

PLIOSTROMA

A NEW SUBGENUS OF MELOBESIA

BY

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Subgen. **Pliostroma** Fosl. mscr.

(sub *Melobesia*).

Thallus inter conceptacula stratis cellularum 5—12 compositus.

In species typically developed of the Corallinacé-genus *Melobesia* the thallus is monostromatic with mostly small cortical cells which form no continuous layer, but only occur solitary and each only covering the foremost part of the subjacent cell.¹⁾ In parts of the thallus in which conceptacles are developed, a slight growth of thickening takes place. Here the layers of cells is usually two or three, seldom four (e. g. sometimes in *M. Lejolisii*). In old forms of *Eumelobesia* and *Heteroderma*, with or without heterocysts, respectively, the conceptacles are often densely crowded and developed over the greater part of the thallus, and when several thalli become confluent and form a crust somewhat extended, the main part is composed of the said number of layers of cells. Then in most cases only the marginal parts are monostromatic.

On the other hand, there are species which, even at a younger stage of development, but peculiarly when fully developed, only show a narrow monostromatic marginal zone, while in other parts of the thallus there is a stronger growth of thickness. These parts are composed of five to twelve layers of cells by a thickness of up to 150 μ , even if the conceptacles are not crowded. When several thalli are confluent or encompassing, for instance, a terete

1) In one species, *M. subtilissima*, I have found no cortical cells, and in another, *M. minutula*, they seem partly to be wanting, partly to occur in very small number. Of these species, however, I have only had a scarce material.

host plant, a transverse section of the host plant with the epiphyte attached will often show only a pluristromatic thallus in the latter, if the section does not hit a marginal part. Some species thus developed with single-layered hypothallium I have formerly referred to *Carpolithon* subgenus of *Lithophyllum*. By examining these species more closely I have found a mostly small marginal portion monostromatic with small and solitary cortical cells. This proves that there is a near connection between the genera *Melobesia* and *Lithophyllum*; for — as far as I have hitherto seen — there is no essential difference as to the reproductive organs. The species mentioned below I, therefore, now refer to a new subgenus, *Pliostroma*, including *M. zonalis* which I used to refer to the subgenus *Heteroderma*.

Melobesia (Pliostroma) zonalis (Crn.) Fosl.

Rem. Melob. Herb. Crn. (1900) p. 3; Hapalidium zonale Crn. Not. Hapal. (1859), p. 284 pl. 21, fig. A, saltem pro parte! Fl. Finist. (1867), p. 149; Hapalidium coccineum Crn. Not. Hapal. p. 285 partim? Cfr. Fl. Finist. l. c.; Hapalidium phyllactidium Crn. Not. Hapal. p. 286, pl. 21, fig. B! Hapalidium confervoides Crn. Fl. Finist. p. 149 partim! Hapalidium roseum Crn. Fl. Finist. p. 149?

f. *typica*.

Melobesia zonalis Crn. l. c.; Fosl. l. c.

f. *myriocarpa* (Crn.) Fosl.

Alg. Not. V (1908), p. 20¹⁾; *Melobesia myriocarpa* Crn. Fl. Finist. (1867), p. 150!

I mentioned l. c. that in an authentic specimen examined of *M. zonalis* I had not seen solitary cortical cells. Still such ones occur. In this monostromatic part of the thallus, the cells, when seen from the surface, are partly subquadrate, partly and most frequently elongated in the direction of the radius, 9—14 (18) μ long by 7 (6)—10 (12) μ . Here and there occur hyaline cells which resemble the same in *M. Lejolisii*. Cp. Rem. north. Lithoth. p. 103. The cortical cells are small and mostly oblong. They bear a strong resemblance to the corresponding cells in *M. Lejolisii*, but are partly a little larger and almost semicircular. The central parts of the thallus attain to a thickness of up to 70 μ , and are composed of up to ten layers of cells. In a transverse

¹⁾ Owing to a lapsus calami it has here been put down under *Lithophyllum*.

section the cells are subquadrate, slightly horizontally or vertically elongated, 7 (6)—18 by 7—16 μ . The conceptacles of sporangia are scattered or somewhat crowded, convex or convex-conical, 140—250 (300) μ in diameter, when seen from above. The conceptacles of cystocarps are of about the same size. The sporangia are tetrasporic, 45—60 μ long and 30—40 μ broad.

The species proves to be very nearly connected with *M. Lejolisii*, from which it is distinguished essentially only by its greater thickness and by a little narrower cells which are more frequently somewhat elongated in the direction of the radius. It occurs on glass, china, and small shells. At Banyuls sur Mer some years ago a *Melobesia*-like form was found on glass in the aquarium of the laboratory Arago. Professor Sauvageau kindly sent me a piece of such aquarium glass with numerous and particularly young crusts of this calcareous alga on it. I first supposed that it belonged to *M. Lejolisii*, but have later on come to the conclusion that it has to be referred to *M. zonalis*.

An authentic specimen of *M. myriocarpa* which I have seen, corresponds in all essentials with typical *M. zonalis*. According to Crouan, however, it is somewhat varying. I, therefore, as I observed l. c., take it in the sense that it corresponds to *M. farinosa* f. *Solmsiana* and *M. minutula* f. *lacunosa* with a very irregular, often subdichotomous thallus. The typical form I consider as a more regular, sometimes almost circular one.

M. zonalis occurs at Brest (Crouan!), Plymouth (Batters!) and Banyuls sur Mer (Sauvageau!).

Melobesia (Pliostroma) mauritiana Fosl. mscr.

Lithophyllum (Carpolithon) mauritianum Fosl. Alg. Not. III (1907) p. 32.

In this species the peripheral part of the thallus is mostly irregular, crenulate or provided with short and rather narrow, irregular offshoots. This part is monostromatic. The cells are here, as seen from the surface, elongated in the direction of the radius, 11—18 (22) μ long and 6—9 (11) μ broad. The cortical cells are nearly linear, or oblong. The central parts of the thallus attain to a thickness of about 80, and sometimes

up to 120 μ . The alga is, as yet, known only from Madagascar (Jadin).

Melobesia (Pliostroma) explanata Fosl. mscr.

Lithophyllum (Carpolithon) explanatum Fosl. Alg. Not. II (1906) p. 25.

Only a small marginal part is monostromatic. In this part of the thallus the cells, as seen from the surface, are elongated in the direction of the radius. They are 9 (7)—18 (22) μ long and 6 (5)—9 (11) μ broad, and the cortical cells are oblong or semi-circular. In the other parts of the thallus are developed up to seven layers of cells, perhaps in part more. The alga is known only from New Zealand, where it occurs in Island Bay, near Wellington (Setchell!).

Melobesia (Pliostroma) Sargassi Fosl. mscr.

Lithophyllum (Carpolithon) Sargassi Fosl. Alg. Not. II (1906), p. 26.

This species encompasses, wholly or in part, the airbladders of *Sargassum*, peculiarly *S. serratifolium*. The monostromatic part of the thallus is frequently of very little extent. Here the cells, as seen from the surface, are elongated in the direction of the radius, 11—18 (20) μ long and 6—9 μ broad. The cortical cells are oblong, semicircular or sometimes roundish. As a general rule, several small thalli settle on one and the same airbladder and finally grow confluent. The pluristromatic part is composed of up to about 10 layers of cells and is up to 90 μ thick. The species is known only from Misaki, Japan (Yendo!).

Melobesia (Pliostroma) Chamædoris Fosl. et Howe mscr.

Lithophyllum (Carpolithon) Chamædoris Fosl. et Howe New Amer. Corall. Alg. (1906) p. 134, pl. 90, fig. 1.

Also in this species the monostromatic part is of little extent. In this part the cells, as seen from the surface, are 11—22 (25) μ long and 7 (6)—11 (13) μ broad with oblong cortical cells. The alga often completely encircles larger or smaller parts of the stalk of the host plant, and in this case a transverse section will only show a crust composed of several layers. It forms up to twelve

layers of cells and attains a thickness of up to 150 μ , though usually less. Cp. l. c. The conceptacles of sporangia here mentioned represent in fact — as I observed in Alg. Not. V p. 17 — conceptacles of cystocarps. The species occurs at the Bahamas (Howe) and at St. Croix in the West Indies (Børgesen!).

The following species are still to be kept under *Carpolithon*, subgenus of *Lithophyllum*, with a single layer of basal hypothallic cells and several layers of perithallic cells:

- Lithophyllum tasmanicum* Fosl.
 - ” *paradoxum* Fosl.
 - ” *jugatum* Fosl.
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