kütz. Reference : Womersley & Bailey, 1970, p. 256.

Collection : LE 4050, in shade on underside of a fallen tree trunk at upper tide level, Koh Pa Yam.

Cladophora Kütz.

C. fascicularis (Mert.) Kütz. References : Börgesen, 1946, p. 21, fig. 8-10; Sakai, 1964, p. 25, fig. 8; Gilbert, 1965, p. 489, fig. 4 c.

Collection : LE 4124, from Samira Beach, Songkhla, Gulf of Thailand.

C. sibogae Reinbold References : Weber van Bosse, 1913, p. 81, fig. 10 ; Yamada, 1934, p. 45; Sakai, 1964, p. 91; Durairatnam, 1961, p. 21, pl. 2, fig. 2.

Collections : LE 3964, a lax green fleece on stones at river mouth about middle level in sandy estuary, Terutao; 3061-3, epiphytic on *Padina tenuis* (3961) growing in mid-upper littoral rock pool of sandy beach, Western Bay, Terutao; 4062, forming soft felted pads common at Koh Pa Yam near Ranong.

C. socialis Kütz. References : Börgesen, 1946, p. 28; Dawson, 1956, p.34; Womersley and Bailey, 1940, p. 264.

Collection : LE 4112, dredged at 10 meters, Stat. 1177.

ULVACEAE**Enteromorpha** Link.

E. clathrata (Roth) Greville References : Pham-hoang Ho, 1969, p. 402, fig. 4.7; Bliding, 1963, p. 107; Joshi and Krishnamurthy, 1972, p. 126; Dawson, 1954, Notes Trop. Pac. Mar. Alg., p. 1; Taylor, 1960, Mar. Alg. Eastern Trop. and Subtrop. Coasts of the Americas, p. 58.

Collections : LE 3956, attached to floating *Sargassum* in Phuket Bay; EYD 11455, Saen Soek, northernmost part of the Gulf of Thailand,

E. compressa ? **trichodes** Kütz. Reference : von Martens, 1866, Die Tange, Preus. Expd. Ost-Asien, p. 23, 60.

Collection : Simaharadscha an der Ostseite des Golfs von Siam.

E. flexuosa (Wulfen ex Roth) J. Ag. Reference : Womersley & Bailey, 1970, p. 261.

Subsp. *paradoxa* (Dillwyn) Bliding, 1963, p. 79, fig. 42, 43, 44 f, 45 .

Collection : LE 3987, growing on wood, Teluk Udang, Terutao.

E. intestinalis (Linn.) Link. References : Dawson, 1954 b, p. 383, fig. 60; Durairatnam, 1961, p. 18, pl. I, fig. 4-6; Bliding, 1963, p. 139.

Collections : LE 4012, attached to pebbles entwined with *Sargassum* (4010) in muddy ground with stones near low water, Laem Phya Pa.

E. plumosa Kütz. References : Phyc. Gen., p. 300, non Ahln; De Toni Syll. I, p. 132; Taylor, 1960, Mar. Alg. Eastern Trop. and Subtrop. Coasts of the Americas, p. 58.

Collection : Koh Chang-Straight, shallow water in some places between tide-marks.

VALONIACEAE

Valonia Ginnani

V. Forbesii Harv. References : Alg. Ceyl. Exsicc. N. 25; De Toni Syll. I, p. 374.

Collection : Koh Kahdat, in 1-2 fathoms water (coral sand).

V. utricularis (Roth) C. Agardh References : Taylor, 1950, p. 41; Pham-hoang Ho, 1969, p. 453, fig. 4.60; Taylor, 1960, Mar. Alg. Trop. and Subtrop. Coasts of the Americas, p. 112; Spec. p. 431; De Toni Syll. I, p. 376.

Collection : Koh Kahdat, on coral-reefs, in shallow water, LE 4087, at Koh Similan.

Valoniopsis Börgesen

V. pachynema (Martens) Börgesen References : Taylor, 1950, p. 42; Papenfuss and Egerod, 1957, p. 84; Taylor, 1960, Mar. Alg. Trop. and Subtrop. Coasts of the Americas, p. 113.

Collection : LE 4046, at Koh Ra.

Struvea Sonder

S. anastomosans (Harv.) Picc. et Grun. ex Piccone References : Egerod, 1952, p. 359, fig. 4; *Struvea delicatula* Kützinger, 1866, p. 1, pl. 2.

Collection : LE 1041 (Thailand) confirms the report of Reinbold (1901) under the synonym, *S. delicatula*.

S. delicatula Kützinger References : Tab. Phycologia, XVI, p. 1, t. 2; Murr. et Bood. *Struvea*, p. 281, Nr. 6, De Toni Syll. I, p. 366.

Collection : Koh Lom, on coral-reefs in shallow water.

Siphonocladus Schmitz.

S. Zollingeri (Kütz.) Born. References : Hariot in Jour. Bot., 1887, p. 56; De Toni Syll. I, p. 358.

Collection : Koh Kahdat, in 5 fathoms water (coral-sand).

Boodlea Murr. et De Toni.

B. (coacta var ?) Siamensis Reinb. n. sp. Reference : Johs. Schmidt, 1900-1916, Flora of Koh Chang, p. 191.

Collection : Off Koh Kahdat, in 1-2 fathoms water (coral-sand).

Cladophoropsis Börgesen

C. herpestica (Mont.) Howe References : Setchell, 1926, p. 77, pl. 8, fig. 1-3; Dawson, 1954 b, p. 390; *Conferva herpestica* Montagne, 1842a, p. 15; *Aegagropila herpestica* Kützinger, 1854, pl. 66.

Collection : LE 1060, at Koh Charn 18 km offshore Khlong Wan Village, Gulf of Thailand.

C. sundanensis Reinbold References : Weber van Bosse, 1913, p. 77, fig. 18; Crib, 1960, p. 10; Taylor, 1966b, p. 348.

Collection : LE 4053, growing on rocky headland exposed to heavy surf in mid-lower littoral, Koh Ra.

Dictyosphaeria Decne.

D. cavernosa (Forsskål) Börgesen References : Egerod, 1950, p. 350, fig. 1 b-f, fig. 2 f-g; Velasquez et al, 1973, p. 12.

Collections : LE 3958-2, mixed with *D. versluysii* (3958), Terutao; 4093, Koh Similan, a single specimen.

D. favulosa (Mert. ?) Decne. References : Classif. Alg., p. 32; De Toni Syll. I, p. 321; *Ulva favulosa* Mert. mscr.

Collection : Koh Kahdat, in 1-2 fathoms water (coral-sand).

D. versluysii Weber van Bosse References : Egerod, 1952, p. 351, fig. 1 a, 2 h-k; Taylor, 1966b, p. 348; Valet, 1966, p. 256, fig. 1,2.

Collection : LE 3958, mixed with *D. cavernosa* (3958-2), Terutao.

CODIACEAE**Avrainvillea** Decne.

A. comosa (Bail. et Harv.) Murr. et Bood. l.c.; De Toni Syll. I, p. 515.

Collection : Off Koh Kam in 10 fathoms of water. Undeveloped fragment only, therefore doubtful as to species.

A. papuana (Zan.) Murr. et Bood. References : *Avrainv.* in Jour. of Bot., 1889; De Toni Syll. I, p. 514.

Collection : Koh Kahdat, in 1-2 fathoms water (coral-sand).

Codium Stackhouse

C. arabicum Kützinger References : Silva, 1952, p. 382, pl. 34, fig. 11-13; Dawson, 1956, p. 38, fig. 24.

Collection : LE 3969, from rock beach, adherent on sloping upper surface of rocks at mid-lower tide level, Western Bay, Terutao.

C. cicatrix Silva References : Silva, 1959, p. 143; Egerod, 1974, p. 145, fig. 52-53.

Collections : LE 4017, attached to shells and bottom grit, abundant, dredged with grab dredge from 12 meters, Stat. 1153; 4024, attached to shells and pebbles, abundant, dredged with triangular dredge from 18 meters, Stat. 1154.

C. geppii O.C. Schmidt Reference : Dawson, 1954, Notes Trop. Pac. Mar. Alg., p. 1.

Collection : EYD 11486, Saen Soek, northernmost part of the Gulf of Thailand.

C. taylori Silva Reference : Silva, 1960, p. 510, pl. 112, 118 b, 119, 120a,b.

Collections : LE 4023, dredged from 18 meters, attached to coarse amphioxus sand, infrequent, Stat. 1154; 4116, dredged from 15 meters, attached to stones in muddy amphioxus sand, infrequent, Stat. 1177.

Udotea Lamx.

U. flabellata Lamx. References : Polyp. Flex., p. 311, t. 12; De Toni Syll. I p. 510.

Collection : Off Koh Kam, in 10 fathoms water.

U. glaucescens Harv. References : List. Friendl. Isl. Alg., Nr. 82; De Toni Syll. I., p. 505.

Collection : Koh Kahdat, in 1-2 fathoms water (coral-sand). Fragment only.

U. javensis (Montagne) A. et E.S. Gepp References : Egerod, 1952, p. 379, fig. 10; Dawson, 1954b, p. 395, fig. 13, b-c; *Rhipidosiphon javensis* Montagne, 1842b, p. 15.

Collection : LE 1044, Koh Charn 8 km offshore from Khlong Wan Village near the Prachuap Fisheries Station.

Chlorodesmis Harvey et Bailey

C. hildebrandii A. & E.S. Gepp References : Dawson, 1954b, p. 394, fig. 11 i, g; Ducker, 1967, p. 165, pl. 30; Pham-hoang Ho, 1969, p. 507, fig. 4.114.

Collection : LE 4091, abundant, forming lush patches on coral dispersed in sandy bay facing east, at low littoral, Koh Similan.

Halimeda Lamx.

H. discoidea Decne. References : Hillis, 1959, p. 352, pl. 2, fig. 5; pl. 5, fig. 11; pl. 6, fig. 11; pl. 7, fig. 9-10; pl. 8, fig. 5-8; Egerod, 1952, p. 398, pl. 38a, fig. 19b.

Collection : LE 4086, growing abundantly in sandy bay facing east, mid-littoral; with coral in dispersed clumps at lower littoral, Koh Similan.

H. incrassata (Ellis) Lamx. References : Hilis, 1959, p. 365, pl. 4, fig. 1, 2; pl. 6, fig. 21-24; Pham-hoang Ho, 1969, p. 488.

Collection : LE 4076, abundant in sheltered coral-sand bay facing east, mid-littoral; fibrous root system in fine muddy silt, Koh Sindarar.

H. macroloba Decne. References : Corall. p. 91; De Toni Syll. I, p. 520; Barton, 1901, p. 24, pl. 3, fig. 33-38; Hillis, 1959, p. 375, pl. 3; fig. 3, pl. 5, fig. 19-20.

Collections : Koh Kahdat, in 1-2 fathoms water (coral-sand); LE 4082, growing in sandy bay with coral at lower littoral; common TS, south end of Koh Yai, Phuket Bay.

H. opuntia (Linn.) Lamx. References : Barton, 1901, p. 18, 20, pl. 2, fig. 19; Egerod, 1952, p. 397, pl. 37, fig. 19a, e, f.

Collections : LE 4067, represents a poor bleached fragment cast ashore in jetsam, Koh Pa Yam near Ranong; 4075, growing abundantly, attached to coral in a sheltered coral sand bay facing east at low tide level and below, Koh Sindarar; 4083 cast ashore, etc. in great abundance from lower littoral, Koh Similan; 4119, a poor specimen attached to pebble, dredged between 10 and 15 meters, Stat. 1177, TS, south end of Koh Yao Yai in Phuket Bay.

DASYCLADACEAE

Acetabularia Lamx.

A. major Martens References : von Martens, 1866, Die Tange, Preus. Expd. Ost-Asien, p. 66; De Toni Syll. I, p. 419; Dawson, 1954, Notes Trop. Pac. Mar. Alg., p. 1.

Collections : Simaharadscha, Golfe de Siam; EYD 11456, Saen Soek, northernmost part of the Gulf of Thailand; abundant in Koh Chang-Strait on rocks, stones, piles, etc., between tide-marks.

CAULERPACEAE

Caulerpa Lamx.

C. ambigua Okamura References : Eubank, 1946, p. 410; Egerod, 1952, p. 368; Taylor, 1967, p. 13, fig. 1-4; *C. vickersiae* Börgesen, 1911, p. 129, fig. 2; Gilbert, 1962, p. 135.

Collection : LE 1061, Koh Charn 8 km offshore from Khlong Wan Village near Prachuap Fisheries Station.

C. fastigiata Mont. References : Cent. I. Nr. 16; Web. van Bosse l. c., p. 262; De Toni Syll. I, p. 442.

f. **minor** Web. van Bosse l. c., p. 263.

Collection : Koh Kahdat, in 1-2 fathoms water (coral-sand). Only little plant.

C. filiformis (Harv.) J. Ag. References : Alg. Syst. I, p. 5; Web. van Bosse, *Caulerpa* p. 262; De Toni Syll. I, p. 442.

Collection : Koh Kahdat, in 1-2 fathoms water. Fragments only.

C. freycinetii Ag. References : Spec. p. 446; sens ampl. Web. van Bosse l. c., p. 310.

Collection : Koh Kahdat, in 1-2 fathoms water.

Var. **typica** Web. van Bosse l. c., p. 312.

Var. **pectinata** Web. van Bosse l. c., p. 316.

Collection : Koh Kahdat, in 1-2 fathoms water (coral-sand). Fragments only.

C. lentillifera J. Ag. References : Alg. Rueppel., p. 173; sens ampl. Weber van Bosse l. c., p. 380; Dawson, 1954, Notes Trop. Pac. Mar. Alg., p. 1.

Var. **longistipitata** Web. van Bosse in herb.

Collection : Koh Chick, on rocks in shallow water; EYD 11457, Saen Soek, northernmost part of the Gulf of Thailand.

C. mexicana Sonder ex Kütz. References : Papenfuss, 1956, p. 65; Taylor, 1960, p. 141; 1966b, p. 350.

Collection : LE 4025, frequent on shell and grit bottom, dredged from 18 meters, Stat. 1154; 4018, dredged from 12 meters, Stat. 1153.

C. microphysa (Weber van Bosse) Feldmann Reference : Taylor, 1960, p. 155, pl. 17, fig. 5; pl. 18, fig. 6.

Collection : LE 3053, freshly harvested, on sale in the Phuket Market, admixed with *C. racemosa* var. *macrophysa* (3052), Koh Kahdat.

C. peltata Lamx. References : Jour. de Bot., T. 3, fig. 2; Taylor, 1960, p. 155, pl. 17, fig. 2; pl. 18, fig. 1.

Collection : Koh Chick, on rocks in shallow water.

C. plumaris (Forsk.) Ag. References : Ag. Spec., p. 436; Web. van Bosse l. c., p. 294; De Toni Syll. I, p. 453.

f. **longipes** Web. van Bosse l. c., p. 295.

Collection : Koh Kahdat, in 1-2 fathoms water (coral-sand).

C. racemosa (Forsk.) J. Ag. References : Alg. Syst. I, p. 35; sens ampl. Web. van Bosse l. c., p. 357; *Fucus racemosus* Forsk. Flor. Aegpt., p. 191; Dawson, 1956, p. 35, fig. 16b; Egerod, 1971, p. 125, fig. 18; 1974, p. 142.

Var. *uvifera* Web. van Bosse l. c., p. 362.

Var. *macrophysa* (Kütz.) Taylor.

Var. *peltata* (Lamx.) Eubank.

Collections : Kok Kahdat, in 1-2 fathoms water (coral-sand); LE 4090, Ko Similan.

C. scalpelliformis (R. Br.) Ag. References : Spec. p. 437; *C. denticulata* Decne. *Fucus scalpelliformis* R. Br. in Turn. Hist., t. 174.

Collection : Between Mesan and Cape Liant, in 9 fathoms water. Fragment only.

C. sedoides (R. Br.) Ag. References : Spec. p. 438; Web. van Bosse l. c., p. 387; De Toni Syll. I, p. 480. — *Fucus sedoides* R. Br. in Turn. Hist., t. 172.

Collection : Koh Kahdat, in shallow water (coral-sand).

C. Urvilliana Mont. Reference : Web. van Bosse l. c., p. 318.

Var. *Typica* f. *tristicha* Web. van Bosse l. c., p. 319.

Collection : Koh Kahdat, in 1-2 fathoms water (coral-sand).

C. verticillata J. Ag. References : Alg. Liebm., p. 6; Alg. Syst. I, p. 6; Web. van Bosse l. c., p. 267; De Toni Syll. I, p. 443.

Collection : Koh Kahdat, on coral-reefs in shallow water.

PHAEOPHYTA ECTOCARPACEAE

Ectocarpus Lyngbye

E. indicus Sond. References : In Zool. Verz., p. 3; De Toni Syll. III, p. 546.

Collection : Off Koh Mesan, attached to a floating coconut, plurilocular sporangia.

E. simpliciusculus Ag. References : In Bot. Zeit. 1827, p. 63 a; De Toni Syll. III, p. 496 (?).

Collection : Koh Chang Noi, on coral-reef in shallow water, too fragmentary, therefore doubtful as to species.

SPHACELARIACEAE

Sphacelaria Lyngbye

S. furcigera Kütz. References : Tab. Phyc. V, p. 27, t. 90; Börgesen, 1941, p. 46, fig. 21; Dawson, 1954b, p. 400, fig. 14h; Durairatnam, 1961, p. 31, pl. 6, fig. 4-7.

Collections : Koh Kahdat, in 1-2 fathoms water on *Turbinaria*; LE 3961-2, growing among basal filaments of *Padina tenuis* in mid-upper littoral rock pool at Western Bay, Terutao.

ENCOELIACEAE

Encoelium Ag. (*Asperococcus* Lamx.)

E. clathratum Bory Reference : von Martens, 1866, Die Tange, Preus. Expd. Ost-Asien, p. 70.
Collection : Koh Sichan and Simaharadscha in Siam.

E. sinuosum Roth Reference : von Martens, 1866, Die Tange, Preus. Expd. Ost-Asien, p. 70.
collection : Simaharadscha (Siam).

PUNCTARIACEAE

Colpomenia Derb. et Sol.

C. sinuosa (Roth) Derb. et Sol. References : Mem. p. 11, t. 32; De Toni Syll. III, p. 489; Velasquez et al, 1971, p. 20, fig. 36.
Collection : Koh Chang-Strait at Lem Ngob, Koh Kahdat.

Hydroclathrus Bory

H. cancellatus Bory References : Dict. VIII, p. 119; De Toni Syll. III, p. 490; Galutira & Velasquez, 1963, pl. 2, fig. 7.
Collection : Koh Chang-Strait; Koh Kahdat, abundant on rocks and stones between tide-marks.

Rosenvingeia Börgesen

R. fastigiata (Zanard.) Börgesen References : Taylor, 1950, p. 96, pl. 52, fig. 2; Dawson, 1957, p. 111; Pham-hoang Ho, 1969, p. 344, fig. 3.41.
Collection : LE 4106, small fragment dredged from 10-15 meters, Stat. 1177.

Asperococcus Lamx.

A. fastigiatus Zanard. References : Phyc. Indic. Pug., p.134, t. 3; De Toni Syll. III, p. 496.
f. *major* Reinb. n.f.

DICTYOTACEAE

Dictyota Lamx.

D. Barteyresiana Lamx. References : Dict. Nr. 17; De Toni Syll. III, p. 262. — *D. cuspidata* Kütz. Tab. Phyc. IX, t. 80; Cribb, 1954, p. 20; Taylor, 1966b, p. 354; Pham-hoang Ho, 1966, p. 321, fig. 3.22.

Collections : Koh Kahdat, in 1-2 fathoms water; LE 4058, attached to sand and shells, Koh Pa Yam near Ranong.

D. dichotoma (Huds.) Lamx. References : von Martens, 1866, Die Tange, Preus. Expd. Ost-Asien, p. 80; Desv. Jour. II, p. 42; De Toni Syll. III, p. 263; Dawson, 1954, Notes Trop. Pac. Mar. Alg., p. 1; Pham-hoang Ho, 1969, fig. 320; Egerod, 1974, Mar. Alg. V, Thai-Danish Expd., p. 149.

Collections : Koh Chang-Strait at Lem Ngob, cast ashore; EYD 11478, Saen Soek, northernmost part of the Gulf of Thailand; LE 4032, fragmented specimens undergoing regeneration, dredged at 18 meters, Sta. 1154, etc.

D. divaricata J. Ag. References : Alg. Syst. V, p. 101; De Toni Syll. III, p. 276. — *D. acutiloba* Kütz. Tab. Phyc. IX, t. 29 non J. Ag.

Collection : Koh Chang-Strait at Lem Ngob, cast ashore. Specimen sterile.

Dictyota sp.

Collection : Koh Kahdat, in 1-2 fathoms water. Only one sterile specimen.

Dictyopteris Lamx.

D. delicatula Lamx. References : Börgesen, 1914, p. 216, fig. 166, 167; Taylor, 1960, p. 227, pl. 33, fig. 3; Durairatnam, 1961, p. 35; Earle, 1969, p. 149.

Collection : LE 3957, epiphytic on *Sargassum* drifting in Phuket Bay.

Haliseris Targ-Tozz.

H. polypodioides (Desf.) Ag. References : Spec. I, p. 142; De Toni Syll. III, p. 254.

Collection : Between Ko Mesan and Cape Liant in 9 fathoms water.

Padina Adans.

P. australis Hauck References : Okamura, 1932, p. 88; Thivy, 1945, p. 106; Taylor, 1966b, p. 355; Womersley & Bailey, 1970, p. 292; Maneerat, 1974, Taxonomic Study *Padina* Thailand, p. 24 (Master's Thesis), Chulalongkorn University.

Collections : LE 4071, attached to broken coral found in jetsam ashore, Koh Pa Yam near Ranong; YM, Sri Racha, Chon Buri; Ban Phe, Rayong.

P. boryana Thivy References : Okamura, 1932, p. 89; Thivy, 1945, p. 86; Maneerat, 1974, Taxonomic Study *Padina* Thailand, p. 26 (Master's Thesis), Chulalongkorn University.

Collections : YM, Koh Chang, Trat; Laem Panwa, Phuket; Koh Yaw, Songkhla.

P. Commersonii Bory. References : Voy. Coq. Nr. 41, t. 21; J. Ag., Alg. Syst. V, p. 119; De Toni Syll. III, p. 244.

Collection : Koh Kahdat, in 1-2 fathoms water (coral-sand).

P. distromatica Hauck References : Thivy, 1945, p. 113; Maneerat, 1974, Taxonomic Study *Padina* Thailand, p. 28 (Master's Thesis), Chulalongkorn University.

Collections : YM, Ban Phe, Rayong; Ao Makham, Phuket.

P. gymnospora Kützing References : Thivy, 1945, p. 143; Misra, 1966, p. 156; Maneerat, 1974, Taxonomic Study *Padina* Thailand, p. 30 (Master's Thesis), Chulalongkorn University.

Collections : YM, Sri Racha, Chon Buri; Ban Phe, Rayong; Koh Samui, Surat Thani.

P. japonica Yamada References : Okamura, 1932, p. 56; Thivy, 1945, p. 99; Maneerat, 1974, Taxonomic Study *Padina* Thailand, p. 26 (Master's Thesis), Chulalongkorn University.

Collection : YM, Sattahip, Chon Buri.

P. minor Yamada References : Okamura, 1932, p. 56; Thivy, 1945, p. 89; Maneerat, 1974, Taxonomic Study *Padina* Thailand, p. 34 (Master's Thesis), Chulalongkorn University.

Collections : YM, Ao Makham, Phuket; Koh Yaw, Songkhla.

P. pavonica (Linn.) Thivy References : Thivy, 1945, p. 172; Misra, 1966, p. 154; Maneerat, 1974, Taxonomic Study *Padina* Thailand, p. 36 (Master's Thesis), Chulalongkorn University.

Collection : YM, Ban Phe, Rayong.

P. tenuis Bory References : Womersley & Bailey, 1970, p. 292; Egerod, 1974, p. 150.

Collections : LE 3960, Western Bay, Terutao; 3961, from sand beach in mid-upper littoral rock pool, Terutao; 3988, forming a thick carpet in slitted rock pool of mid-upper littoral, Teluk Udang, Terutao; 4009, Koh Yao, Yai, Phuket Bay.

P. tetrastromatica Hauck References : Thivy, 1945, p. 159; Durairatnam, 1961, p. 36; Dawson, 1954, Notes Trop. Pac. Mar. Alg., p. 1; Maneerat, 1974, Taxonomic Study *Padina* Thailand, p. 38 (Master's Thesis), Chulalongkorn University.

Collections : EYD, 11480, Saen Soek, northernmost part of the Gulf of Thailand; YM, Ban Phe, Rayong; Laem Ngob, Trat.

Zonaria A. Ag.

Z. gymnospora Kütz. Reference : von Martens, 1866, Die Tange, Preus. Expd. Ost-Asien, p. 82.

Collection : Simaharadscha (Siam).

Hormoceras Kütz.

H. nodosum Zan. References : von Martens, 1866, Die Tange, Preus. Expd. Ost-Asien, p. 82.

Collection : Simaharadscha (Siam).

FUCACEAE

Sargassum Agardh

S. polycystum Agardh References : Syst. p. 304; De Toni Syll. III, p. 103.
S. brevifolium Grev.

Collection : Koh Kahdat, in 1-2 fathoms water, attached to stones.

S. grevillei J. Agardh References : Reinbold in Weber van Bosse, 1913, p. 155; Womersley & Bailey, 1970, p. 299.

Collections : LE 4040, growing on vertical rock faces of rocky headland not exposed to direct wave action, mid-lower tide level, Koh Ra.

Cystoseira Ag.

C. latifrons Kütz. References : Tab. Phyc. X, p. 22, t. 60; De Toni Syll. III, p. 176.

Collection : Koh Kahdat, in 1-2 fathoms water, attached to stones.

Turbinaria Lamx.

T. conoides Kütz. References : Tab. Phyc. X, p. 24, t. 66; De Toni Syll. III, p. 126.

Collections : Koh Kahdat, in 1-2 fathoms water attached to stones; Koh Chang-Strait at Lem Ngob, cast ashore.

T. ornata (Turner) J. Ag. References : Taylor 1964, p. 483, pl. 3, fig. 1-6; Womersley & Bailey, 1970, p. 295; Velasquez et al, 1971, p. 22, fig. 40.

Collections : LE 3965, frequent on mid-lower littoral rock in sandy bay, Western Bay, Terutao; 4013, at a depth of 1.5 meters, Koh Libong, Stat. 1051.

RHODOPHYTA

BANGIACEAE

Erythrotrichia Aresch.

E. ceramicola (Lygy.) Aresch. References : Phyc. Scand., p. 210; De Toni Syll. IV, p. 24.

Collection : Koh Chang — Strait at Lem Ngob, on rocks between tide-marks on *Padina* and *Laurencia*.

ACROCHAETIACEAE

Acrochaetium Nägeli

A. sinicolum (Dawson) Panpenf. Reference : Dawson, 1954, Notes Trop. Pac. Mar. Alg., p. 1.

Collection : EYD 11478a, Saen Soek, northernmost part of the Gulf of Thailand, growing on *Dictyota*.

GELIDIACEAE

Gelidium Lamx.

G. Amansii Lamx. Reference: von Martens, 1866, Die Tange, Preus. Expd. Ost-Asien, p. 94.

Collection : Paknam in Siam.

G. crinale (Turn.) Lamx. References : De Toni Syll. IV, p. 156; *Facus crinalis* Turn. Hist., t. 198.

Collection : Koh Chang Noi and Koh Lom, creeping on coral-reefs in shallow water.

G. pusillum (Stackh.) Le Jolis References : Dawson, 1944, p. 258, pl. 42, fig. 1-6; Taylor, 1960, p. 354, pl. 45, fig. 4.

Collections : LE 1048 and 1053, Koh Charn 8 km offshore from Khlong Wan Village near Prachuap Fisheries Station.

Gelidiella Feldmann and Hamel

G. acerosa (Forsskål) Feldmann and Hamel References : Börgesen, 1936, p. 80; Dawson, 1954b, p. 422, fig. 33g; Durairatnam, 1961, p. 50; Velasquez et al, 1971, p. 27, fig. 51; *Facus acerosus* Forsskål, 1775, p. 190; *Gelidium rigidum* (Vahl) Grev.

Collection : LE 1038, Koh Charn 8 km off Khlong Wan Village near Prachuap Fisheries Station.

G. pannosa (Feldmann) Feldmann & Hamel References : Dawson, 1961, p. 410, pl. 10, fig. 8; *Gelidium pannosum* Bornet, 1892, p. 267; Bloomquist and Almodovar, 1961, p. 67, pl. 36.

Collection : LE 1064, Koh Charn 8 km offshore Khlong Wan Village near Prachuap Fisheries Station.

Gelidiopsis Schmitz

G. intricata (J. Agardh) Vickers References : Yamada and Tanaka, 1938, p. 24, fig. 6 a-c; Dawson, 1954b, p. 473, fig. 34 a-d; 1954, Notes Trop. Pac. Mar. Alg., p. 1.

Collections : EYD 11482, Saen Soek, northernmost part of the Gulf of Thailand; LE 1052, Koh Charn 8 km off Khlong Wan Village near Prachuap Fisheries Station.

SQUAMARIACEAE

Peyssonellia Decne.

P. Gunniana J. Ag. References : Epic. p. 387;—*P. rubra* Harv. Alg. Austr. Exsicc., Nr. 327.

Collection : Koh Chang Noi, on coral-reef in shallow water.

P. rubra (Grev.) J. Ag. References : Spec. II, p. 502; — *Zonaria rubra* Grev. in Transact. Linn. Soc. XV, p. 340.

Collection : Between Koh Mesan and Koh Chuen in 15 fathoms water (stones).

CORALLINACEAE MELOBESIEAE

Archaeolithothamnion Ruthpletz

A. Schmidtii Fosl. mscr., 1901.

Collection : Offshore Koh Kahdat, about 5 fathoms water.

Lithothamnion Philippi

L. fruticosum (Kütz.) Fosl. References : List of Lith., p. 6 (non Norw. Lith.); *L. ramulosum* Solms, Corall. Monogr., p. 19; *L. fasciculatum* Solms, l.c., p. 20.
Collection : Between Koh Mesan and Cape Liant in 9 fathoms water.

L. funafutiense Fosl. mscr. References : *Lithothamnion Philippi* f. *funafutiensis* Fosl. Notes Lith. Funaf., p. 3; Calc. Alg. Funaf., p. 5.

f. **purpurescens** Fosl. mscr.

L. siamense Fosl. mscr. Reference : Johs. Schmidt, 1901-1916, p. 19.

f. **minuta** Fosl. mscr.

f. **simulans** Fosl. mscr.

Lithophyllum Phil. emend.

L. racemus (Lam.) Fosl. References : List of Lith., p. 9; *Millepora* (*Nullipora*) *racemosa* Lam. Hist. an. s. vertebr. 2, p. 203.

f. **crassa** (Phil.) Fosl.

l.c. *Lithothamnion crassum* Phil. in Wieg. Arch., 1837, p. 388.

L. Yendoii Fosl. Reference : New or Crit. Calc. Alg., p. 25.

Melobesia Lamx. emend.

M. farinosa Lamx. References : Polyp. Flex., p. 315; Rosan Melob., p. 59.

Collection : Koh Kahdat, in about 2 fathoms water.

Dermatolithon Fosl.

D. pustulatum (Lamx.) Fosl. References : List of Lith., p. 11; *Melobesia pustulata* Lamx., Rosan. Melob., p. 72.

Collection : Koh Kahdat, in 1-2 fathoms water.

Amphiroa Lamx.

A. fragilissima (L.) Lamx. References : Polyp. Flex., p. 298; *Corallina fragilissima* Linn.; Ell. et Sol. Zooph., p. 123; Taylor, 1960, p. 403.

Collection : Koh Lom and Koh Chick, on coral-reefs in shallow water; EYD 11459, Saen Soek, northernmost part of the Gulf of Thailand. Common in all Warm Seas.

Corallina (Tournf.) Lamx.

C. (Jania) tenella Kütz. References : Tab. Phyc., vol. 8, p. 41, t. 85, II.

Collection : Koh Lom and Koh Chick, on coral-reefs in shallow water.

Jania Lamx.

J. capillacea Harvey References : Dawson, 1954, Notes Trop. Pac. Mar. Alg., p. 2; Taylor, 1960, Mar. Alg. Eastern Trop. and Subtrop. Coasts Americas, p. 412, pl. 49, fig. 4.

Collection : EYD 11466, Saen Soek, northernmost part of the Gulf of Thailand.

GRATELOUPIACEAE**Cryptonemia** J. Agardh

Cryptonemia sp.

Collection : Between Koh Mesan and Koh Chuen, in 15 fathoms water (stones). Specimen too little and torn, incomplete to be determined to species.

GRACILARIACEAE**Gracilaria** Greville

G. cacalia (J. Ag.) comb. nov. Reference : Dawson, 1954, Notes Trop. Pac. Mar. Alg., p. 2.

Collection : EYD 11479, Saen Soek, northernmost part of the Gulf of Thailand.

G. confervoides (Linn.) Grev. References : Alg. Brit., p. 123; De Toni Syll. IV., p. 431. — *Fucus confervoides* Linn. Spec. Plant II, p. 1629.

Collections : Off Koh Kam, in 10 fathoms water.

G. dura (Ag.) J. Ag. References : Alg. Medit., p. 151; De Toni Syll. IV, p. 442. — *Sphaerococcus durus* Ag. Spec., p. 310.

Collection : Koh Chang-Strait at Lem Ngob, in sandy ground between tide-marks.

f. **prolificans** Reinb. n.f.

Collection : In Siam and in almost all warm seas.

HYPNEACEAE

Hypnea Lamx.

H. cervicornis J. Ag. Reference : Dawson, 1954, Notes Trop. Pac. Mar. Alg., p. 2.

Collection : EYD 11460, Szen Soek, northernmost part of the Gulf of Thailand.

H. divaricata R. Br. Reference : von Martens, 1866. Die Tange, Preus. Eped. Ost-Asien, p. 92.

Collection : Simaharadscha in Siam.

H. esperi Bory References : Börgesen, 1920b, p. 306, fig. 48; Tanaka, 1941, p. 243; Dawson, 1944, p. 292.

Collection : LE 1040, Koh Charn 8 km offshore from Khlong Wan Village near Prachuap Fisheries Station.

H. musciformis (Wulf.) Lamx. References : Ess. p. 43; De Toni Syll. IV., p. 472. — *Fucus musciformis* Wulf. in Jacq. Coll. III, p. 154, t. 14, fig. 3; Taylor, 1960, p. 467, pl. 73, fig. 1.

Collection : Koh Chang-Strait at Lem Ngob, in sandy ground between tide-marks. Specimen little but fruiting (tetrasp.) in all warm seas.

CHAMPIACEAE

Champia Desvaux

Ch. parvula (Ag.) J. Ag. References : Epic. p. 303; De Toni Syll. IV, p. 538. — *Lomentaria parvula* Gaill; *Chondria parvula* Ag. Syst, p. 207.

Collection : 4 miles S. of Koh Saket, in 9 fathoms water (shells).

CERAMIACEAE

Ceramium (Roth) Lgby.

C. fastigiatum Harv. References : In Hook. Jour. Bot., p. 303; J. Ag. Epic., p. 96.

Collection : Off Tung Kaben, in 6 fathoms water (mud).

C. kutzingianum Grun. References : Alg. Samoa, Fidji Isl., p. 9; Johs. Schmidt, in Flora of Koh Chang, p. 201.

Collection : Koh Chang Noi, on coral-reef in shallow water, between Koh Mesan and Cape Liant, in 9 fathoms water.

C. serpens Setchel. & Gard. References : Dawson, 1954, Notes Trop. Pac. Mar. Alg., p. 3; Setchell and Gardner, 1924, p. 775, pl. 27, fig. 58; Egerod, 1971, Some Mar. Alg. Thailand, p. 133.

Collections : EYD 11461, Saen Soek, northernmost part of the Gulf of Thailand; LE 1042, Koh Charn 8 km offshore from Khlong Wan Village near Prachuap Fisheries Station.

RHODOMELIACEAE

Polysiphonia Greville

P. scopulerum Harv. References : Mar. Bot. W. Aust., Nr. 88; J. Ag. Spec. II, p. 940.

Collection : Koh Chang Noi, on coral-reef and stones in shallow water.

P. setacea Hollenberg References : Hollenberg, 1968b, p. 85, fig. 5 A,B,C; Egerod, 1971, Some Mar. Alg. Thailand, p. 139.

Collection : LE 1059, Koh Charn 8 km offshore from Khlong Wan Village near Prachuap Fisheries Station.

P. siamensis Martens Reference : von Martens, 1866, Die Tange, Preus. Expd. Ost-Asian, p. 98.

Collection : Simaharadscha in Siam.

P. subtilissima Mont. Reference : Dawson, 1954, Notes Trop. Pac. Mar. Alg., p. 3.

Collection : EYD 11484, Saen Soek, northernmost part of the Gulf of Thailand.

Herposiphonia Nägeli

H. tenella (Ag.) Ambronn. Reference ; Dawson, 1954, Notes Trop. Pac. Mar. Alg., p. 3.

Collection : EYD 11469, Saen Soek, northernmost part of the Gulf of Thailand.

Acanthophora Lamx.

A. orientalis J. Ag. Reference : Spec. II, p. 820.

Collection : Lam Ngob, Koh Kahdat in shallow water.

A. spicifera (Vahl) Börgesen References : Dawson, 1954, Notes Trop. Pac. Mar. Alg., p. 4; Taylor, 1960, p. 620, pl. 71, fig. 3; pl. 72, fig. 1,2.

Collection : EYD 11481, Saen Soek, northernmost part of the Gulf of Thailand.

A. Thierryi Lamx. Reference : von Martens, 1866, Die Tange. Preus. Expd. Ost-Asien, p. 100.

Collection : Simaharadscha in Siam.

Centroceras Kützing.

C. apiculatum Yamada References : Yamada, 1944, p. 42; Egerod, 1971, Some Mar. Alg. Thailand, p. 134; Dawson, 1956, p. 55, fig. 55; Hollenberg, 1968 a, p. 76.

Collection : LE 1062, Koh Charn 8 km offshore from Khlong Wan Village near Prachuap Fisheries Station.

C. clavulatum (Ag.) Mont. Reference : Notes Trop. Pac. Mar. Alg., p. 3.
Collection : EYD 11474, Saen Soek, northernmost part of the Gulf of Thailand.

C. oxyacanthum Kütz. Reference : von Martens, 1866, Die Tange, Preus. Expd. Ost-Asien, p. 84.

Collection : Simaharadscha in Siam.

Tolypocladia Schmitz.

T. glomerulata (Ag.) Schm. References : In Engl. u. Prantl. Pfl. fam., p. 441. — *Polysiphonia glomerulata* (Ag.) J. Ag. Spec. II., p. 1016.

Collection : Koh Kahdat; Koh Chang Noi, on coral-reefs in shallow water.

Spyridia Harvey

S. filamentosa (Wulf.) Harvey Reference : In Brit. Fl., p. 336; J. Ag. Epic., p. 268. — *Fucus filamentosus* Wulf. Crypt. Ag., p. 64.

Collections : Koh Kahdat, in 1-2 fathoms water (coral-sand); off Koh Kam, in 10 fathoms water (gravel); EYD 11472, Saen Soek, northernmost part of the Gulf of Thailand. Widely distributed in all warm and temperate seas.

Leveillea Decne.

L. jungermannioides (Mont. et. Her.) Harvey Reference : Mar. Bot. W. Aust., p. 539. — *L. gracilis* Decne.

Collection : Koh Chang Noi, Koh Lom, on coral-reefs in shallow water.

Laurencia Lamx.

L. dendroidea J. Ag. Reference : Spec. II, p. 753.

Collection : Koh Kahdat, cast ashore.

L. divaricata J. Ag. Reference : Spec. II, p. 754.

Collection : Koh Kahdat, in 1-2 fathoms water (coral-sand).

L. implicata J. Ag. Reference : von Martens, 1866, Die Tange. Preus. Expd. Ost-Asien, p. 100.

Collection : Simaharadscha in Siam.

L. obtusa (Huds.) Lamx. References : Ess. p. 42; J. Ag. Epic., p. 653; *Fucus obtusus* Huds. Flor. Angl., p. 586; Dawson, 1954, Notes Trop. Pac. Mar. Alg., p. 4 (not var.).

Collection : Koh Chang-Strait at Lem Ngob, on rocks between tide-marks; EYD 11463, Saen Soek, northernmost part of the Gulf of Thailand. Widely distributed in all warm oceans.

SOLIERIACEAE

Solieria Agardh

S. robusta (Grev.) Kylin Reference : Dawson, 1954, Notes Trop. Pac. Mar. Alg., p. 2, fig. 2.

Collection : EYD 11464, Saen Soek, northernmost part of the Gulf of Thailand.

RHABDONIACEAE

Catenella Greville

C. Nipae Zan. References : Phyc. Indic. Pug., Nr 35, t. 6; De Toni Syll. IV., p. 321; Johs. Schmidt, 1901-1916, Flora of Koh Chang, p. 196.

Collection : Koh Chang-Strait at Lem Ngob, creeping on the roots of mangrove-trees between tide-marks.

Rhabdonia Harv.

R. Schmidtii. Reinb. n. sp. (fig. 1-5). Reference : Johs. Schmidt, 1900-1916, Flora of Koh Chang, p. 196.

Collection : Koh Chang-Strait, in shallow water near Lem Ngob.

DELESSERIACEAE

Caloglossa (Harvey) J. Agardh

C. mnkoides Harvey References : Alg. Exics. Friendl. Isl., Nr. 33; J. Ag. Epic., p. 300; De Toni Syll. IV, p. 729.

Collection : 15 miles E. of Koh Chuen in 10 fathoms water (shells). Very young specimens only, therefore somewhat doubtful as to species.

MYXOPHYTA OSCILLATORIACEAE

Oscillatoria Vaucher

O. tenuis Agardh References : Alg. Dec. II, p. 25, 1813; Tilden, 1910, Minn. Algae, pl. XIV, fig. 17-18.

Var. *natans* Gomont Reference : Mongr. des Oscill.

Collection : Waterhole near Lem Ngob.

Trichodesmium Ehrenberg

T. Hildebrandtii Gomont References : Loco cit., p. 197, pl. VI, fig. 1; van Bosse, 1913, Siboga Expd., Vol. 59, I, p. 12.

Collection : Koh Chang, Golfe de Siam; abundant in maritime plankton throughout the area explored.

Phormidium Kützing

P. inundatum Kützing References : Spec. Alg., p. 251, 1849; Velasquez, 1962, Blue-Green Algae Philip., pl. 3, fig. 56.

Collection : Waterhole near Lem Ngob.

Lyngbya Agardh

L. majuscula Harvey References : in Hooker Engl. Fl., V, part 1, p. 370, 1833; Velasquez, 1962, Blue-Green Alg. Philip., pl. 4, fig. 68.

Collection : Mangrove swamp near Lem Dan on aerial roots of *Rhizophora conjugatae* between tide-marks.

Hydrocoleum Kützing

H. lyngbyaceum Kützing References : Spec. Alg., p. 259, 1849; Tilden, 1910, Minn. Alg., pl. V, fig. 58.

Var. **rupestre** Kützing, loco cit.

Collection : Mangrove swamp near Lem Ngob, forming black, shining patches on the muddy ground and on aerial roots of *Avicennia officinalis*.

Schizothrix Kützing.

S. Lamyi Gomont References : Monogr. des Oscill., loco cit., p. 323, pl. XI, fig. 1-3; Desikachary, 1959, Cyanophyta, pl. 56, fig. 1, 4.

Collection : With *Schizothrix thelephoroides* on wet rocks in the jungle near Klong Munsé.

S. thelephoroides Gomont References : Monogr. des Oscill., loco cit, p. 319, pl. X, fig. 1-4; Tilden, 1910, Minn. Alg., pl. VI, fig. 19.

Collection : Abundant on rocks in the jungle near Klong Munsé.

NOSTOCACEAE**Nodularia** Agardh

N. spumigena Mertens

Var. **litorea** Bornet et Flahault References : In Ann. des Sc. nat. VIIe série, Bot., t. 7, p. 246; Desikachary, 1959, Cyanophyta, pl. 80, fig. 13, 14.

Collection : Koh Kong, on the sandy seashore between tide-marks.

SCYTONEMATACEAE

Desmonema Berkeley et Thwaites

D. Wrangelii Bornet et Flahault References : Rev. des Nostoc. hétér., in Ann. des Sc. nat., VII^e série, Bot., t. 5, p. 127, 1887; Tilden, 1910, Minn. Algae., pl. XIV, fig. 10.

Collection : Jungle near Klong Sarlakpet (alt. 700 ft.) on rocks in a waterfall.

Scytonema Agardh

S. mirabile Bornet References : Les Nostocacées hétérocystées des Systema Algarum d'Agardh, in Bull. de la Soc. bot. de France, t. 36, p. 155, 1889; *Conferva mirabilis* Dillwyn, Brit. Conf., table 96, 1809; Desikachary, 1959, Cyanophyta, pl. 91, fig. 3.

Collection : On dry rocks in the jungle near Klong Munsé.

S. Hofmanni Agardh References : Synops. Alg. Scand., p. 117, 1817-Bornet et Flahault, loco cit., p. 97; Desikachary, 1959, Cyanophyta, pl. 91, fig. 2; Velasquez, 1962, Blue-Green Alg. Philip., pl. 12, fig. 138.

Collection : Common in the jungle all over Koh Chang, epiphytic on ferns and other low plants and also on rocks.

S. ocellatum Lyngbye References : Hydrophyt. dan., p. 27, tab. 28 A, 1819 — Bornet et Flahault, loco cit., p. 95; Desikachary, 1959, Cyanophyta, pl. 92, fig. 3.

Collection : Lem Dan, on the stem of Cocoa-palms; jungle near Klong Munsé on rocks.

S. Schmidtii Gomont n. sp. Reference : Desikachary, 1959, Cyanophyta, pl. 92, fig. 1.

Collection : Open ground near Lem Dan, on limestones.

S. javanicum Bornet References : In Bornet et Thuret, Notes Algologiques, p. 148, 1880 — Bornet et Flahault, loco cit., p. 95; Desikachary, 1959, Cyanophyta, pl. 100, fig. 4; van Bosse, 1913, Siboga Expd., Vol. 59, I, p. 30.

Collection : Lem Dan, on trees and rocks near the Sea; Klong Son, on trees in the jungle.

S. Guyanense Bornet et Flahault References : Loco cit., p. 97, 1887; De Toni, Syll. Algar., 5 : 506, 1907; Velasquez, 1962, Blue-Green Alg. Philip., pl. 12, fig. 137, 137a.

Collection : Lem Dan on trees near the Sea; jungle near Klong Munsé on rocks.

S. crispum Bornet References : Les Nostocacées hétérocystées du Systema Algarum de C. Agardh, in Bull. de la Soc. bot. de France, t. 36, p. 156, 1889; Tilden, 1910, Minn. Algae, pl. XI, fig. 15.

Collection : with *Stigonema minutum* on rocks in the jungle near Klong Munsé.

STIGONEMATACEAE

Stigonema Agardh

S. mamillosum Agardh References : Syst. Alg., p. 42, 1824—Bornet et Flahault, loco cit., p. 77; Tilden, 1910, Minn. Algae, pl. XV, fig. 22; Desikachary, 1959, Cyanophyta, pl. 135, fig. 3-6.

Collection : Lem Dan, on stones in a stream.

S. informe Kützing References : Spec. Alg., p. 319, 1849—Bornet et Flahault, loco cit., p. 75; Desikachary, 1959, Cyanophyta, pl. 137, fig. 2, 1959.

Collection : Jungle near Klong Munsé on wet rocks with *Stigonema ocellatum* and *Schizothrix thelephoroides*, etc.

S. turfaceum Cooke References : Brit. Freshwat. Algae., p. 273, 1884—Bornet et Flahault, loco cit., p. 74; Tilden, 1910, Minn. Algae, pl. XV, fig. 20.

Collection : near Klong Munsé, on humid rocks in company with *S. minutum*.

S. minutum Hassall References : Hist. of the Brit. Freshwat. Alg. I, p. 230, pl. 67, fig. 3, 4, 1845—Bornet et Flahault, loco cit., p. 72; Desikachary, 1959, Cyanophyta, pl. 137, fig. 1; van Bosse, 1913, Siboga Expedite, Vol. 59, I, p. 34.

Collection : Klong Munsé, on rocks in the jungle; Lem Dan, on stones in a stream.

S. ocellatum Thuret References : Bornet et Flahault, loco cit., p. 69; Desikachary, 1959, Cyanophyta, pl. 138, fig. 2; Tilden, 1910, Minn. Algae, pl. XV, fig. 15-17.

S. hormoides Bornet et Flahault References : Loco cit., p. 68, 1887; Desikachary, 1959, Cyanophyta, pl. 134, fig. 1-4; Tilden, 1910, Minn. Algae, pl. XV, fig. 13.

Collection : Jungle near Klong Son, epiphytic on the leaves of small herbs.

Hapalosiphon Nägeli

H. fontinalis Bornet References : Les Nostocacées hétérocystées du Systema Algarum d'Agardh, in Bull. de la Soc. bot. de France, t. 36, p. 155, 1889; Tilden, 1910, Minn. Algae, pl. XIV, fig. 13.

Collection : Muddy rice-field near Lem Dan, epiphytic on *Monochoria vaginata*, and in a waterhole among other algae.

RIVULARIACEAE

Brachytrichia Zanard.

B. Quoyi Bornet et Flahault References : Revision des Nostocacées hétérocystées, in Ann. des Sc. nat. VII^e série, Bot., t. 4, p. 373, 1886; Tilden, 1910, Minn. Algae, pl. XX, fig. 18; Desikachary, 1959, Cyanophyta, pl. 125, fig. 1-9, pl. 124, fig. 1-16; van Bosse, 1913, Siboga Expedite, Vol. 59, I, p. 44; Velasquez, 1962, Blue-Green Alg. Philip, pl. 11, fig. 129.

Nostoc Quoyi Agardh, Syst. Alg., p. 22, 1824.

Collections : Lem Dan, on stones in the sea-shore between tide-marks; Koh Kahdat, coral-reef in shallow water, Koh Chang, Golfe de Siam.

B. maculans Gomont n. sp. Reference : van Bosse, 1913, Siboga Expedite, Vol. 59, I, p. 44.

Collection : Lem Dan, on maritime rocks between tide-marks.

Calothrix Agardh

C. crustaceae Thuret References : In Bornet et Thuret, Notes Algologiques face. I, p. 13-16, tab. IV, 1878; Desikachary, 1959, Cyanophyta, pl. 111, fig. 10-11; Tilden 1910, Minn. Algae, pl. XVII, fig. 2-6; van Bosse, 1913, Siboga Expedite, I, p. 41.

Collection : Lem Ngob, mangrove-swamp, on aerial roots of *Avicennia officinalis* between tide-marks; Koh Chang, Golfe de Siam.

C. scopulorum (?) Agardh References : Syst. Alg., p. 20, 1824—Bornet et Flahault, loco cit., p. 353; Desikachary, 1959; Cyanophyta, pl. 111, fig. 9; Tilden, 1910, Minn. Algae, pl. XVI, fig. 11, 12.

Collection : Lem Dan, on stones in the sea-shore between tide-marks.

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