

A NEW SPECIES OF CRYPTONEMIA FROM BRAZIL

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The opportunity to examine a collection of depth plants from some places on the Brazilian littoral brought us in contact with a very interesting species of *Cryptonemia* that we suppose to be a new one.

Though poorly known, the Brazilian sublittoral seems to have a very rich and diversified flora promising to be a good source of interesting and unknown material.

DESCRIPTION

Cryptonemia flabellifolia Pinheiro-Joventino & Oliveira Filho sp. nov.

Plantae usque ad 45 cm altae, caulescentes, stipite partibus nudis longis praedito. Stipe in laminas excurrentes ad medium et nervum centrale formans simplicem rariusve bifurcatum. Laminae cuneatae, apicem versus ampliatae, usque ad 7 cm latae, margine integrae juventute et dentatae proveciore aetate. Thallus compositus ex 1-2 stratis cellularum corticalium perminutis, 2 stratis cellularum subcorticalium et medulla filamentis laxis; thallo 105-150 μ m crasso prope nervum. Tetrasporangia ex excrescentiis parviusculis marginalibus structa. Plantae masculae et femineae desunt.

Holotypus — specimen ad 40 cm in fundo maris collectum, Acaraú, Ceará, Brasil, a F. Pinheiro-Joventino lectum.

Plants solitary, growing attached to crustaceans Corallinaceae by a disc-like base; the largest specimen measuring up to 45 cm high. The plants are caulescents with a stipe 1 cm long in old specimens, measuring up to 3 mm in diameter near the base. The branching is regularly alternate, distichous, except for one or other branch that arises from the midrib of the blade. The blades are firm but rather thin and transparent; in old specimens they are flabellate, cuneate at the base and expanding above up to 7 cm wide. The stipes are

terete below, becoming flattened and alate above; they continue through the blades for a variable extension as a midrib, but do not reach the tips; in well developed blades the midrib divides in 2-3 branches and the blade becomes cleft, subpalmate. Young blades can be found arising directly from old stipes; they are more or less spatulated or rounded without midribs and very delicate. The blade's margins are plane or slightly undulate, with portions entire or dentate through very small terete teeth; in some blades tiny leaflets proliferations are very abundant, usually fan-shaped and sometimes divided. These proliferations are also abundant in parts where the blade was damaged (figure 1).



Figure 1 — *Cryptonemia flabellifolia* sp. nov.: tetrasporic plant showing details of the long stipe and marginal proliferations.

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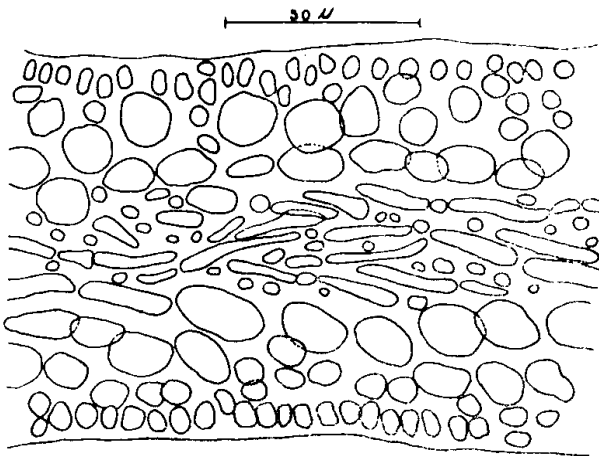


Figure 2 — *Cryptonemia flabellifolia* sp. nov.: cross section of the thallus, with a cortical medullary region of filamentous cells.

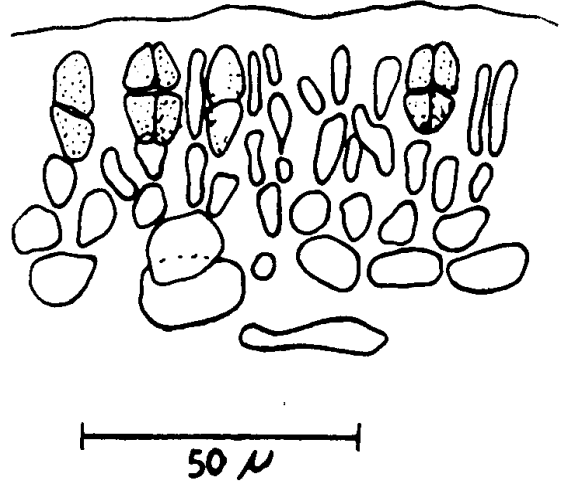


Figure 3 — *Cryptonemia flabellifolia* sp. nov.: cross section of a fertile portion with tetrasporangia.

The blades are 100-150 μm thick in the middle portion of old plants; structurally, they are composed by 1-2 layers of small cortical cells, followed by 2 layers of large sub-cortical cells; the medullary portion is formed by slender filaments loosely disposed. In the outer layer the cortical cells measure about 5 μm in diameter being rather elongated anticlinally. The ribs are made of several layers of small cells which arise from periclinal divisions of the outer cortical layer without any participation of the subcortical or medullary cells (figure 2).

The tetrasporangia are found in the small leaflets proliferations. They are produced in the outer layer of the cortex, are cruciately divided and measure 8-10 μm in diameter, being about 2 times longer (figure 3).

Sexual plants were not found.

KEY FOR THE SPECIES OF
CRYPTONEMIA REFERRED TO BRAZIL

- 1 — Plants with midribs on the blades . . . 2
- Plants without midribs 3
- 2 — Blades linear-oblong, margin entire, undulate *C. luxurians*
- Blades flabellate or lanceolate, margin dentate, not undulate . . . *C. flabellifolia*

- Midribs present in the basal portion *C. guayamasensis*
- 3 — Blades with marginal teeth *C. crenulata*
- Blades with entire margin 4
- 4 — Stipe well developed (5 cm), blades commonly with subpalmate lobes *C. bengryi*
- Stipe very short (1-3 mm), blades with proliferations but usually not divided *C. delicatula*

DISCUSSION

From the available literature we could find seven species of *Cryptonemia* referred to as occurring in the Atlantic Ocean. From these, four are referred to the tropical coast of America, namely *C. luxurians* (Mertens) J. Agardh, *C. crenulata* J. Agardh, *C. bengryi* Taylor and *C. delicatula* Joly et Cordeiro, the last two referred only to the Caribbean and Brazilian coasts, respectively.

Our plant can be easily identified from the species referred to the American Atlantic by the characters presented in the key given in this paper. It gets closer to *C. luxurians*, differing from it in the following characters:

Character	<i>C. luxurians</i>	<i>C. flabellifolia</i>
Thallus shape	linear-oblong	flabellate — older plants
Blade's width (middle portion)	about 1 cm	up to 7 cm (usually 3 cm)
Blade's margin	entire-undulate	dentate
Habitat	intertidal	sublittoral

From the other species presenting midribs it differs by the shape of the blades, branching pattern and the high development of the stipe.

De Toni (1905) mentions 9 species of *Cryptonemia*, all of them but *C. tunaeformis* (Bertol.) Zanard. (this one quoted with an ? mark) with midribs more or less developed.

In those species where the tetrasporangia are clearly described they are located in small marginal leaflets, and so with the characteristics described by J. Agardh, 1842 (*in* De Toni, 1905) when he established the genus.

More recently, several new species or new comb. have increased their number to over twenty, but as we could see from the descriptions the great majority are ecostate and with unknown tetrasporangia.

So, it is clear that two groups can be promptly recognised in the species actually under the genus *Cryptonemia*:

- (1) species with midribs and tetrasporangia produced in small marginal leaflets;
- (2) species without midribs and with the tetrasporangia produced directly on the blades.

The characteristics of this second group agree quite well with the description of the genus *Acrodiscus* Zanardini, 1865 a name formerly used by Agardh, 1851 (*in* Agardh, 1876) to designate a section of the genus *Cryptonemia* in order to include *C. dichotoma* J. Agardh — now *Acrodiscus vidovichii* (Meneg.) Zanard. — and *C. crenulata* J. Agardh.

So if these criteria are accepted as valid several species in the actual genus *Cryptonemia* J. Agardh shall be put under *Acrodiscus* Zanard. However, before this can be done more data are necessary about the tetrasporangia's position in the ecostate species.

Joly & Yoneshigue-Braga (1966), working with some deep water material, mention 3 plants of *C. luxurians* from the north and east coasts of Brazil. Examining this material we have found that these plants are very similar to our new species although the blades are lanceolate and thinner. They are different from *C. luxurians* by the shape of the blades and the presence of teeth on the margins and could eventually be young plants of *C. flabellifolia*.

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SUMARIO

Neste trabalho os autores apresentam uma nova espécie de alga, *Cryptonemia flabellifolia* sp nov. Os exemplares que serviram de base ao estudo foram dragados a uma profundidade de 40 metros, em frente aos Estados do Ceará e Rio de Janeiro.

A nova espécie é descrita em latim e representada em ilustrações com detalhes pormenorizados de suas estruturas. Consta do trabalho uma chave de identificação para compará-la com outras espécies que possuem nervuras.

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