

NATIONAL INSTITUTE OF OCEANOGRAPHY

DONA PAULA-403 004, GOA



**LIST OF MARINE ALGAE
FROM INDIA**

JANUARY, 1983

NATIONAL INSTITUTE OF OCEANOGRAPHY
DONA PAULA-403 004, GOA



**LIST OF MARINE ALGAE
FROM INDIA**

A. G. UNTAWALE, V. K. DHARGALKAR & V. V. AGADI

JANUARY, 1983

FOREWORD

Recently, the Department of Ocean Development, the Council of Scientific & Industrial Research and various other organizations and institutes in the country, have identified seaweeds as one of the important research areas where more inputs are necessary. Utilisation of this natural marine living resource has not received much attention in some of the south east Asian countries so far, in spite of various efforts in the past.

Keeping in view, the economic importance of the seaweeds, the National Institute of Oceanography, Dona Paula, has been working on various applied aspects, such as resource evaluation, cultivation and utilisation.

A systematic research on seaweeds requires correct and upto date information on the various resources. This revised list on 'Marine Algae from India' is the result of an effort by Dr. A.G. Untawale, Dr. V.K. Charkalkar and Sri. V.V. Agadi of the Biological Oceanography Division of our Institute, to update the information on seaweeds.

I hope that this revised list will be of great use and help to the students and researchers in the area of marine algae.

V.V.R.Varadachari -

(V.V.R. VARADACHARI)

Director

National Institute of Oceanography,
DONA PAULA - 403 004 - GOA.

CONTENTS

	Pages
1. FOREWORD	
2. INTRODUCTION	1
3. YEAR WISE REPORT OF MARINE ALGAE	3
4. TABLE SHOWING NUMBER OF ORDERS, FAMILIES, GENERA AND SPECIES OF MARINE ALGAE ALONG THE INDIAN COAST	5
5. TABLE SHOWING SEAWEED RESOURCES ALONG THE INDIAN COAST	6
6. CHLOROPHYTA	7
7. PHAEOPHYTA	17
8. RHODOPHYTA	26
9. CYANOPHYTA	41
10. LEGENDS	42
11. PLATES	

INTRODUCTION

Marine algae form one of the major resources of the Ocean. There are about 20,000 marine algal species distributed throughout the world. The total marine algal harvestable crop of the world has been estimated to be 1,72,10,000 tons. Japan, Korea, Mexico and Canada are the countries which contribute maximum to this economical important marine resource.

India with its vast coastline and group of islands also harbours several marine algal species. Indian coastline has been explored by several marine algologists since 19th century. So far about 624 marine algal species have been reported from Indian coast. The total marine algal crop from Indian coast is estimated to 70,000 tons per annum. In spite of the earlier efforts the Indian coastline has not been studied in detail. Areas like Andaman, Nicobar, as well as Lakshadweep Islands, Karnataka, Kerala, Orissa and West Bengal coast have not been explored for these resources.

In the past, efforts have been made by Biswas (1945), Biswas and Sharma (1950) Dixit (1965, 68), Srinivasan (1965) and Chaugule and Gunale (1981) to prepare a list of marine algae recorded from different parts of the Indian coast. Dixit (1965, 68) listed about 411 marine algal species. Krishnamurthy and Joshi (1970), prepared a 'Checklist of Indian Marine Algae' wherein about 520 species have been recorded.

After a gap of about 12 years it was found necessary to again review the position, in view of more extensive research activities in the field of marine algae in India. The present work reports 624 marine algal species belonging to various groups. Distribution of these species along the maritime states of India has also been indicated. So during the last 12 years about 104 new marine algal species have been included to this flora of India. Many more will be added to this list in near future. Some of the marine algal species might have been missed by oversight.

It is hoped that this enumeration of Indian marine algal species would be useful to the algologists in general and students in particular to give information at a glance about our marine wealth.

YEARWISE REPORTS OF INDIAN MARINE ALGAE

<u>DURATION</u>	<u>Author - (YEAR)</u>
1820 - 1829 :	C.A. Agardh (1822, 23), J. Agardh (1924), Bory (1929)
1830 - 1939 :	Greville (1930), Bory (1836), Boergesen (1837)
1840 - 1849 :	Kuetzing (1848, 49), J. Agardh (1848, 49) Greville (1848, 49)
1850 - 1859 :	Greville (1850), Agardh (1951)
1860 - 1869 :	De Toni (1863, 64)
1870 - 1879 :	Gruenow (1870), Martens (1870, 71), J. Agardh (1872, 76).
1880 - 1889 :	Hauck (1884), Dickie (1887), Gruenow (1888), De Toni (1889)
1890 - 1899 :	De Toni (1895), Agardh (1895), Schimitz (1897)
1900 - 1909 :	Schmidle (1900), J. Agardh (1901), Barton (1903), Howe (1904), Foslie (1904).
1910 - 1919 :	A. & E.S. Gepp (1911), Zeh (1912), Weber Van Bosse (1913), Greunow (1915, 16).
1920 - 1929 :	
1930 - 1939 :	Boergesen (1931, 32, 33, 34, 35, 37, 38, 40, 47), Kylin (1931, 33), Iyengar (1938).
1940 - 1941 :	Dixit (1940), Iyengar & Ramnathan (1940, 41), Iyengar (1940), Balakrishnan (1946), Srinivasan (1946).
1950 - 1959 :	Sreeramulu (1952), Krishnamurthy (1954, 57) Iyengar and Ramnathan (1954), Chacko et al (1955), Desikachary (1957, 58), Desikachary and Balakrishnan (1957), Balakrishnan (1959), Verma (1959), Srinivasan (1959), Hillis (1959), Thivy (1959).
1960 - 1969 :	Varma (1960), Krishnamurthy (1960, 66), Srinivasan (1960, 62), Balakrishnan (1961), Ganesan (1962), Rao (1962), Thivy and Iyengar (1963), Dawson (1963), Thivy and Chauhan (1963), Thivy and Rao (1963), Chauhan and Thivy (1964), Dixit (1964, 67, 68), Chauhan (1964), Umamaheswara Rao and Sreeramulu (1965), Shah and Vaidya (1965), Post (1965), Ganesan (1965), Rao (1965), Desikachari and Ganesan (1966), Thivy and Doshi (1966), Misra (1966), Taylor (1966), Thivy and Visalakshmi (1963, 66), Mairh (1967), Ganesan (1967), Kale (1967), Rao and Kale (1969), Krishnamurthy and Joshi (1969).

1970 ~ 1979 : Patel and Francis (1970), Joshi and Krishnamurthy (1972), Balakrishnan et al (1974), Umamaheswara Rao (1974), Krishnamurthy (1978), Patel and Izabella (1978).

1980 ~ 1989 : Untawale et al (1980), Untawale et al. (1980), Untawale and Agadi (1981), Chaugule and Gunale (1981), Balakrishnan and Kinkar (1981).

Table - Showing number of Orders, families, genera and species of marine algaee belonging to the different group along the Indian coast line.

	Chlorophyta	Phaeophyta	Rhodophyta	Cyanophyta	Total
Order	4	5	6	2	17
Families	15	12	31	6	64
Genera	45	39	120	11	215
Species	159	141	307	17	624

SEAWEED RESOURCES ALONG THE INDIAN COAST

Sr. No.	Area	Annual yield tons/Year (fresh wt)	Author (s)
1.	<u>GUJARAT</u>		
	(a) Gulf of Kutch	100,000	Desai (1967)
	" " "	19,000	Chauhan & Krishnamurthy (1968)
	(b) Hanumandandi-to-Vumanji (Okha)	650	Bhandari & Trivedi (1975)
	(c) Adatra Reef, Okha, Dera, Narora, Sika, Karumbhar and Baida in Gulf of Kutch	18,760	Sreenivasa Rao <u>et al</u> (1964)
	(d) Saurashtra Coast	282 to 608	Chauhan & Mairth (1978)
2.	<u>MAHARASHTRA</u>		
	(a) Konkan	315	Chauhan (1978)
	(b) Entire coast	20,000	Untawale <u>et al</u> (1979)
3.	<u>GOA</u>	255 2,000	Untawale & Dhargalkar (1975) Dhargalkar (1981)
4.	<u>KARNATAKA</u>		
	(a) Entire coast	Negligible	Untawale & Agadi (1981)
5.	<u>KERALA</u>	?	--
6.	<u>TAMIL NADU</u>		
	(a) Cape Comorin-to- Colachel	5	Koshy & John (1948)
	(b) Calimare-to-Cape- Comorin	66,000	Chacko & Malu Pillai (1958)
	(c) Pamban	1,000	Verma & Rao (1964)
	(d) Palk Bay	1,040	Umamaheswara Rao (1965)
		900	" " (1968)
	(e) South East Coast	20,535	Subbaramaiah <u>et al</u> (1977)
	(f) Entire Coast	22,044	Subbaramaiah <u>et al</u> (1979)
7.	<u>ANDHRA PRADESH</u>	?	--
8.	<u>ORISSA</u>		
	(a) Chilka Lake	5	Mitra (1946)
9.	<u>WEST BENGAL</u>	?	--
10.	<u>ANDAMAN & NICOBAR ISLAND</u>	?	--
11.	<u>LAKSHADWEEP ISLANDS</u>	3,645 to 7,598	Subbaramaiah <u>et al</u> (1979)

CHLOROPHYTA

S.No. Classification and name

Guj. Mah. Goa Kar. Ker. Lacc. Tam. And. Oris. Beng. A & N

- 14. Enteromorpha clathrata, (Roth) J. Ag. + + + + +
- 15. E. complanata, Kuetz. + + + + +
- 16. E. compressa, (L.) Geev + + + + +
- 17. E. flexuosa (Willd.) J. Ag. + + + + +
- 18. E. gujaratensis, Kale + + + + +
- 19. E. intestinalis, (L.) Link + + + + +
- 20. E. linza (L.) J. Ag. + + + + +
- 21. E. plumosa, Kuetz + + + + +
- 22. E. polyclados, Kuetz + + + + +
- 23. E. lingulata + + + + +
- 24. E. ovata + + + + +
- 25. E. prolifera (Fl. Dan) J. Ag. + + + + +
- 26. E. turbinata, Kuetz + + + + +
- d. Family - Trentepohliaceae
- 27. Gomontia polyrhiza, (Lagerh.) Bornet + + + + +
- II. Order : Cladophorales
- e. Family : Cladophoraceae
- 28. Rhizoclonium grande, Boergs + + + + +

S.No.	Classification and name	Guj.	Mah.	Goa	Kar.	Ker.Lacc.	Tam.	And.Oris.	Beng.	A & N
49.	<i>Spongomorpha indica</i> , Thivy & Visalakshi	+	+						+	
50.	<i>Cladophora clavuligera</i> , Grun.	+								
51.	<i>C. colabense</i> , Boerg.	+								
52.	<i>C. crystalina</i> , (Roth.) Kuetz.	+	+							
53.	<i>C. crispata</i> , Kuetz.		+							
54.	<i>C. expansa</i> (Mertens)	+								
55.	<i>C. fascicularis</i> (Mertens.) Kuetz.		+							
56.	<i>C. fritschii</i> , Anand		+							
57.	<i>C. monumentalis</i> (Boerg)	+								
58.	<i>C. indica</i> (Mertens.)									
59.	<i>C. patentiraema</i> (Mont.) Kuetz.		+							
60.	<i>C. saracenica</i> (Boerg.)	+								
61.	<i>C. trantuebarensis</i> (Kuetz)									
62.	<i>C. prolifera</i>		+							
63.	<i>C. glomerata</i>		+							
64.	<i>C. bombayensis</i> , Boerg		+							
65.	<i>C. utriculosa</i> , Kuetz		+							
66.	<i>Willeella ordinata</i> , Boerg.	+								

Order: Siphonocladales

Family: Siphonocladeae

S.No. Classification and name Guj. Mah. Goa Kar. Ker. Lacc. Tam. And. Oriss. Beng. Ass. N

- j. Fam. Protosiphonaceae
99. *Halicystis boergesenii*
(Iyeng. & Ram)
- k. Fam. Dasycladaceae
100. *Acetabularia caliculus* + +
(Quoit. et Guim.)
101. A. *moebii*, Solms-Laubach
102. *Neomeris annulata*, Dickie
103. N. *dumetosa*, Lamom
- l. Family Codiaceae
104. *Avrainvillea erecta*
(Berk) Gepp.
105. *Avrainvillea* sp. +
106. *Chlorodesmis hildebrandtii*
(A & ES Gepp)
107. *Codium adhaerens*, (Anderson)
108. C. *coronatum*, Setch.
109. C. *decoriticatum* (Wood)
Harve.
110. C. *dwarkensis*, Boerg + +
C. *indicum*, Dixit +
111. C. *Iyengarii*, Borgg +
112. C. *tomentosum*

ADDENDUM

S.NO.	Classification	Guj. Mah. Goa Kar. Ker. Lacc. T.N. Nad. Oris. W.Ben. A.I.D.
	Division:- Chlorophyta	
	Order:- Cladophorales	
	Family:- Cladophoraceae	
1.	<i>Rhizoclonium tortuosum</i> Kuetz	+
	Order:- Ulotrichales	
	Family:- Chaetophoraceae	
2.	<i>Ulvella lens</i> Crouan	+
	Order :- Siphonocladales	
	Family:- Caulerpaceae	
3.	<i>Bryopsis indica</i> A. & E.S.	+
4.	<i>Caulerpa lentillifera</i> Gepp	+
5.	<i>C. chermitzia</i>	+
	Family:- Dasycladaeae	
6.	<i>Acetabularia parvula</i> Solms Laubach	+
	Family:- codiaceae	
7.	<i>Udotea conglutinata</i> (Ellis and Slender) Lamour	+
8.	<i>U. iyengarii</i>	+
	Family:- Valoniaceae	
9.	<i>Boodlea siamensis</i> Reinh.	+
	Order:- Codiaceas	
	Family:- Protosiphonaceae	
10.	<i>Hylicystis indica</i> Patel and Isabella	+
	Order :- Heterosiphonales	
	Vaucheriaceae	
11.	<i>Vaucheria longicaulis</i> Burm.f.	+

PHAEOPHYTA

S.No. Classification and name Guj. Mah. Goa Kar.Ker.Lacc.Tam And Oris Beng A & N.

- 18. *G. regularis* + + + + +
- 19. *Feldmannia irregularis* (Kuetz) Ham. + +
- 20. *F. filifer* + + +
- 21. *F. brevifiliculatus* + + +
- 22. *Hamelilla dermonematis*, Boerg. + + +
- 23. *H. geminifructus*, Boerg +
- 24. *Myriogloea sciurus* +

- II. Order: Chordariales
- b. Fam. Ralfsiaceae
- 25. *Ralfsia seyanica*, Harve +
- 26. *R. verrucosa*, (Arech) C. Ag. + + +
- 27. *R. expansa* +

- C. Family: Sphaerelariaceae
- 28a. *Sphaerelaria furcigera* Kuetz + + + + +
- 28b. *S. tribuloides*, Mene + + +
- d. Family: Myriionemataceae
- 29. *Hectonema saragassicola*, Boerg. +
- 30. *H. terminalis* (Kuetz.) Kulin + + +
- 31. *H. erhabalis* + + +

S.No.	Classification and name	Guj.	Mah	Goa	Kar.	Ker.	Lacc Tam And Oris Beng A & S
32.	<i>H. colimularis</i>	+					
33.	<i>Myriomena strangulans</i> , (Greville)	+					
34.	<i>Myriomena</i> sp.		+				
35.	<i>Compsonema gracile</i> (Kuck.)	+					
36.	<i>Ascocyclus orbicularis</i>	+					
	(J. Ag.) Magnus.						
37.	<i>Kuetzingiella battersii</i>	+	+				
38.	<i>K. elachistaeformis</i>	+	+				
	Family: Caryophyllaceae						
39.	<i>Myriactula arabica</i> (Kuets.) Feld.	+					
40.	<i>M. pulvinata</i> Kuettz.	+					
	Family: Chordariaceae						
41.	<i>Levringia boergensis</i> (L.) Kylin.	+					
42.	<i>Liebmannia laccadivaram</i> (Bart.)						
	Family: Sphaerotilaceae						
43.	<i>Namacystus decipiens</i> (Sond.) Kuck.	+					
	Order: Scytophoneales						
h.	Family: Scytopiphonaceae						
44.	<i>Hydroclathrus clathratus</i> (C. Ag.)	+					
	(Derb et Sol.)						
45.	<i>Colpomenia sinuosa</i>	+	+	+	+	+	+

S.No. Classification and name Guj.Mah Goa Kar. Ker. Lacc.Tam. And Oris Beng A & N

46.	<i>Rosenvingea intricata</i> (J. Ag.) Boerg.	+	+	+				
47.	<i>R. nhatrangensis</i> , Dawson		+					
48.	<i>R. sanctae-crucis</i>	+	+					
49.	<i>R. orientalis</i> , J. Ag.	+	+					
50.	<i>Tyengaria stellata</i> (Boerg) Boerg.	+		+				
1.	Family: Chnoosporaceae			+	+			
51.	<i>Chnoospora fastigiata</i> , J. Ag.			+	+			
52.	<i>C. minima</i>			+	+			
53.	<i>C. implexa</i> (Herc.) J. Ag.			+	+			
54.	<i>C. bicaneliculata</i>							
	IV. Order: Dictyotales							
j.	Family: Dictyotaceae							
55.	<i>Dictyopteris acrostichoides</i> (J. Ag.) Boerg.	+	+					
56.	<i>D. australis</i> , (sonder)	+	+	+				
57.	<i>D. delicatula</i> , Lamom	+			+			
58.	<i>D. muelleri</i> (Sonder) V. Bosse.	+						
59.	<i>D. Woodwardii</i> (Brown) J. Ag.	+	+					
60.	<i>Dictyota atomaria</i> , Lamour	+	+					
61.	<i>D. bartayresiana</i> , Lamour	+	+	+				

S.No. Classification and name Guj. Mah. Goa. Kar.Ker. Lacc.Tam.And.Oris.Beng. A & N

- 98. *S. duplicatum*, Ag. +
- 99. *S. flavidans*, (Mert.) C.Ag. +
- 100. *S. glaucescens*, J.Ag. +
- 101. *S. illicifolium*, (Turn) J.Ag. + + + + +
- 102. *S. Johnstonii*, Seth & Gard. +
- 103. *S. lancealatum*, J.Ag. +
- 104. *S. merrifieldii*
- 105. *S. marginatum*, J.Ag. +
- 106. *S. myriocystum*, J.Ag. +
- 107. *S. oligocystum*, Mont. +
- 108. *S. plagiophyllum* (Mert) Ag. + +
- 109. *S. prismaticum*, Chauhan +
- 110. *S. scherzerianum*, Grinenow +
- 111. *S. swartzii*, (Turn) C.Ag. + + + + +
- 112. *S. tenerimum*, J.Ag. + + + + +
- 113. *S. tenuis*, J.Ag. + + + + +
- 114. *S. turneri*, Yendo + + + + +
- 115. *S. ornata*, + + + + +
- 116. *S. vulgare* C. Ag. + + +
- 117. *S. wightii*, Grey. + + +
- 118. *S. baccifarium* (Turn) Ag. + + +
- 119. *S. cervicorne*, Greville. + +

S.No. Classification and name Guj. Mah. Goa. Kar. Ker. Lacc. Tam. And. Oris. Beng. A & N

120	<i>S. concinnum</i> , Greville	+
121	<i>S. densifolium</i> , Zan.	+
122.	<i>S. parvifolium</i> , (Turn) J. Ag.	+
123	<i>S. polycystam</i> , Ag.	+
124	<i>S. virgatum</i> (Mert) Ag.	+
125	<i>Turbinaria condensata</i> (Sond.)	+
126	<i>T. conoides</i> , Kuetz.	+
127.	<i>T. decurrents</i> , Bory	+
128	<i>T. ornata</i> , J. Ag.	+
129	<i>T. trialata</i> , Kuetz.	+
130	<i>T. turbinata</i>	+

ADDENDUM

S.No.	Classification	Guj. Mah. Goa Kar. Ker. Lacc. Tam. And. Oris. W.Ben. S.S.N
	Division:- Phaeophyta	
	Order :- Ectocarpales	
	Family :- Ectocarpaceae	
1.	<i>Feldmania indica</i> (sonder)	+
	Womersly et Baily	+
2.	<i>Protoectocarpus speciosus</i> (Boerg.) Kuchuck	+
3.	<i>Giffordia duchassaigniana</i> (Grunow) Taylor	+
4.	<i>Pilayella littoralis</i> (Lin.) Kjell	+
	Order :- Chordariales	
	Family:- Corynophlaeaceae	
5.	<i>Leathesia</i> sp. Gray	+
	Family:- Myrionomataceae	
6.	<i>Hectonema columnarias</i> (Boerg.) Comb. nov.	+
	Order :- Dictyotales	
	Family:- Dictyotaceae	
7.	<i>Dictyota clista</i> J. Ag.	+
8.	<i>D. cervicornis</i> Kuetz	+
9.	<i>Dilophus alternans</i> J. Ag.	+
10.	Order:- Fucales	
	Family:- Sargassaceae	
0.	<i>Sargassum periferfolium</i> J. Ag.	+
1.	<i>S. perforatum</i>	

RHODOPHYTA

S.No. Classification and name

Guj. Mah. Goa Kar Ker. Lacc. Tam. And. Oris. Beng. A & N

S.No.	Classification and name	Guj. Mah. Goa Kar Ker. Tam. Lacc. And.Oris. Beng. A & N
21.	<i>A. sancti-thomae</i> , Boergs.	+
22.	<i>A. sargassola</i>	+
23.	<i>A. spathoglassi</i> , Boergs	+
24.	<i>A. tuticarinense</i> , Boergs	+
25.	<i>A. subseriatum</i> , Boergs	+
26.	<i>A. sargassicolum</i> , Boergs	+
e.	Family: <i>Helminthocladiaceae</i>	
27.	<i>Dermonema frappieri</i> (Mont et Millardt)	
28.	<i>Helminthocladia australis</i> , Harvey Boergs	+
29.	<i>H. clavadosii</i> (Lamour) Sctchell	+
30.	<i>Liagora albicans</i> , Lamour	+
31.	<i>L. erecta</i> , Zeh.	+
32.	<i>L. farinosa</i> , Lamour	+
33.	<i>L. pulverulenta</i> , Ag.	+
34.	<i>L. viscidula</i> , (Forssk) Lemour	+
35.	<i>Liagoropsis schrammi</i> (Maze et Schra Doty & Abbt.)	+
f.	Family: <i>Chaetangiaceae</i>	
36.	<i>Actinotrichia fragilis</i> (Forssk) Boerg.	+
37.	<i>A. rigida</i> (Lamour) Decne.	+
38.	<i>Galaxaura marginata</i> Lamour	+
39.	<i>G. oblongata</i> , Lamour	+
40.	<i>G. plicata</i> , Kuetz.	+
41.	<i>G. rugosa</i> , Lamour	+
42.	<i>G. tomentosa</i> Kuetz	+
43.	<i>G. obtusa</i>	+
44.	<i>Pseudogloiotophloea</i> <i>fascicularis</i> (Boerg.) Deshika	+
45.	<i>Scinaria bengalica</i> (Boerg)	+

S.No.	Classification and name	Guj. Mah.	Goa Kar	Ker Lacc. Tam.	And.Oris. Beng. A & N
46.	<i>S. carnososa</i> , Harve	+			
47.	<i>S. hatei</i> , Boerg	+	+		
48.	<i>S. indica</i> , Boerg	+			
49.	<i>S. furcellata</i> , Turn	+			
50.	Family: Bonnemaisonaceae				
50.	<i>Asparagopsis sandfordiana</i> (Harve)	+			
51.	<i>A. taxiformis</i> , (Delile) Coll. et Harv.	+	+		
52.	<i>Falkenbergia hillebrandii</i>	+			
53.	Family: Gelidiaceae				
	<i>Gelidium cornutum</i> (Huods)	+			
	Lamour.				
54.	<i>G. heteroplates</i> Boug.	+			
55.	<i>G. micropterum</i> , Kuetz	+			
56.	<i>G. pulvinatum</i> (Kuetz) Thuret	+			
57.	<i>G. pusillum</i> (Stackh) Le Jolis	+	+		
58.	<i>G. rigidum</i> , J. Ag.				
i.	Family: Gelidiellaceae				
59.	<i>Gelidiella acerosa</i> (Forssk) Feld. et. G. bornetii (Web.v. Bosse)	+			
60.	Feld et Ham.	+			
61.	<i>G. myriocladia</i> (Boerg) Feld et Ham.	+			

S.No.	Classification and name	Guj. Mah. Goa Kar Ker Lacc.Tam. And.Oriss. Beng. A& N
III.	Order: Cryptonemiales	
1.	Family: Rhizophyllidaceae	
2.	Chondrococcus hornemannii (Mert.)	+
3.	Family: Peyssoneliaceae	+
4.	Peyssonellia obscura Web. v.Bosse.	+
5.	P. conchicola	+
6.	Cruoriella bicolor, Boerg.	+
7.	Family: Hildenbrandtiaceae	
8.	Hildenbrandtia prototypus, Nardo.	+
9.	Family: Corallinaceae	
10.	Amphiroa anastromosans, W.v. Basse.	+
11.	Anceps (Lamk.) Decsne	+
12.	A. foliacea Lamour	+
13.	A. fragilissima (L.) Lamour	+
14.	Arthrocardia capensis (Leach)	+
15.	Cheilosporum spectabile, Harvey	+
16.	Dermatolithon ascripticum (Foslie) Setch et Mason	+
17.	D. pustulatum (Lamour) Foslie.	+
18.	Goniolithon laccadivicum, Foslie.	+
19.	Hydrolithon iyengarii, Desik et Gan.	+
20.	H. reinboldii, W.v.Bosse	+

S.No. Classification and name Guj. Bih. Gud. Kar. Var. Lacc. Tan. And. Oris. Beng. A. & N

- 106. C. undulata, Sonder +
- 107. Carpopeltis rigida (Harvey) Schmitz. +
- o. Family: Carynomorphaceae +
- 108. Carynomorpha prismatica (J. Ag.) IV. Order: Gigartinales
- p. Family: Sebdeniaceae.
- 109. Sebdenia polydactyla (Boerg.) Balak. +
- q. Family: Solieriaceae +
- 110. Agardhiella robusta (Grev.) Boerg. +
- 111. Meristotheca papulosa (Mont.) J. Ag. +
- 112. Solieria robusta (Grev.) Kylin. + +
- 113. Sarcocnema filiforme (Sond.) Kylin. + + +
- 114. S. furcellatum, Zan. + + +
- 115. S. indicum (J. Ag.) Kylin r. Family: Hypnaceae +
- 116. Hypnea divaricata Greville +
- 117. H. esperi, Bory. +
- 118. H. flagelliformis, Greville +
- 119. H. musciformis (Wulf) Lamour + + +
- 120. H. nigrescens (Gerv.) J. Ag. + + +
- 121. H. pannosa, J. Ag. + + +
- 122. H. spinella, J. Ag. + + +
- 123. H. valentiae (Turn) Mont. + + +
- 124. H. cervicornis, J. Agardh + + +

S.No. Classification and name Guj. Mah. Goa Kar Ker Lacc. Tam. And.Oris. Beng. A & N

S. No. Classification and name Guj. Mah. Goa Kar. Ker. Lacc. Tam. And. Oris. Beng. A & N

- t. Family: Sphaerococeaceae +
- 150. *Caulacanthus ustulatus* (Mert) Kurtz.
- u. Family: Sarcodiaceae +
- 151. *Sarcodia ceylanica*, Harvey
- v. Family: Rhabdoniaceae
- 152. *Catenella repens* (Lightf.) Batt. + + +
- 153. *C. impudica* (Mont.) J.Ag. + + +
- w. Family: Rhodophyllidaceae +
- 154. *Calliblepharis jubata* (Good et Woodw.) Kurtz.
- x. Family: Phyllophoraceae
- 155. *Gymnogongrus pygmaeus* (Grev.) J.Ag. + + + + +
- y. Family: Gigartinaceae + + +
- 156. *Gigartina acicicularis* (Wulfen) Lamour.
- V. Order: Rhodymeniales + + + + +
- z. Family: Rhodymeniaceae + + +
- 157. *Botryocladia leptopoda* (J.Ag.) Kylin + + +
- 158. *B. skottsb ergii* (Boerges) Levr. + + +
- 159. *Coelarthrurum opuntia* (J. Ag.) Boerg. + + +
- 160. *Marypelta thiviae*, Dawson + + +
- 161. *Rhodymenia austrialis*, Sonder + + +
- 162. *Palmaria palmata* + + +
- 163. *P. dissecta* + + +

S.No. Classification and name Gui. Mah. Goa Kar.Ker.Lacc. Tam. And.Oris. Beng. A & N'

21. Family: Champiaceae
 164. *Champia compressa*, Harvey. #
 165. *C. globulifera*, Boerg.
 166. *C. indica*, Boerg. +
 167. *C. parvula* (Ag.) Harvey. +
 168. *C. somalensis* Hauck. +
 169. *Gastroclonium iyengarii*, Srinivasan.
- Order: Ceramiales.
22. Family: Ceramiaceae
 170. *Aglaothamnion cordatum* (Boerg) Feld. +
 171. *Callithamnion byssoides*, Arn. +
 172. *Antithamnion floccosum* (Mueller) Kleem
 173. *A. monabbii*
 174. *Acrothamnion butleriae* (Collins) Kylin.
 175. *Antithamnoneilla breviramosa* (Dawson)
 176. *Centroceras clavulatum* (Ag.) Mont.
 177. *Ceramium cruciatum* Collins et Harvey.
 178. *C. moryae* Web v. Bosse + + +
 179. *C. minutum*, Suhr. + + + +
 180. *C. strictum* Grev. et. Harvey
 181. *C. subdichotomum* Web, v. Bosse
 182. *C. transversale*, Collins et Harvey.
 183. *C. truncatum*, H.E.P.

S.No. Classification and name Guj. Mah. Goa Ker.Ker.Bacc. Tam. And.Oris. Beng. A & N

- 184. *C. fimbriatum* + + +
- 185. *C. fastigiatum* + + +
- 186. *Griffithsia rhizophora* (Grenow) Web v. Bosse. + + +
- 187. *G. tenuis*, C.Ag. + + +
- 188. *G. heteromorpha* Kuettz + + +
- 189. *Spermothamnion spelluncarum* + + +
- 190. *Crouania attenuata* + + +
- 191. *C. rubrum* + + +
- 192. *Haloplegma duperreyi* Mont. + + +
- 193. *Carynospora indica* (Boér) Plenosporium barteri + + +
- 194. (Engl.) Naegl. + + +
- 195. *Spyridia aculeata*, J.Ag. + + +
- 196. *S. filamentosa* (Wulf.) Harve + + +
- 197. *S. fusiformis* (Boerg.) + + +
- 198. *S. insignis*, J. Ag. + + +
- 199. *Wrangelia argus*, Mont. + + +
- 200. *W. penicillatus*, C. Ag. + + +
- 201. *Monospora indica*, Boerg. + + +
- 202. *Ptilota articulata* + + +
- 203. Family: Delesseriaceae + + +
- 204. *Acrosorium uncinatum* (J.Ag.) Kulin. + + +
- 205. *Caiglossa beccarii*, Zan. + + +
- 206. *C. bombayensis*, Boerg. + + +
- 207. *C. leprieurii* (Mont.) J.Ag. + + +
- 208. *Claudea multifida*, Harve + + +
- 209. *Hypoglossum bengalense*, Martins. + + +
- 210. *H. pygmaeum*, Martins. + + +
- 211. *H. spathulatum*, Kuettz. + + +

S.No. Classification and name Guj. Mah. Goa.Kar.Ker.Lacc. Tam. And.Oris. Beng. A & N

- 270. *A. spicifera*, (Vahl.) Boerg. + + + + + + +
- 271. *Lenormandiopsis*
parthasarathi (Krish.) +
- 272. *Bostrychia tenella*, (Vahl)
J. Ag. + + +
- 273. *Bryocladia thwaitesii*, Harve + + +
- 274. *Enartocladia prolifera*
(Greve) Falk. + + +
- 275. *Leveilla jungermannioides* + + +
- (Mart et Her Harvey)
- 276. *Lophocladia lallmanni* + + +
- (Mont.) Schmitz.
- 277. *L. trichoclados*, (Mert et Ag.) Schmitz. + + +
- 278. *Lynkiella karuvalensis*, Verma + + +
- 279. *Marryella periceados*
(Ag) Schmitz. + + +
- 280. *Neurymenia fraxinifolia*,
(Mert.) J. Ag. + + +
- 281. *Roschera condensata*,
W.V. Boerg. + + +
- 282. *R. glomerulata*, (C. Ag.) Web V. Bosse. + + +
- 283. *Spirocladia barodensis*,
Boerg. + + +

ADDENDUM

And. &
Nic.

S.No.	Classification	Guj.	Mah.	Goa	Kar.	Ker.	Lacc.	Tam.	And.	Oris.	W.Beng.
-------	----------------	------	------	-----	------	------	-------	------	------	-------	---------

Division:- Rhodophyta

Order:- Nemalionales

Family:- Acrochaetaceae

1. *Acrochaetium flexuosum* vickers +

2. *Kylinia sargassicola* (Boerg.) Comb. nov. +

3. *K. spathoglossum* (Boerg.) Comb. nov. +

Family:- Helminthocladiaeae

4. *Liagora distenta* (Mertens) J. Ag. +

Family:- Gelidiellaceae

5. *Gelidiella indica* P.S. Rao. +

Order:- Cryptonemiales

Family:- Corallinaceae

6. *Jania capillacea* +

7. *Lithothamnion erubescens* Foslie +

8. *L. prolifera* +

9. *Helymenia polyductila* (Boerg.) +

Order:- Gigartinales

Family:- Solieriacae

10. *Solieria indica* +

11. *Sarconema scinaioides* (Boerg.) +

Family:- Gracilariaeae

12. *Gracilaria dura* +

13. *G. arcuata*, zan. var. attenuata Rao +

S.No.	Classification	Guj.	Mah.	Goa	Kar.	Ker.	Lacc.	Tam.	And.	Oris.	W.	Beng.	And.	Nic.
14.	<i>G. mannaensis</i> Rao												+	
15.	Family:- <i>Phylliphora ceae</i> <i>Anfelta plicata</i> (Huds.) Fries. Order:- Rhodomyeniales								+	+				
16.	Family:- Rhodomyeniaceae Rhodomyenia dissecta (Boerg.) Order:- Ceramiales							+						
17.	Family:- Rhodomeliaceae <i>Polysiphonia gopnathensis</i> Thivy et Rao.	+												
18.	<i>P. acuminata</i> ciardner								+	+				
19.	<i>Laurencia perforata</i>								+	+				
20.	<i>L. bostrychoides</i> Harv.								+	+				
21.	<i>L. nana</i> Harv.								+	+				
22.	<i>L. platyclados</i> Boerg.							+						
23.	<i>Acanthophora thierii</i> Lamour								+					
24.	<i>Tolyopecladia glomerulata</i>								+	+				

CYANOPHYTA

S.No. Classification

Guj. Mah. Goa. Kar. Ker. Lacc. Tam. And. Oris. W. Beng. And. & Nic.

Division:- Cyanophyta

Order :- Nostocales

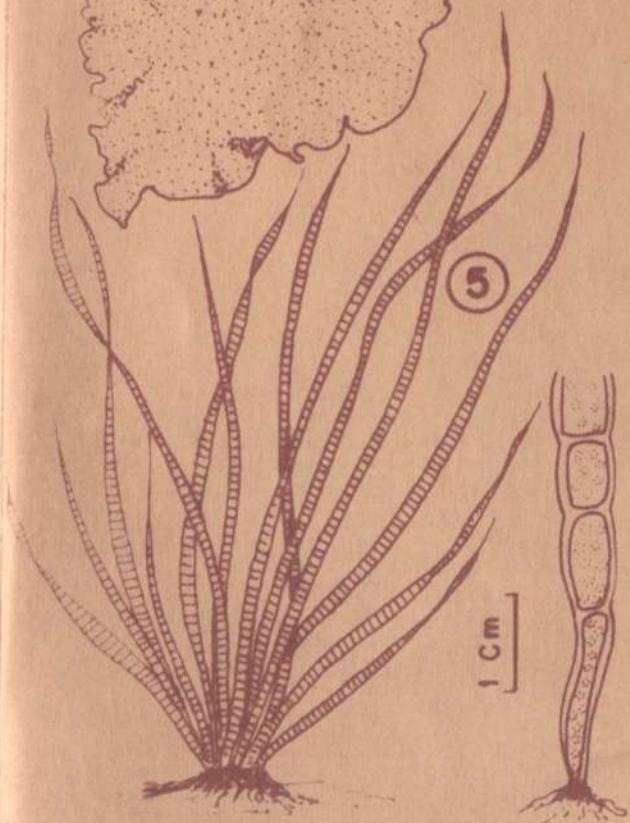
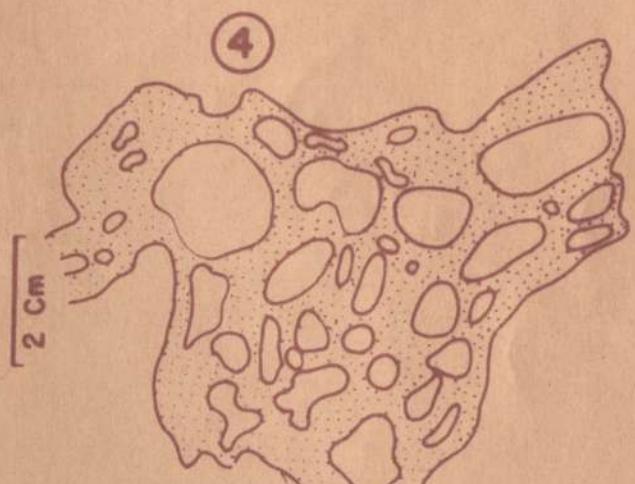
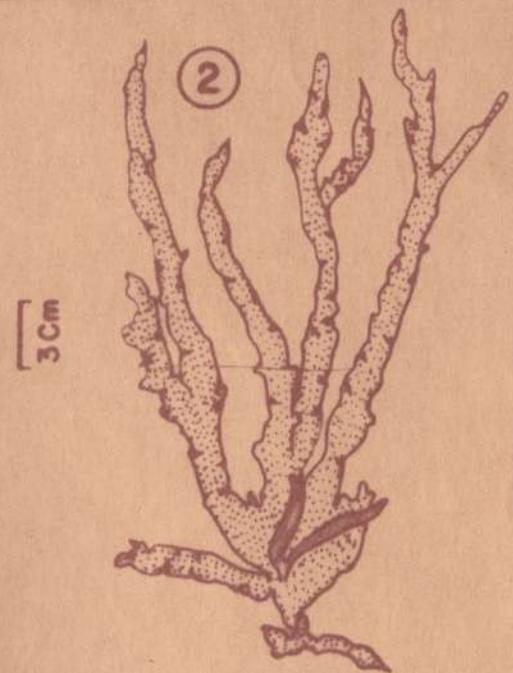
Family :- Oscillatoriaceae

1. *Microcoleus chthonoplastes*, Thür ex. Gomont +
2. *Hydrocoleum lyngbyaceum* Kuettz ex. Gomont + + +
3. *Schizothrix cresswellii* + + +
4. *Lyngbya majuscula* Harvey ex. Gomont + + +
5. *L. confervoides* C. Ag. ex. Gomont + + +
6. *L. infixa* Fremy + + +
7. *L. semiplena* (C. Ag.) J. Ag. ex. Gomont + + +
8. *Oscillatoriopsis nigroviridis* Thwaites ex. Gomont + + + + +
9. *Oscillatoria* sp. + + +
10. *Phormidium fragile* + + +
11. *P. tenue* + + +
- Family:- Nostocaceae + + +
12. *Anabaena fertilissima* Rao, C.B. + + +
- Family:- Scytonemataceae + + +
13. *Plectonema* sp. + + +
- Family:- Rivulariaceae + + +
14. *Calothrix merchacea* Lemn + + +
15. *C. confervicola* (Roth) Ag. + + +
- Family:- Microchaetaceae + + +
16. *Microchaete grisea* Thür. + + +
- Order:- Stigonematales + + +
- Family:- Nostochonoidaceae + + +
17. *Mesotaenia colinus* testatum Lagerh + + +

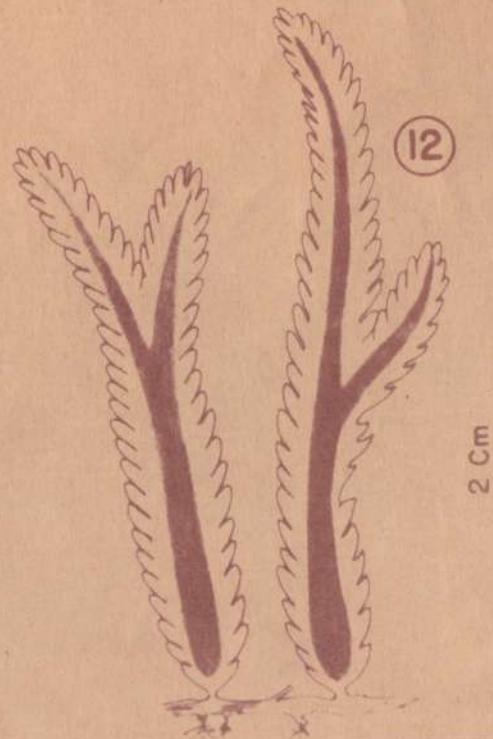
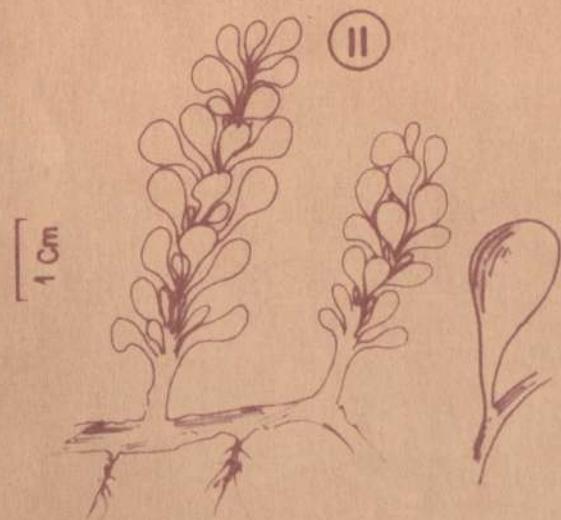
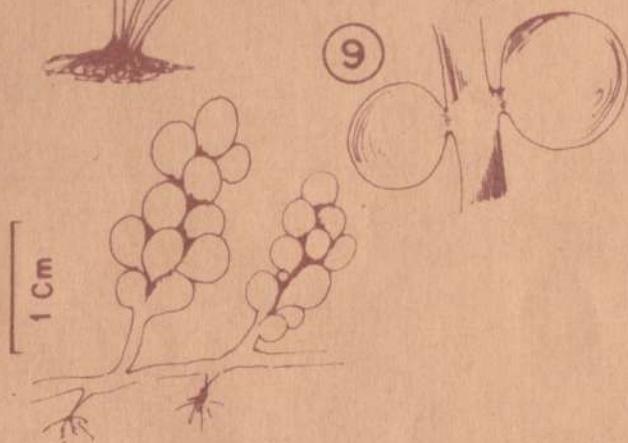
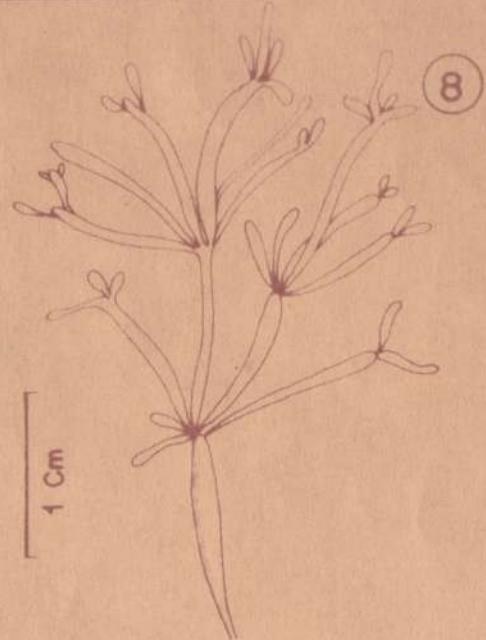
LEGENDS FOR PLATES

1. Enteromorpha flexuosa
2. Ulva fasciata
3. Ulva lactuca
4. Ulva reticulata
5. Chaetomorpha media
6. Bryopsis hypnoides
7. Acetabularia sp.
8. Ernadesmis verticillata
9. Caulerpa microphysa
10. Caulerpa peltata
11. Caulerpa racemosa var. Chemnitzia
12. Caulerpa scalpelliformis
13. Caulerpa taxifolia
14. Caulerpa sertularioides
15. Caulerpa verticillata
16. Codium indicum
17. Dictyota dichotoma
18. Dictyota dumosa
19. Spatoglossum asperum
20. Dictyopteris australis
21. Pocockiella variegata
22. Padina tetrastromatica
23. Stoechospermum marginatum
24. Sargassum piluliferum
25. Sargassum cinereum
26. Sargassum ilicifolium
27. Sargassum wightii
28. Gelidium pusillum
29. Halymenia porphyroides
30. Grateloupia lithophila
31. Gracilaria corticata
32. Hypnea musciformis
33. Hypnea cervicornis
34. Martensia fragilis
35. Acanthophora spicifera
36. Laurencia papillosa

PLATE



PLATE



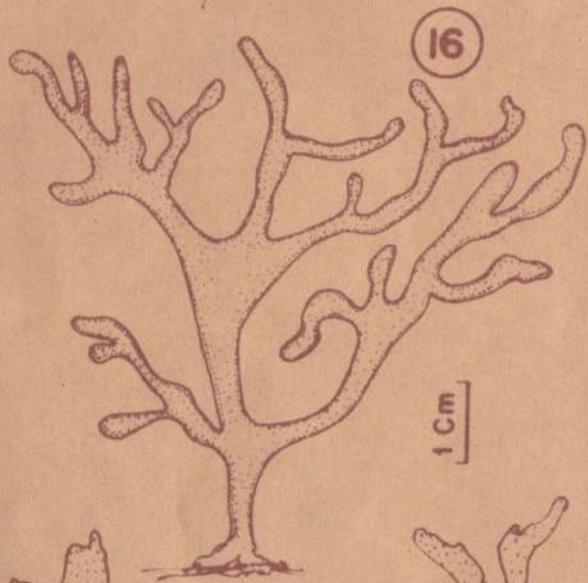
PLATE



13



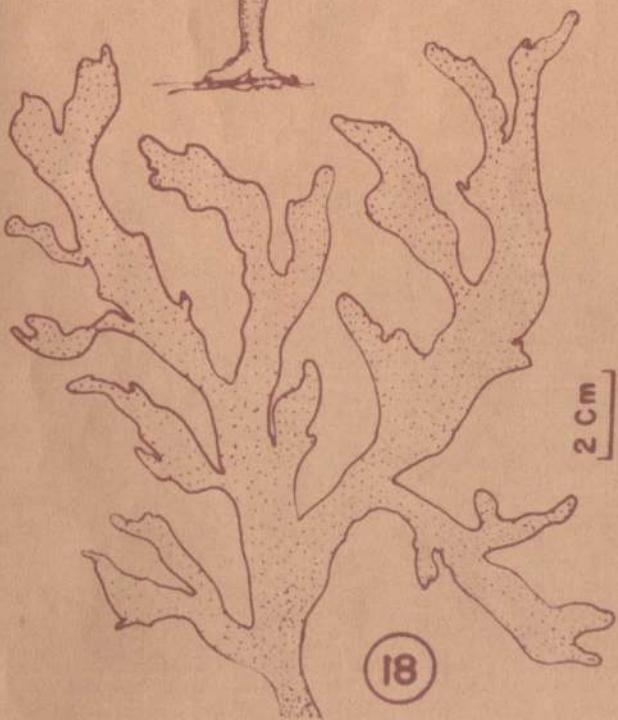
14



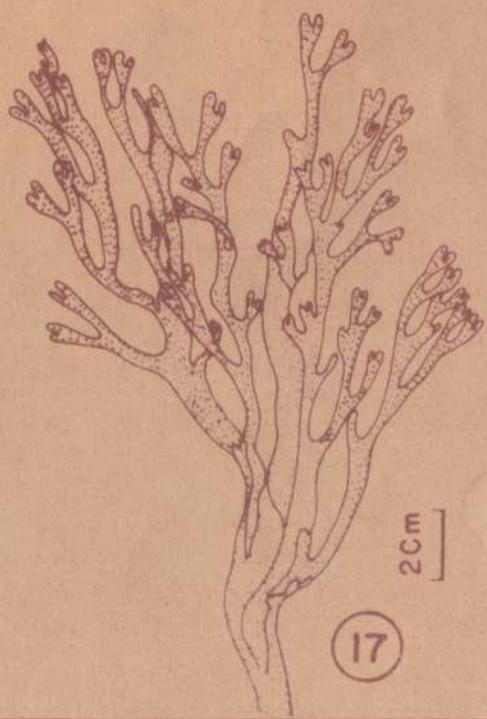
16



15

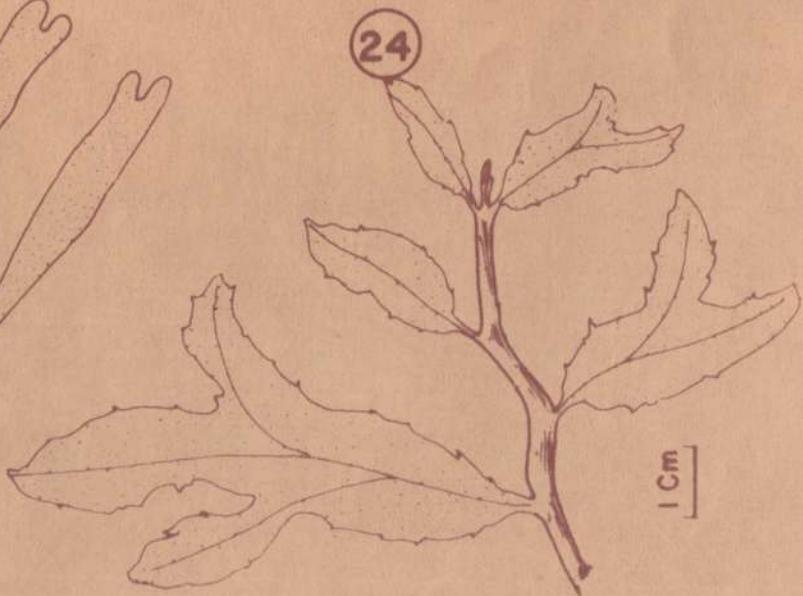
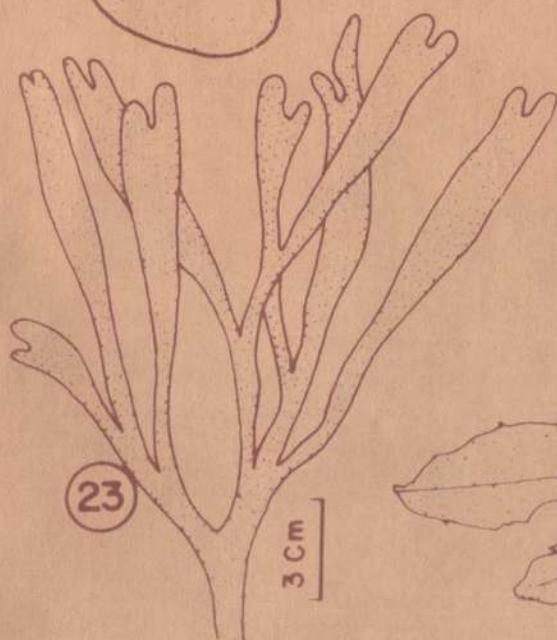
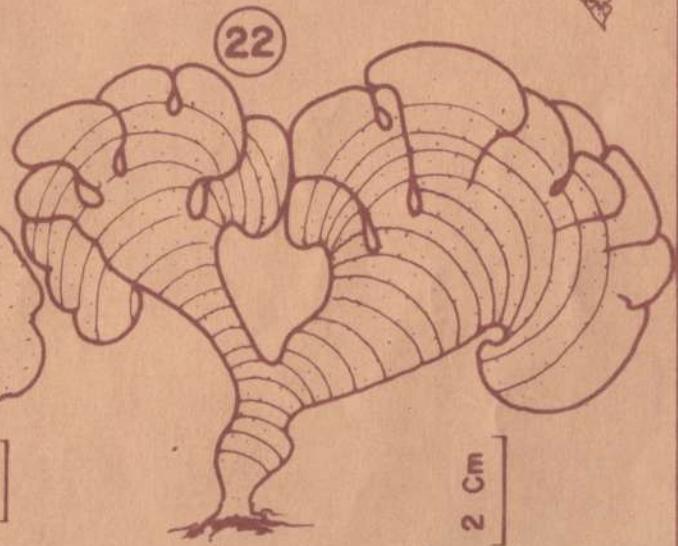
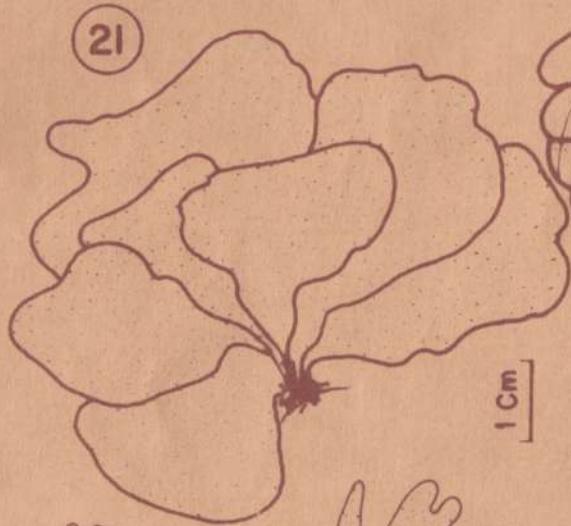


18

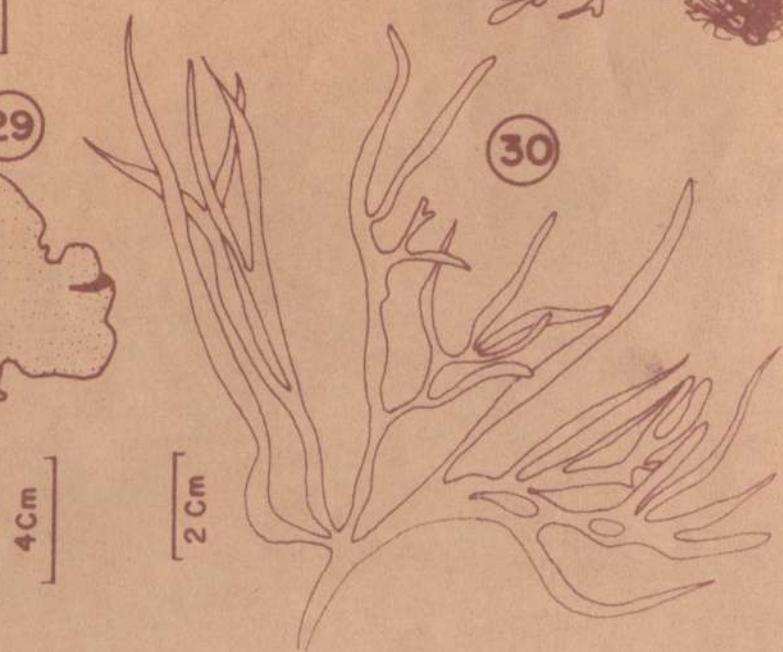
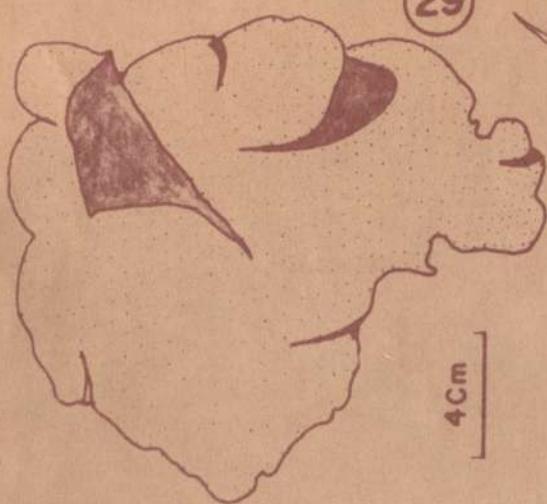
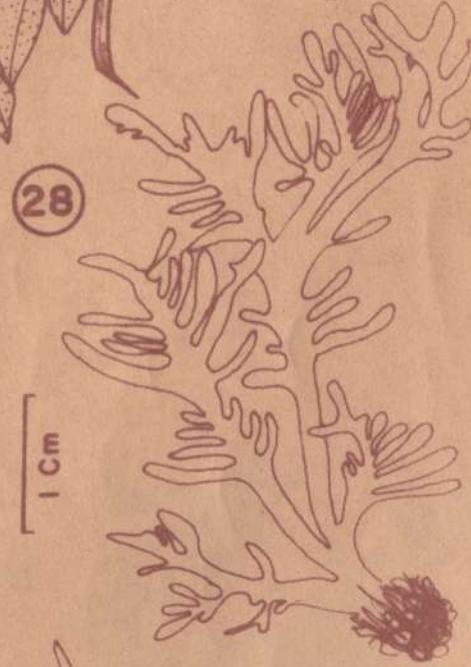


17

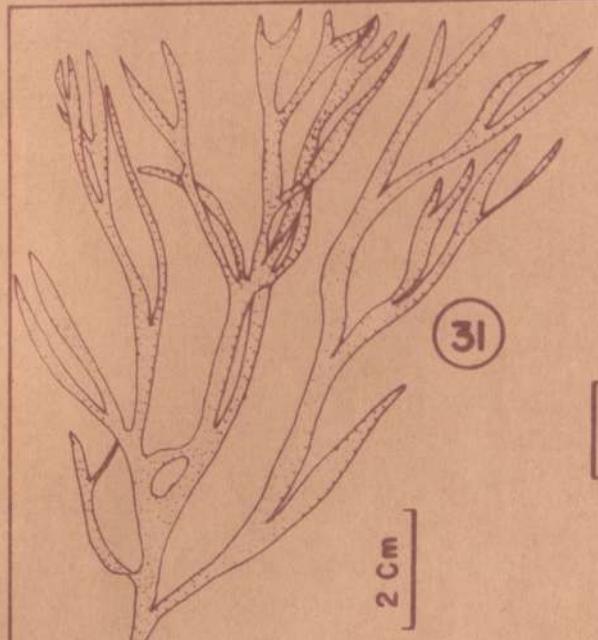
PLATE



PLATE



PLATE



(31)

3 CM



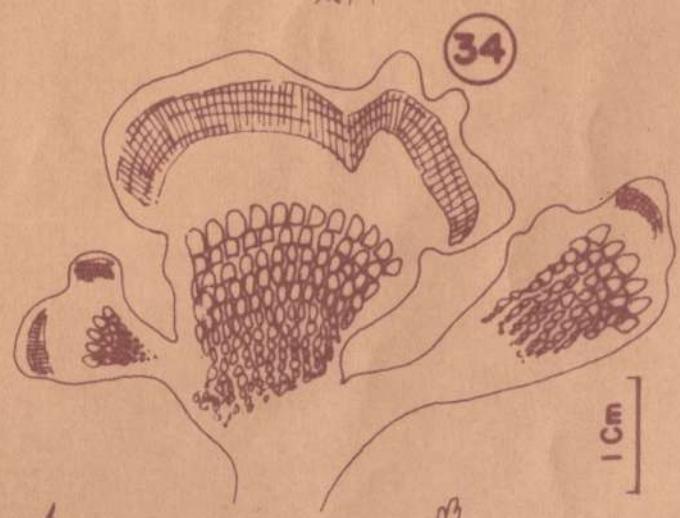
(33)

2 CM



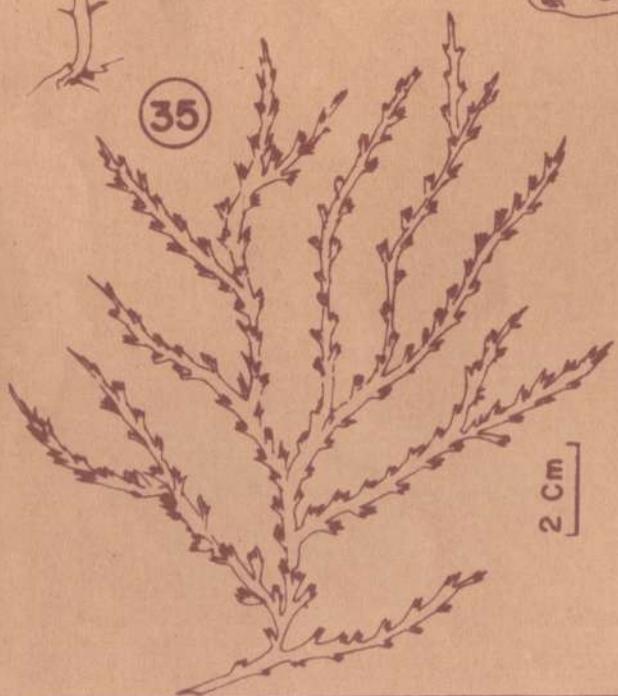
(32)

3 CM



(34)

1 CM



(35)

2 CM



(36)

2 CM