

Universitat de Barcelona
Facultat de Biologia
Departament de Biologia Vegetal
Unitat de Botànica



**REVISIÓ MORFOLÒGICA I MOLECULAR DELS TÀXONS
LOBULATS DEL GÈNERE *CALOPLACA* (*TELOSCHISTACEAE*,
LIQUENS), AMB ESPECIAL ÈMFASI EN EL GRUP DE
*C. SAXICOLA***

Memòria presentada per Ester Gaya i Bellés
per optar al grau de Doctor en Ciències Biològiques

Programa de Doctorat de Biologia Vegetal

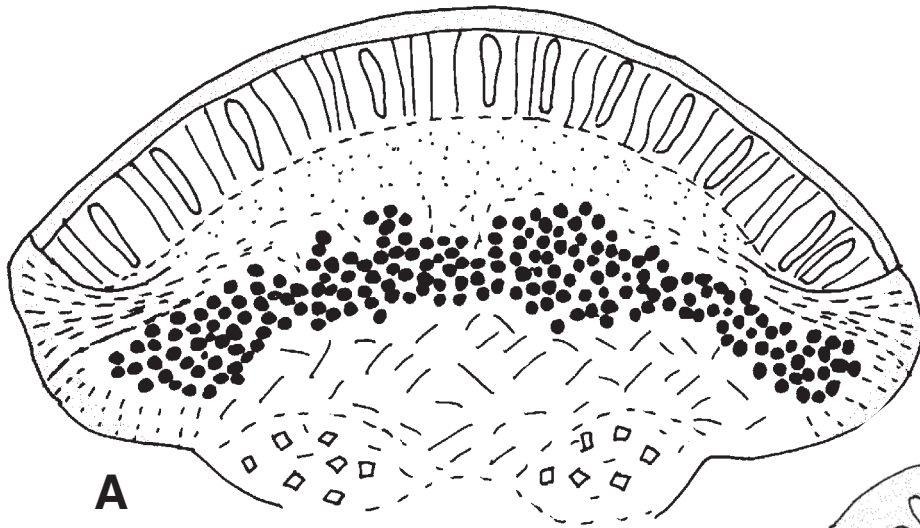
Bienni 1999-2001

Directors de Tesi:

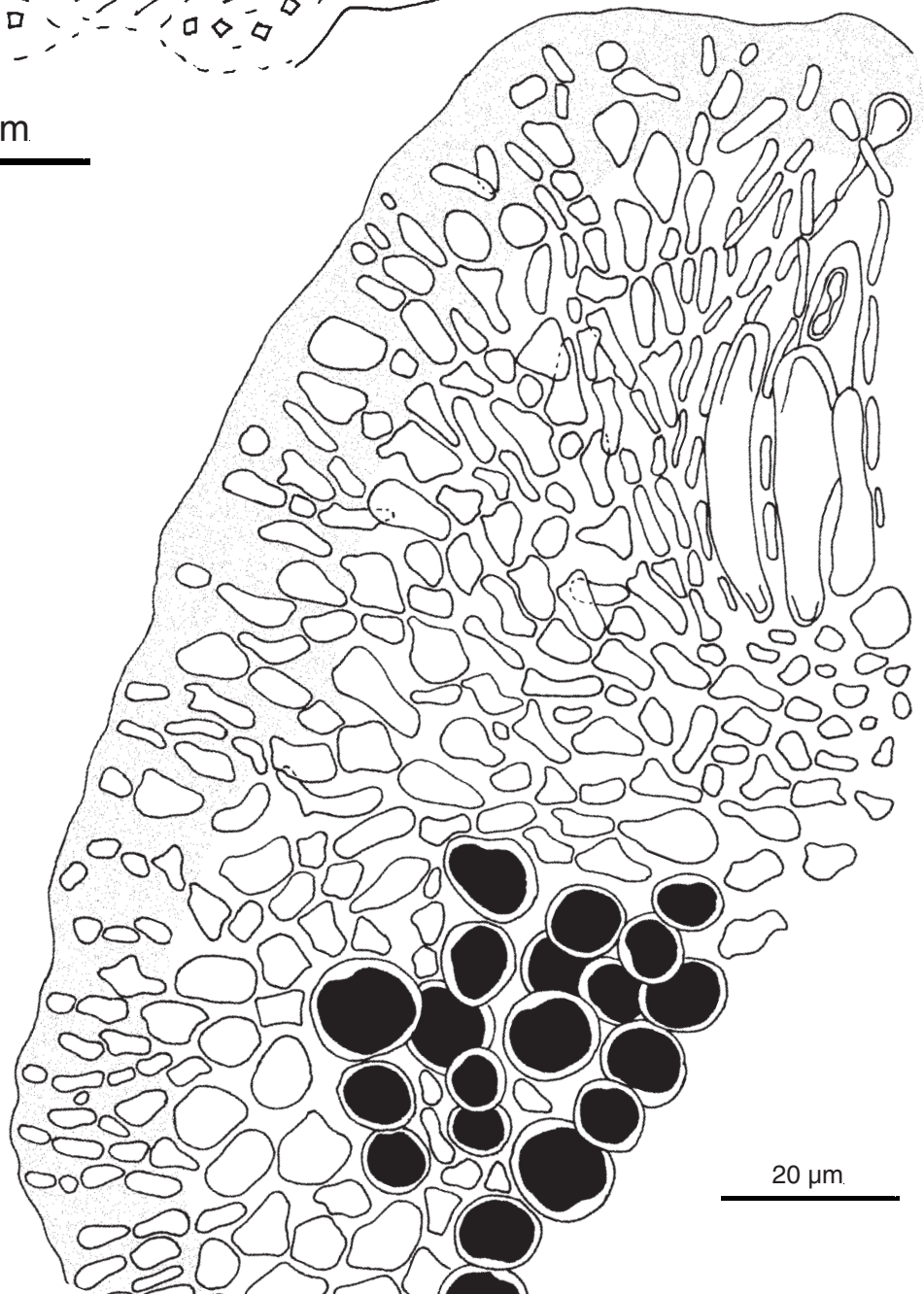
Dr. Xavier Llimona i Pagès

Dr. Pere Navarro i Rosinés

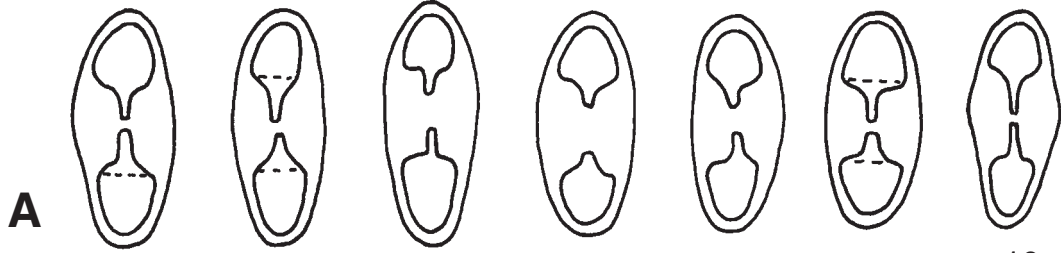
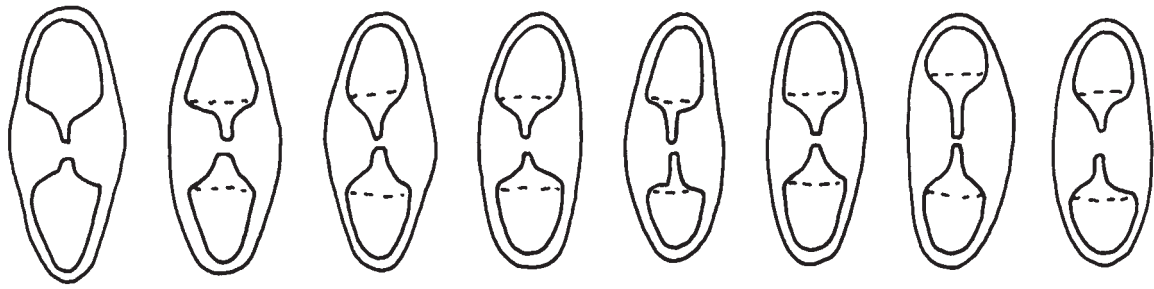
Barcelona, Octubre de 2005



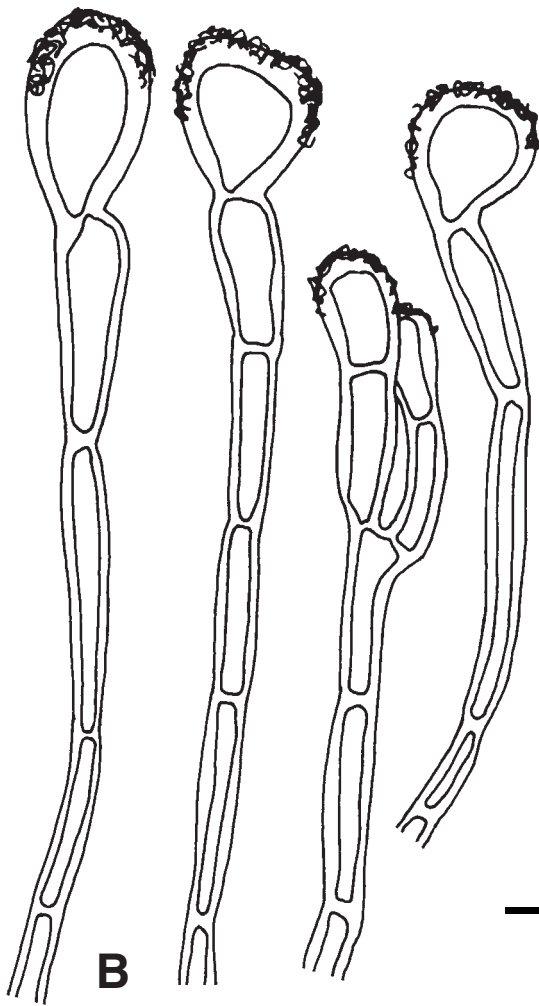
200 μm



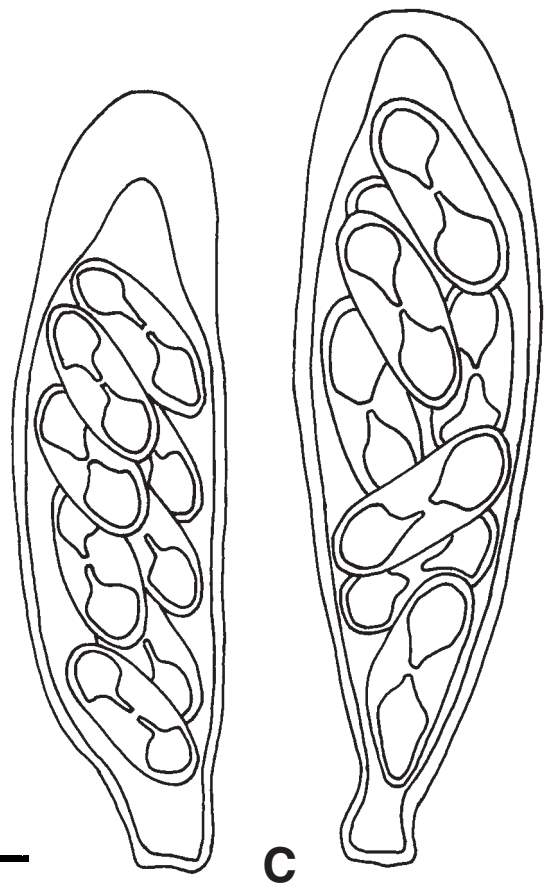
20 μm



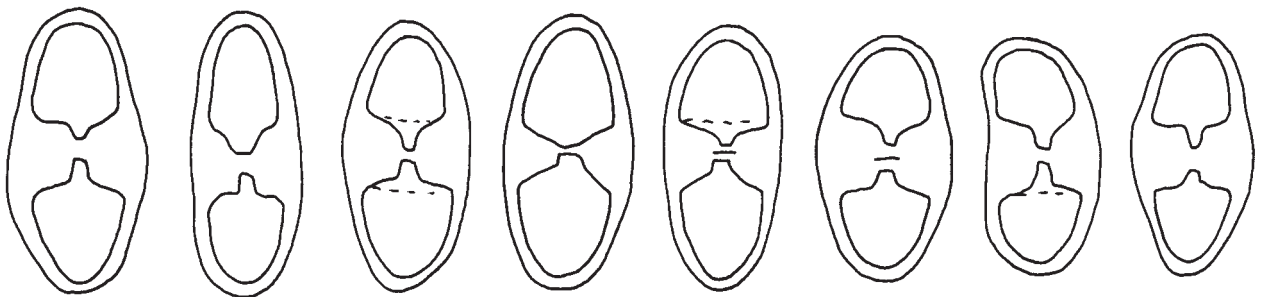
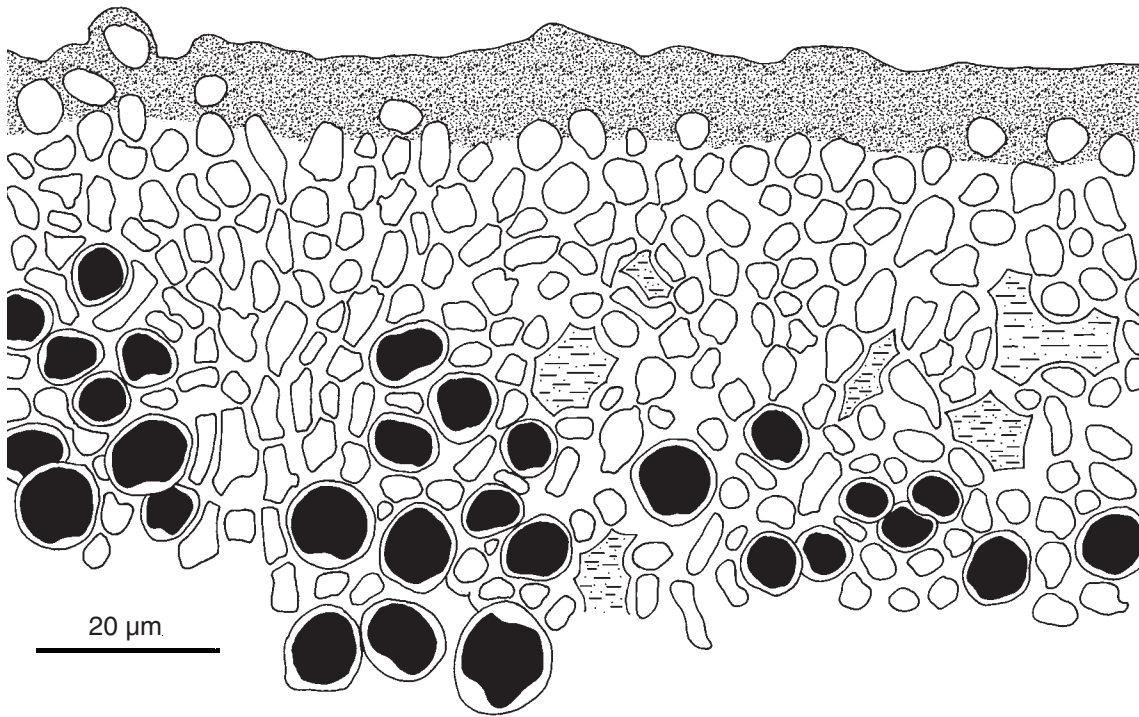
10 μ m



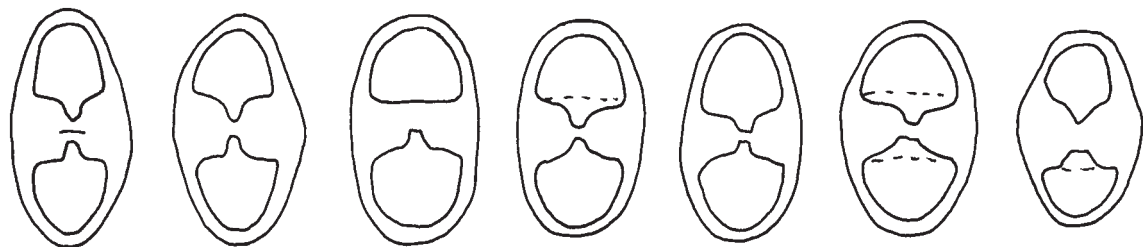
10 μ m



A



B

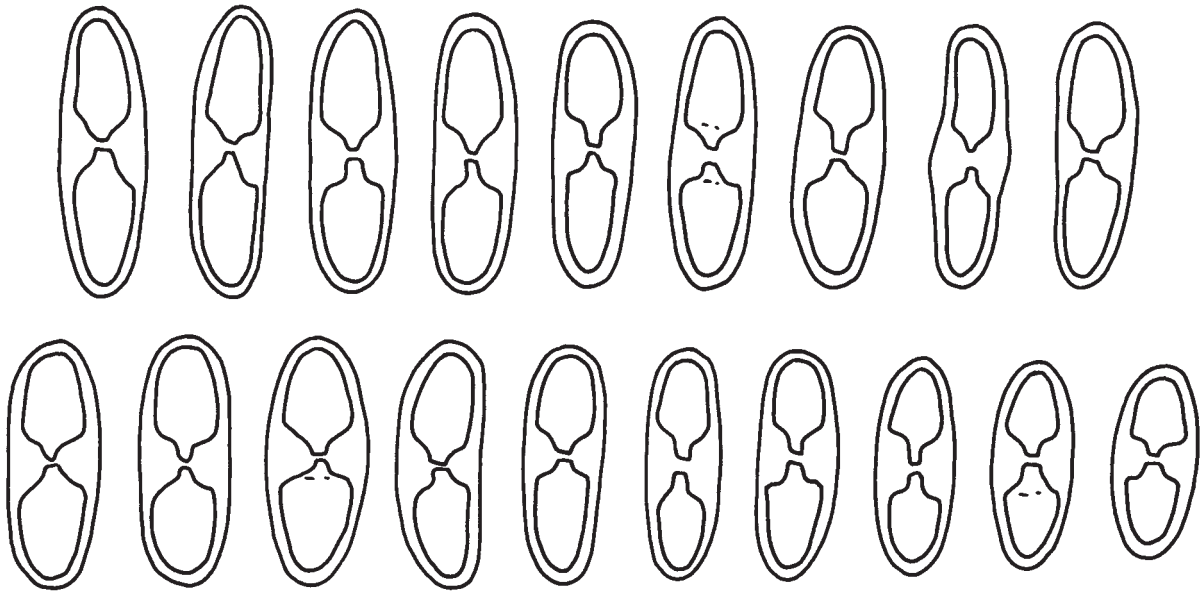


10 µm

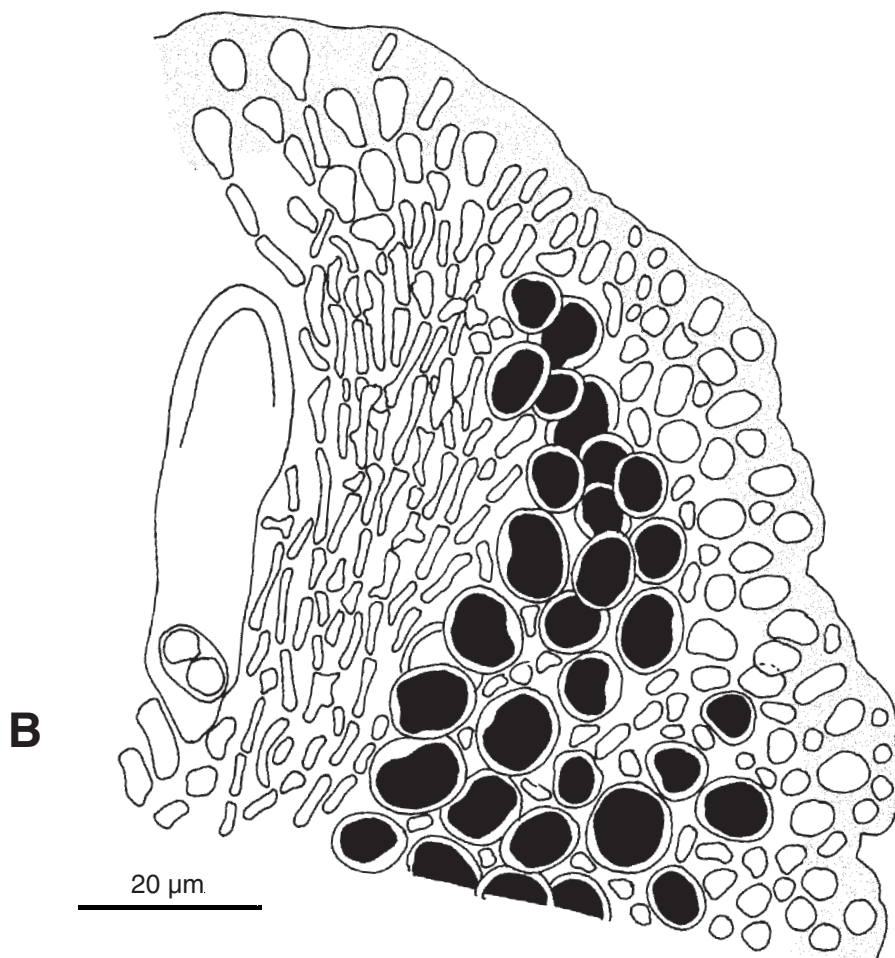
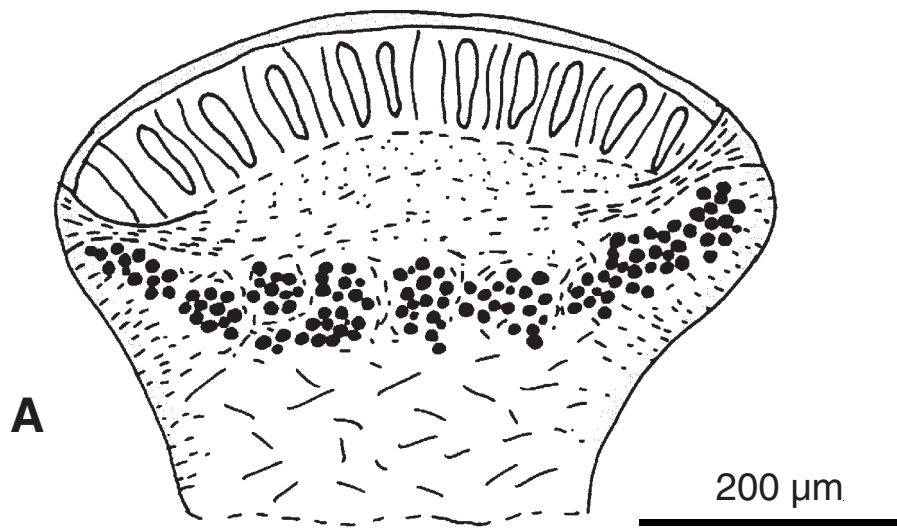


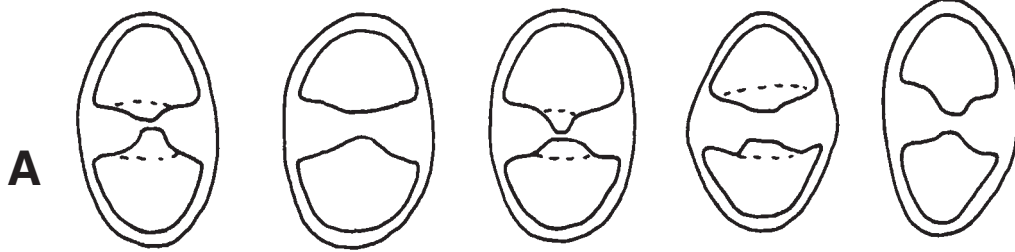
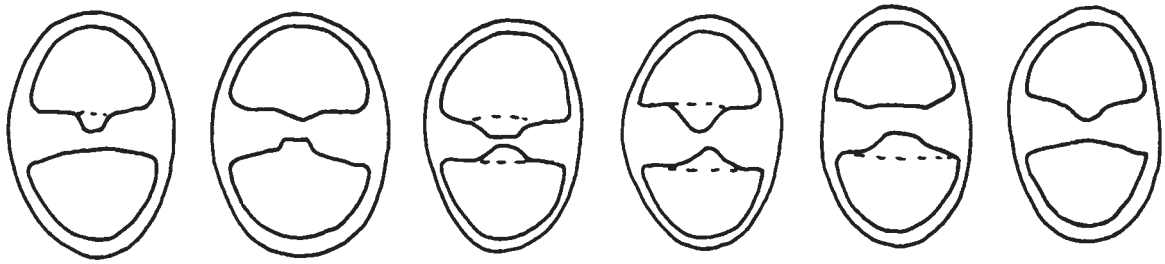
***Caloplaca arnoldii* (exemplars asiàtics)**

Làmina. 4

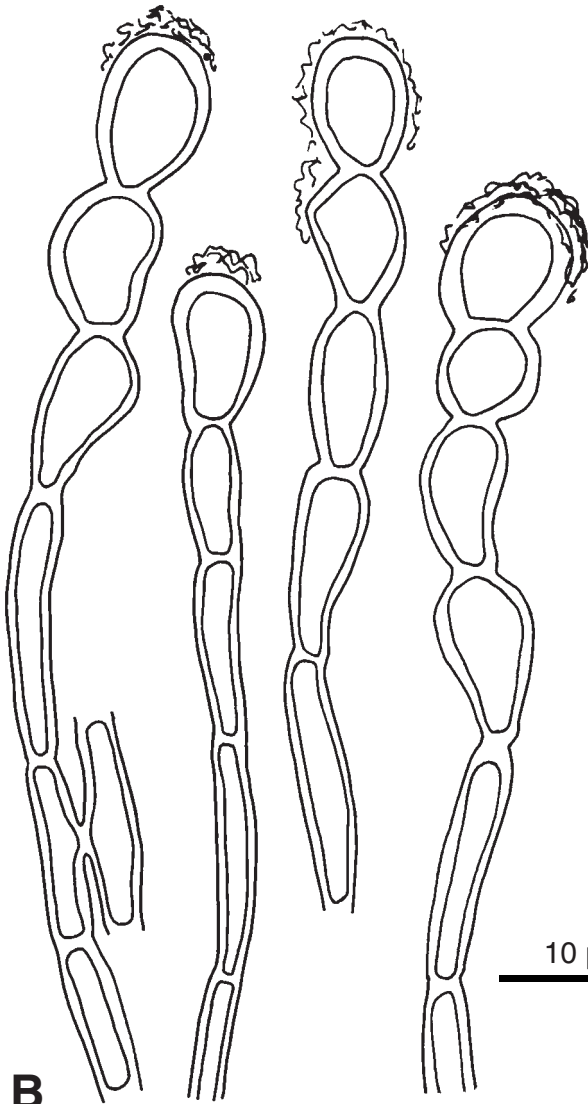


10 μ m

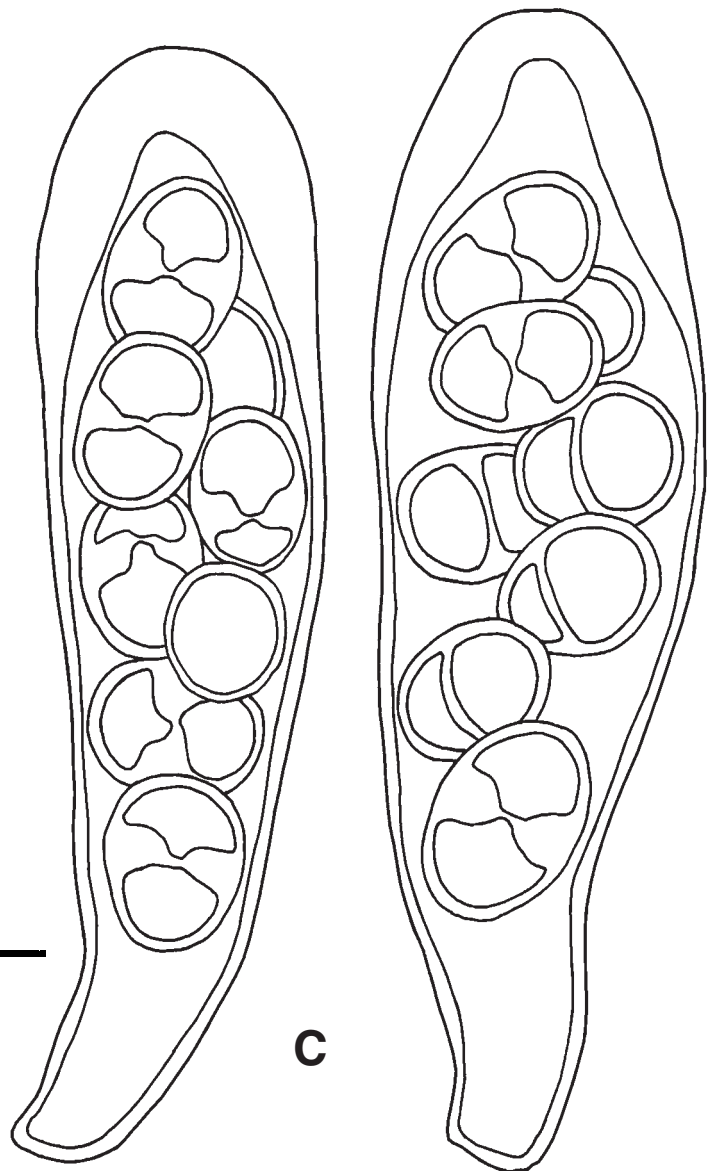




10 μ m

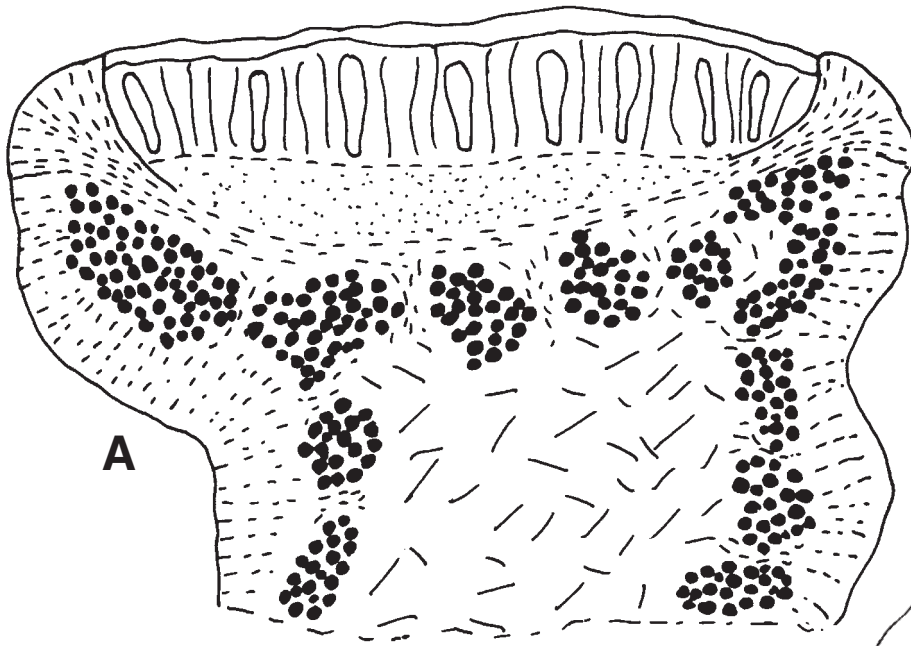


10 μ m



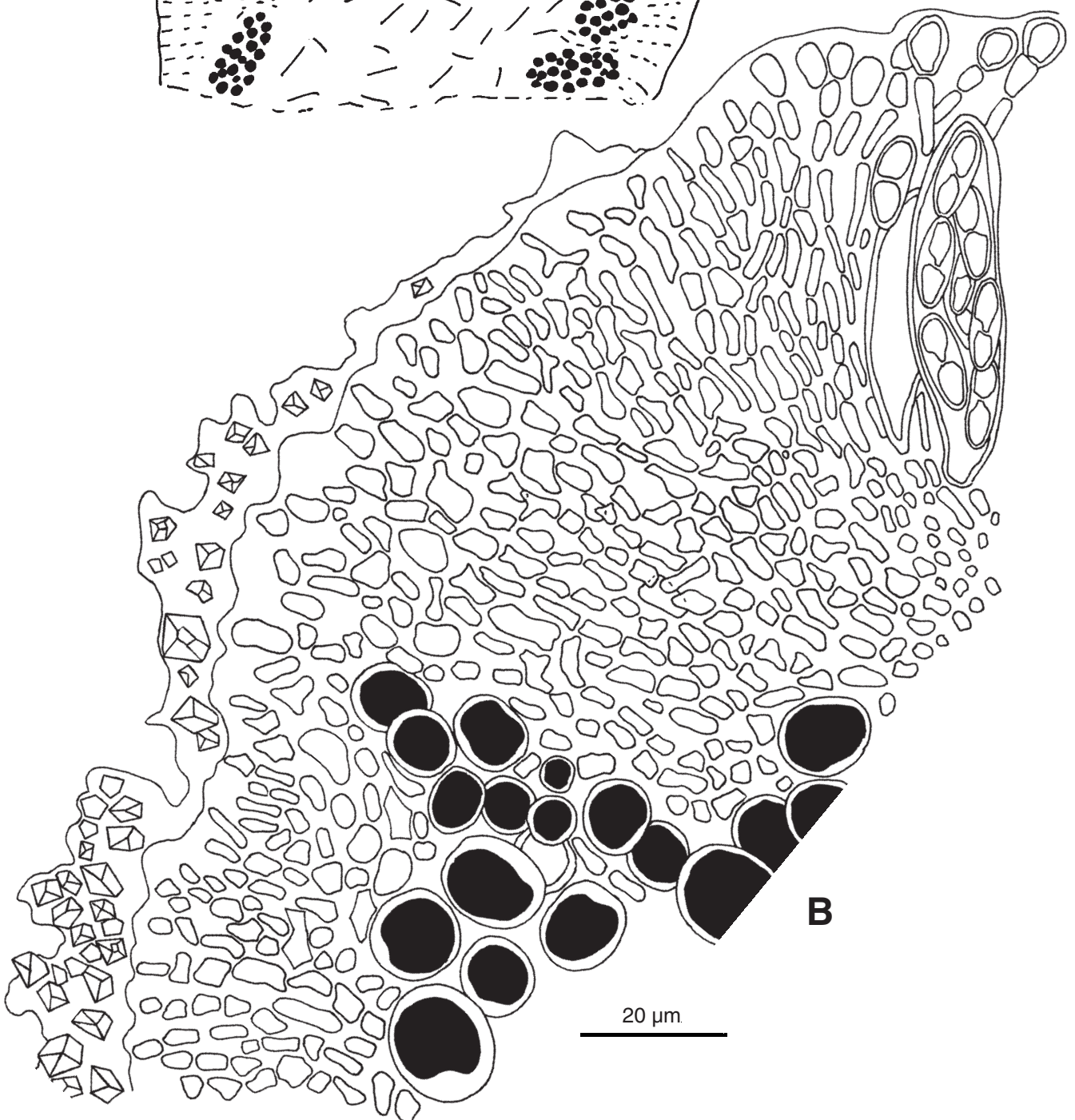
Caloplaca clauzadeana Gaya, Nav.-Ros. & Cl. Roux inèd.

Làmina. 7



200 μ m

A

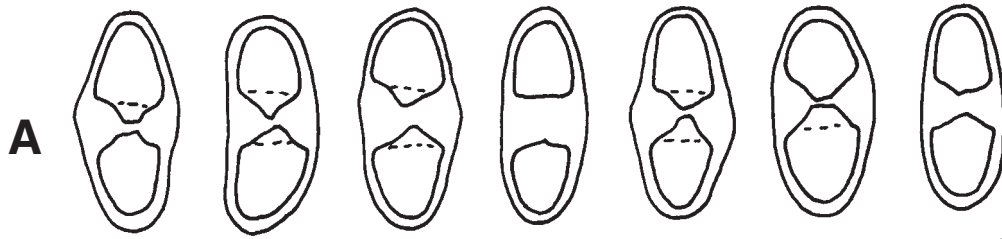
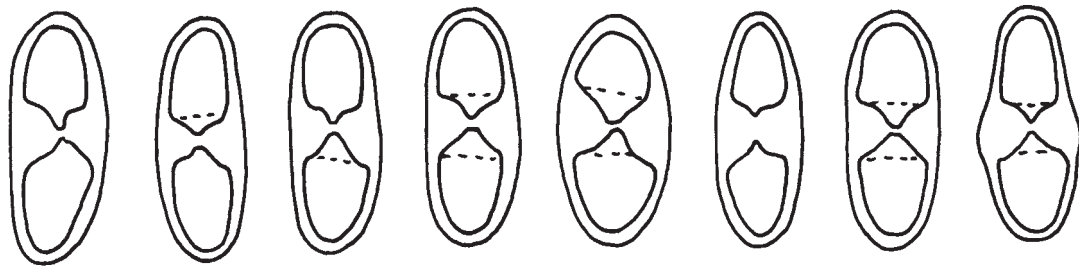


20 μ m

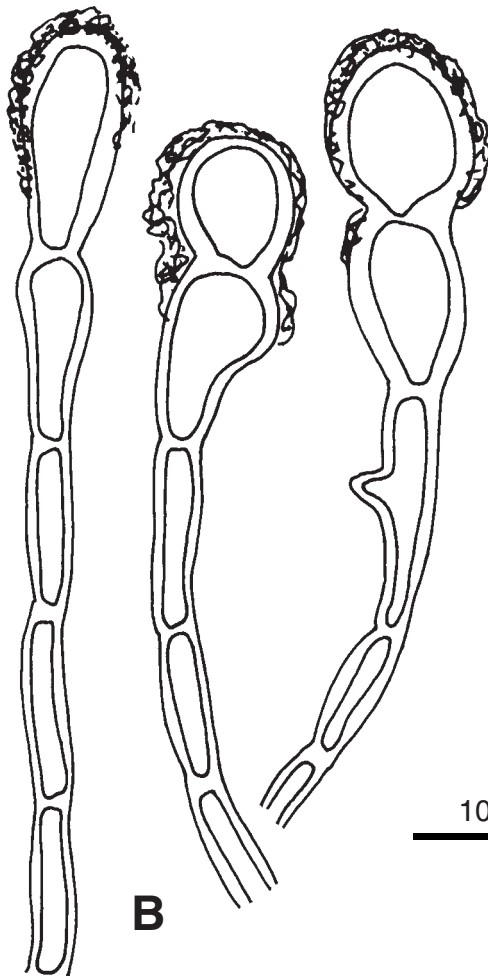
B

Caloplaca clauzadeana Gaya, Nav.-Ros. & Cl. Roux inèd.

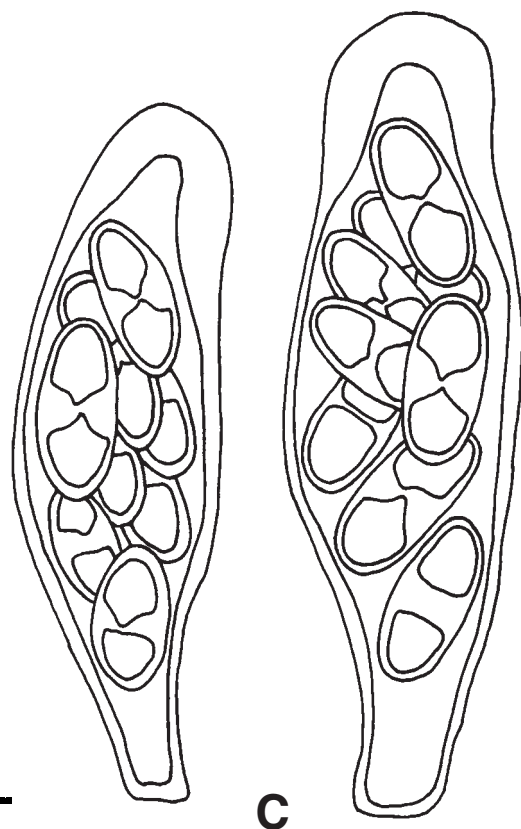
Làmina. 8



10 μ m

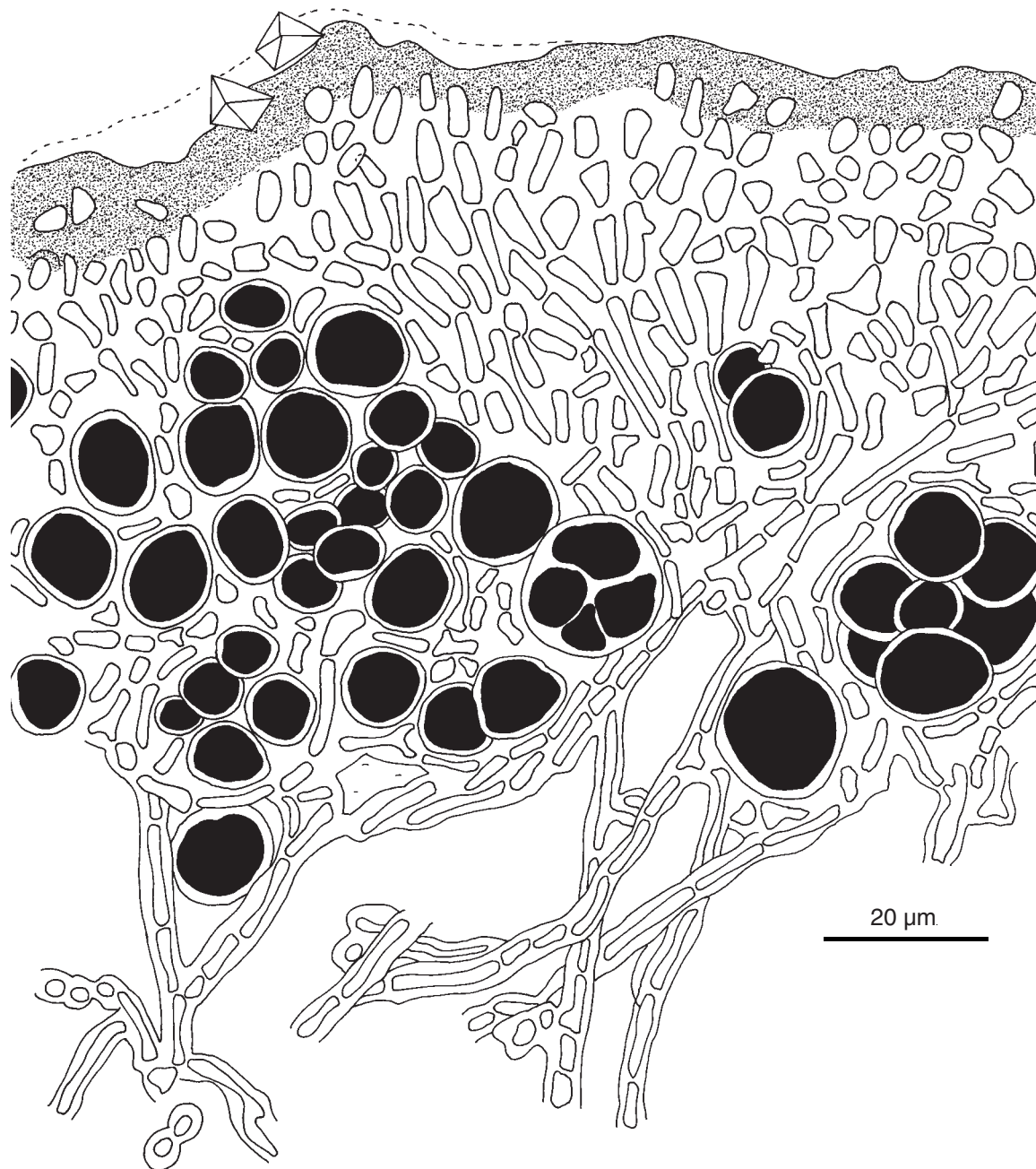


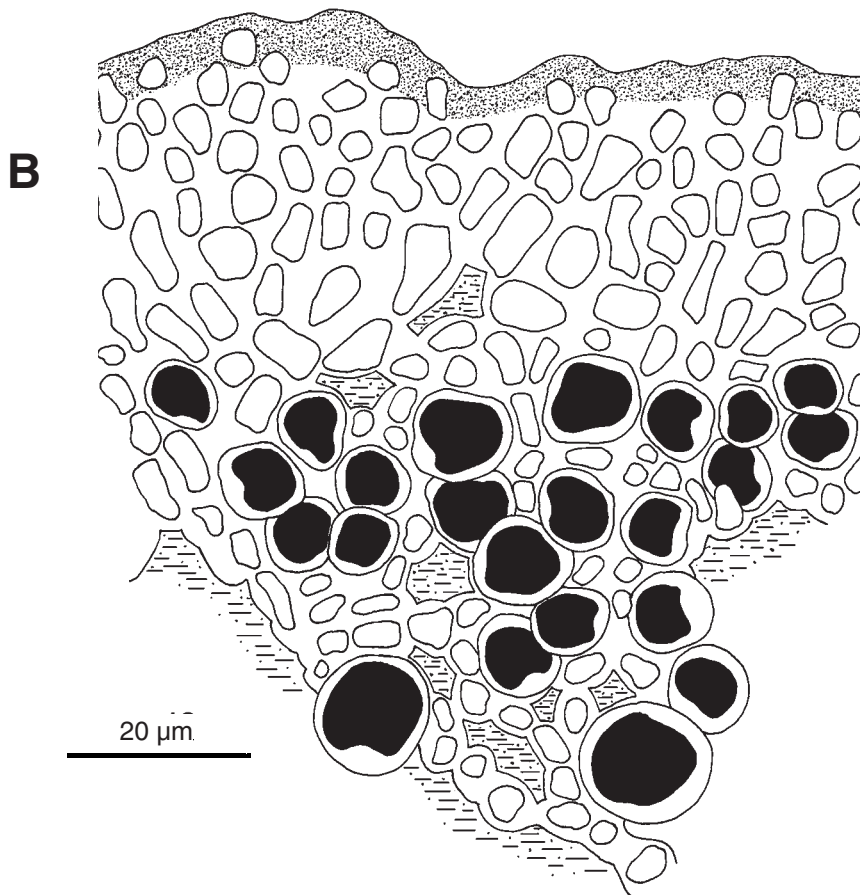
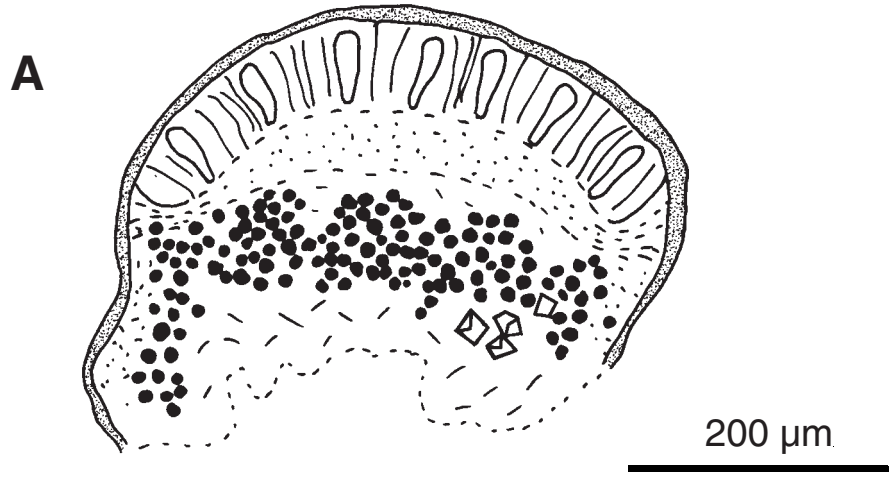
10 μ m

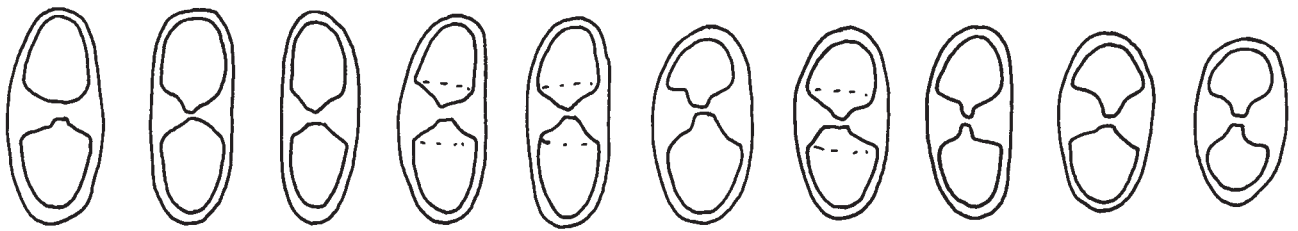


***Caloplaca decipiens* (Arnold) Blomb. & Forssell**

Làmina. 9

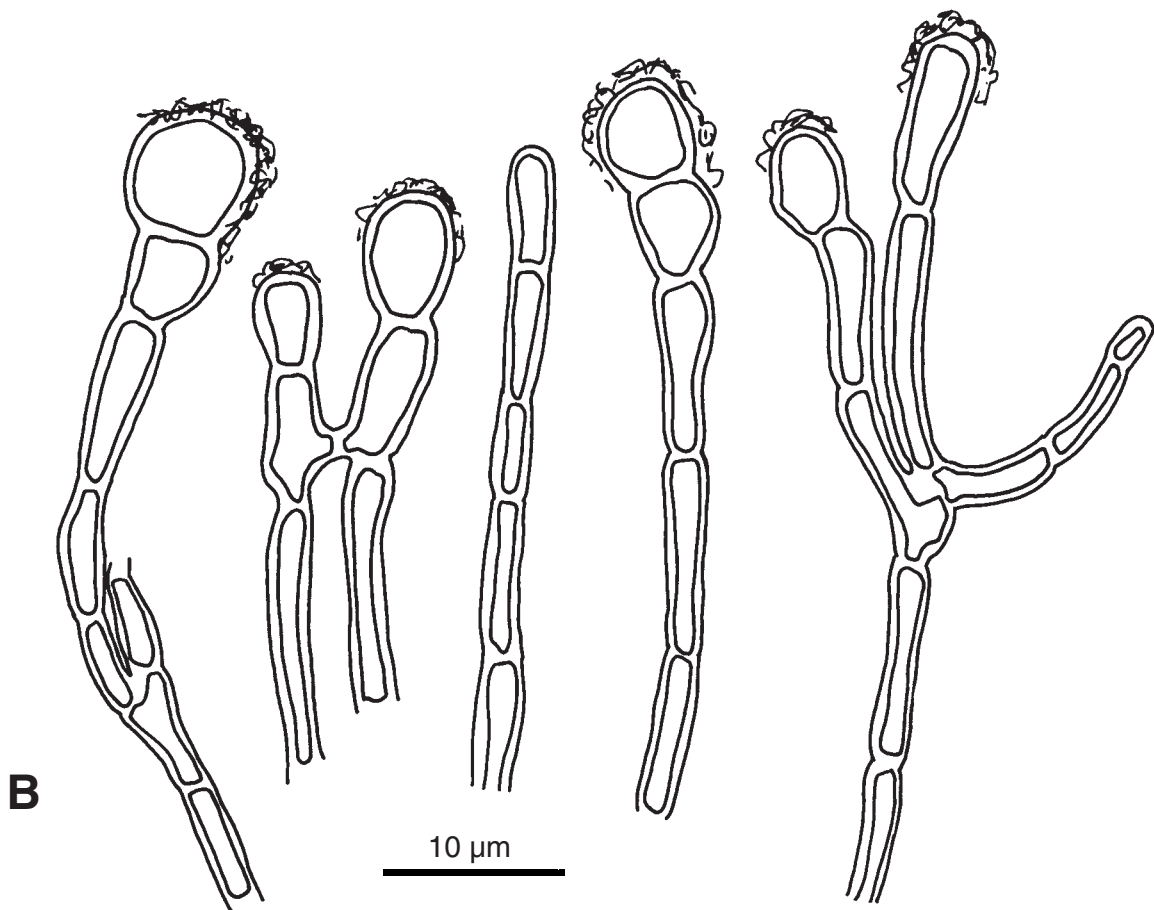






A

10 μ m

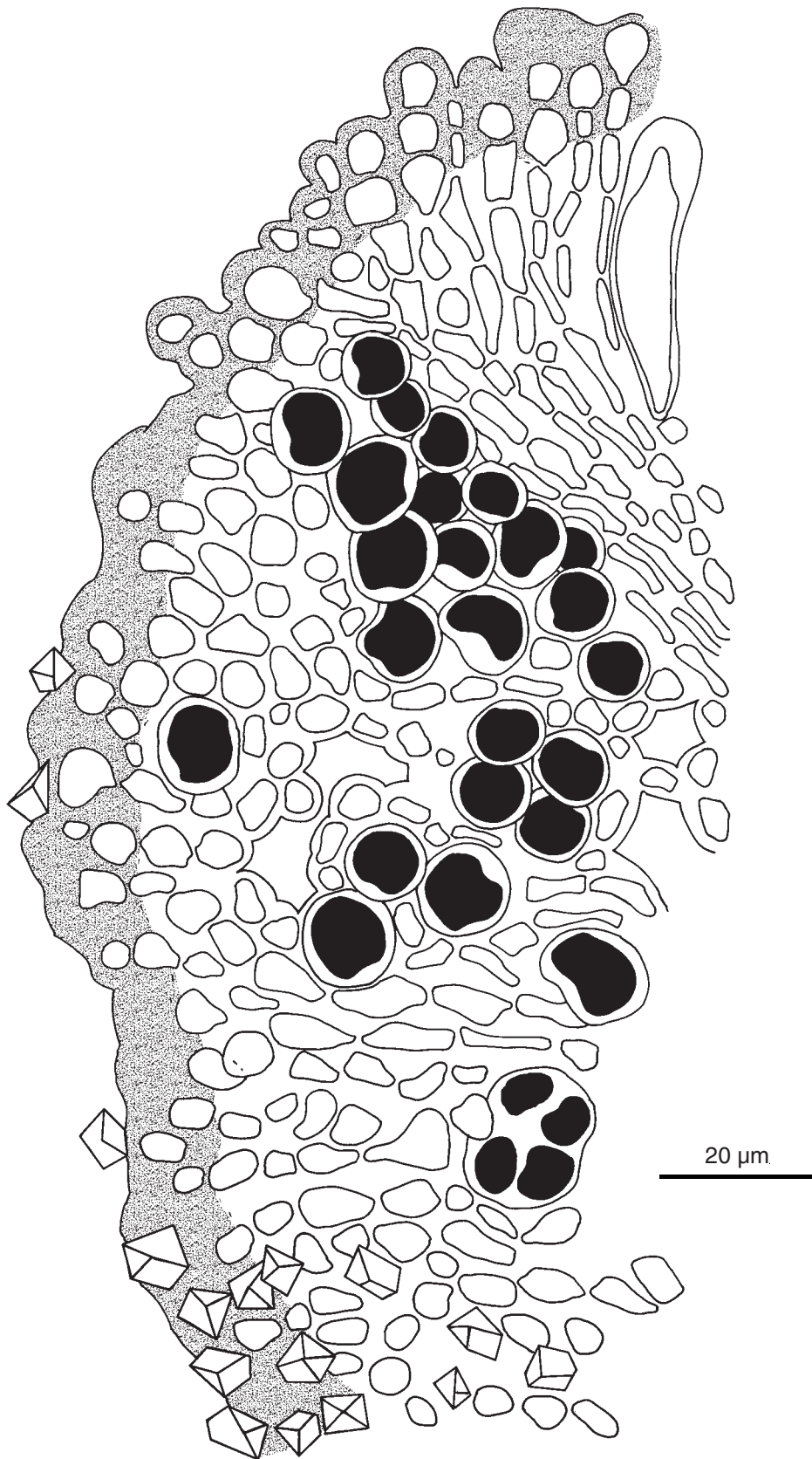


B

10 μ m

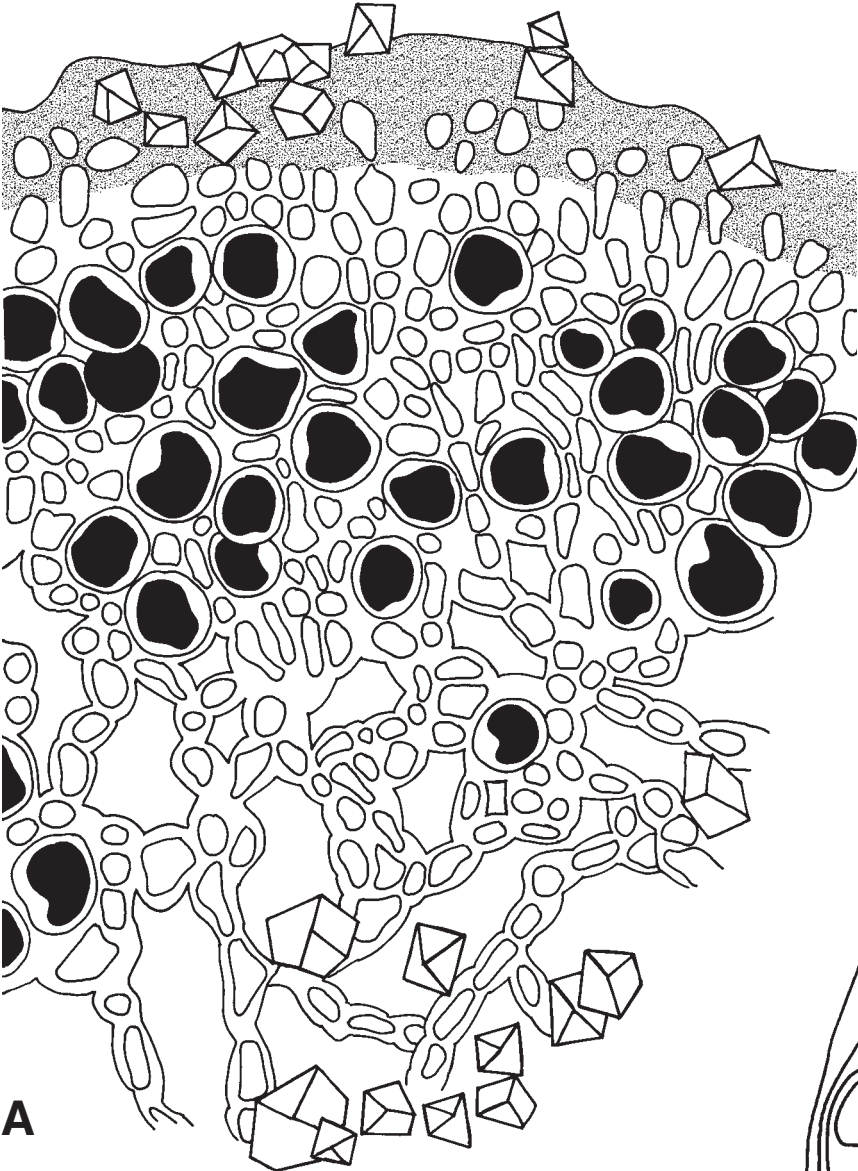
***Caloplaca pseudofulgens* Gaya & Nav.-Ros. inèd.**

Làmina. 12



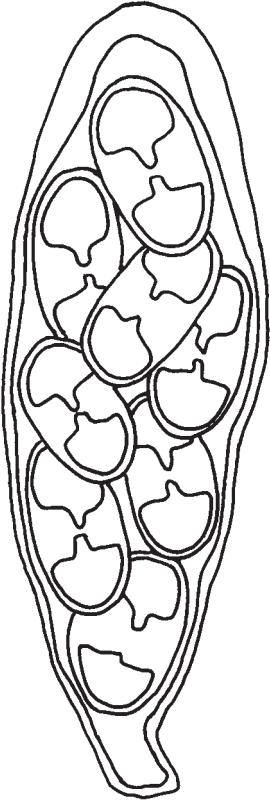
***Caloplaca pseudofulgens* Gaya & Nav.-Ros. inèd.**

Làmina. 12 bis



A

20 µm

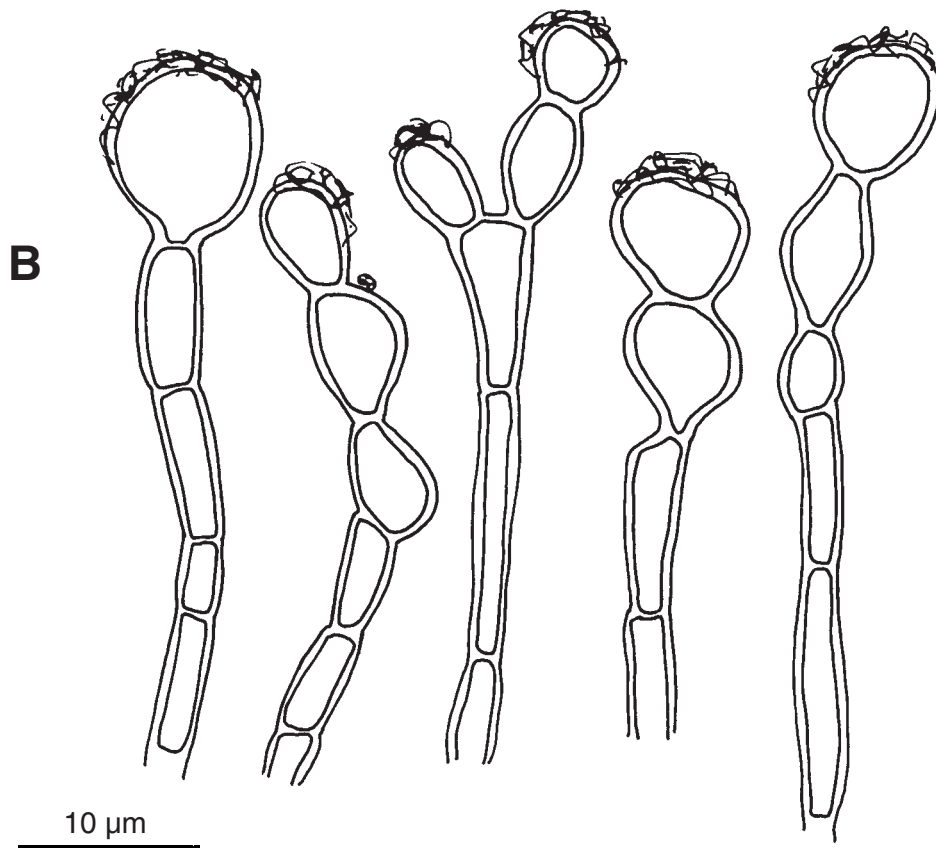
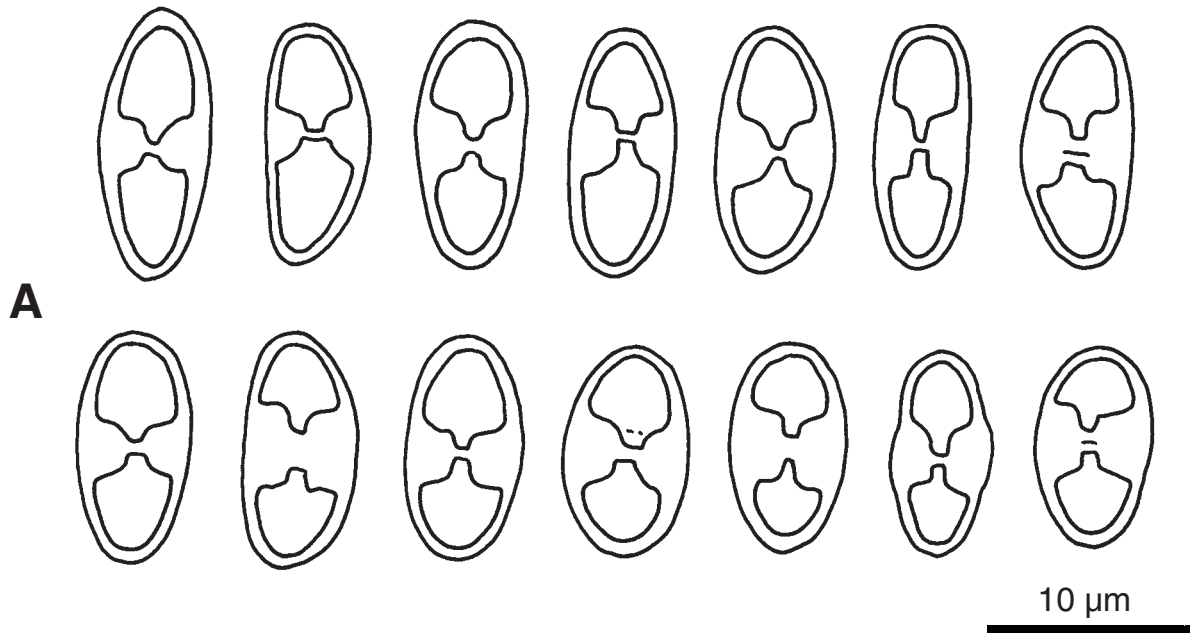


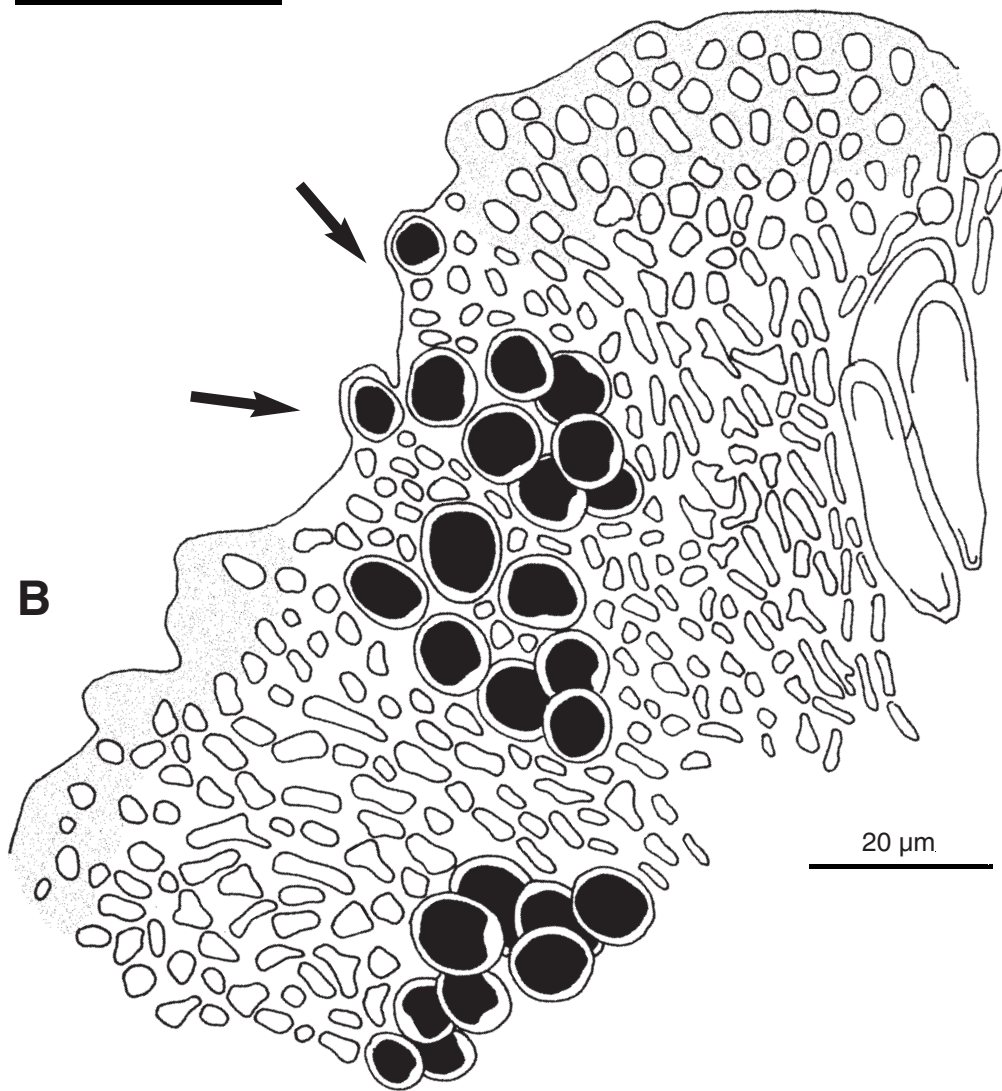
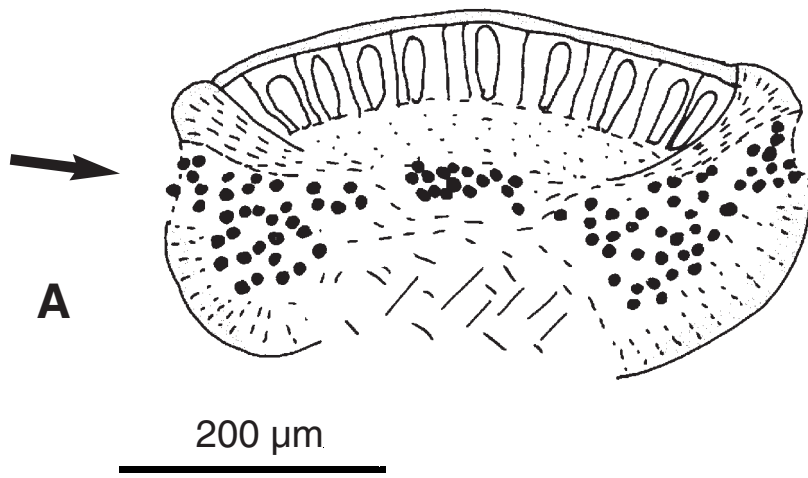
B

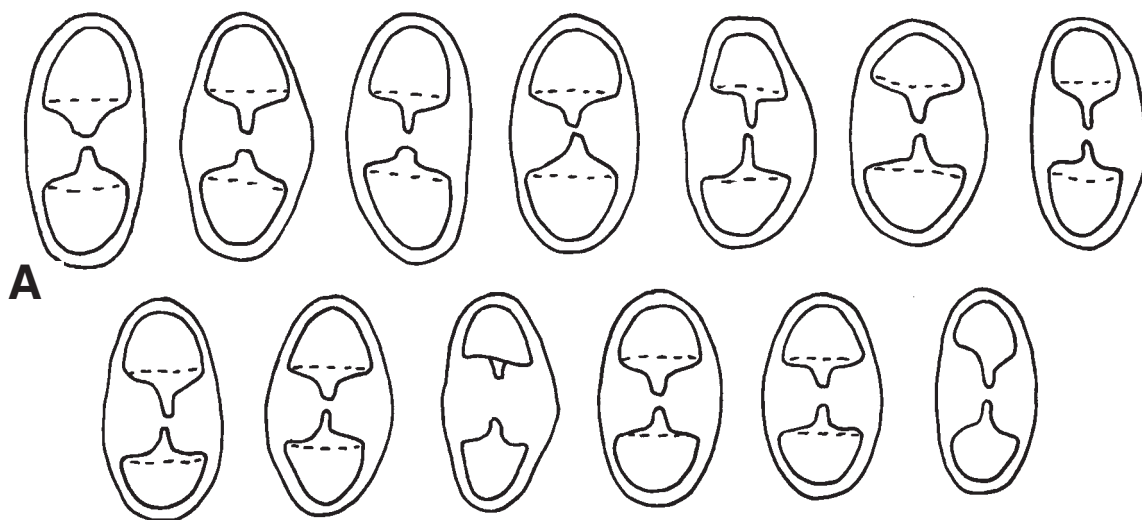
10 µm

Caloplaca pseudofulgens Gaya & Nav.-Ros. inèd.

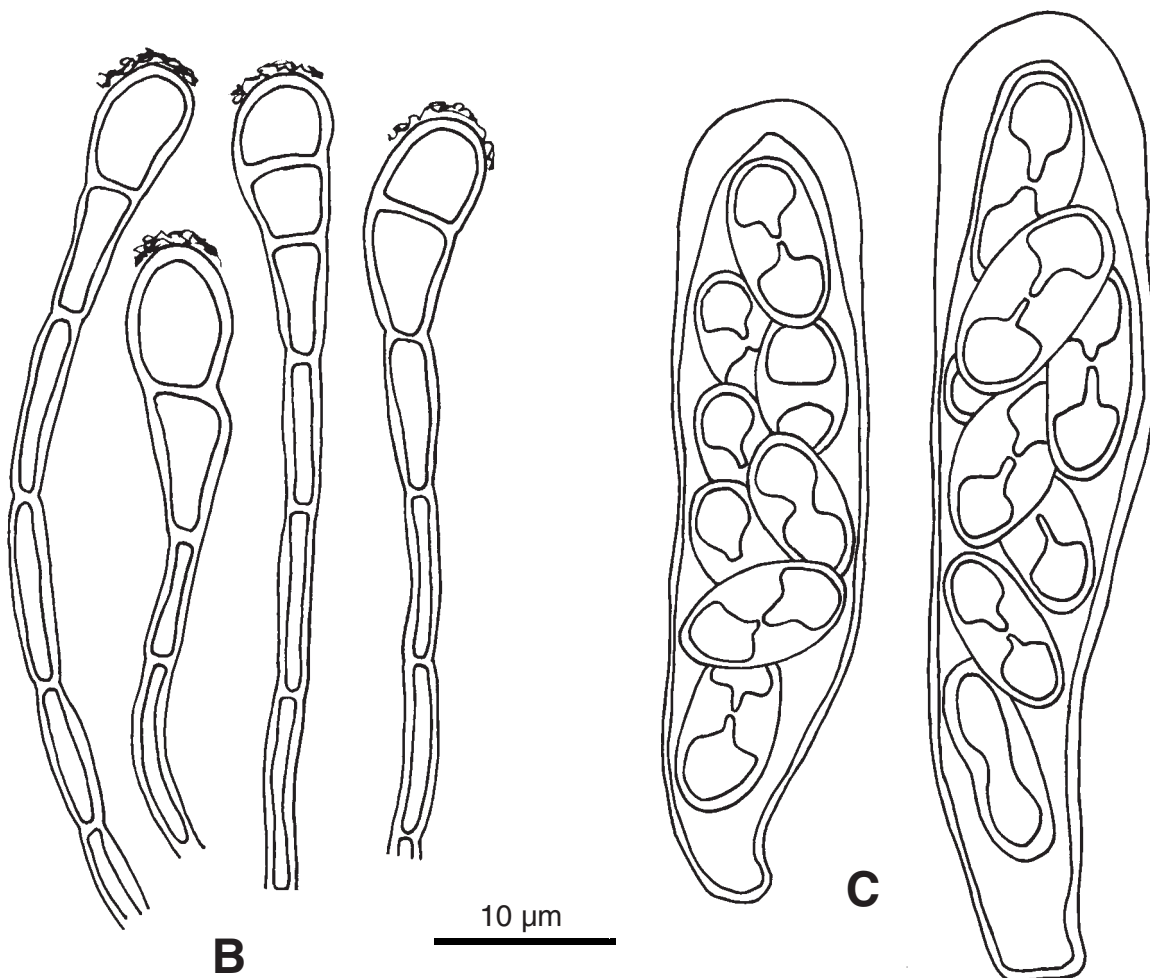
Làmina. 13







10 μ m

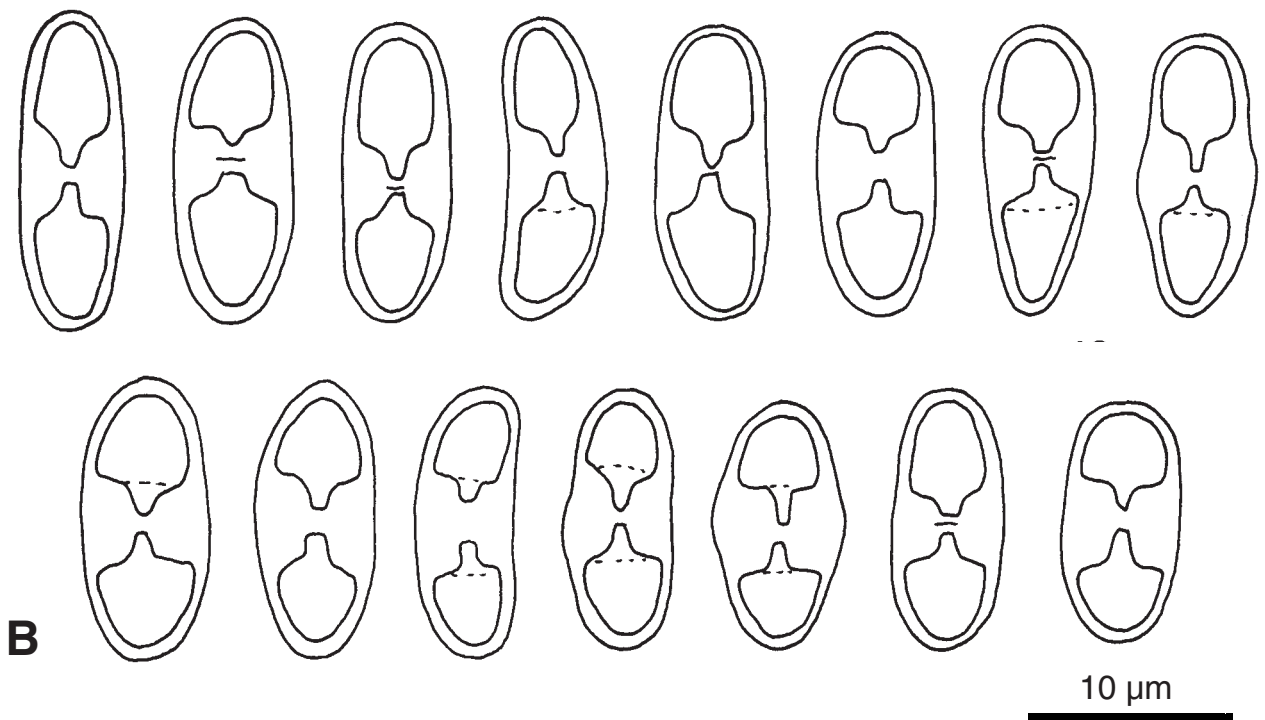
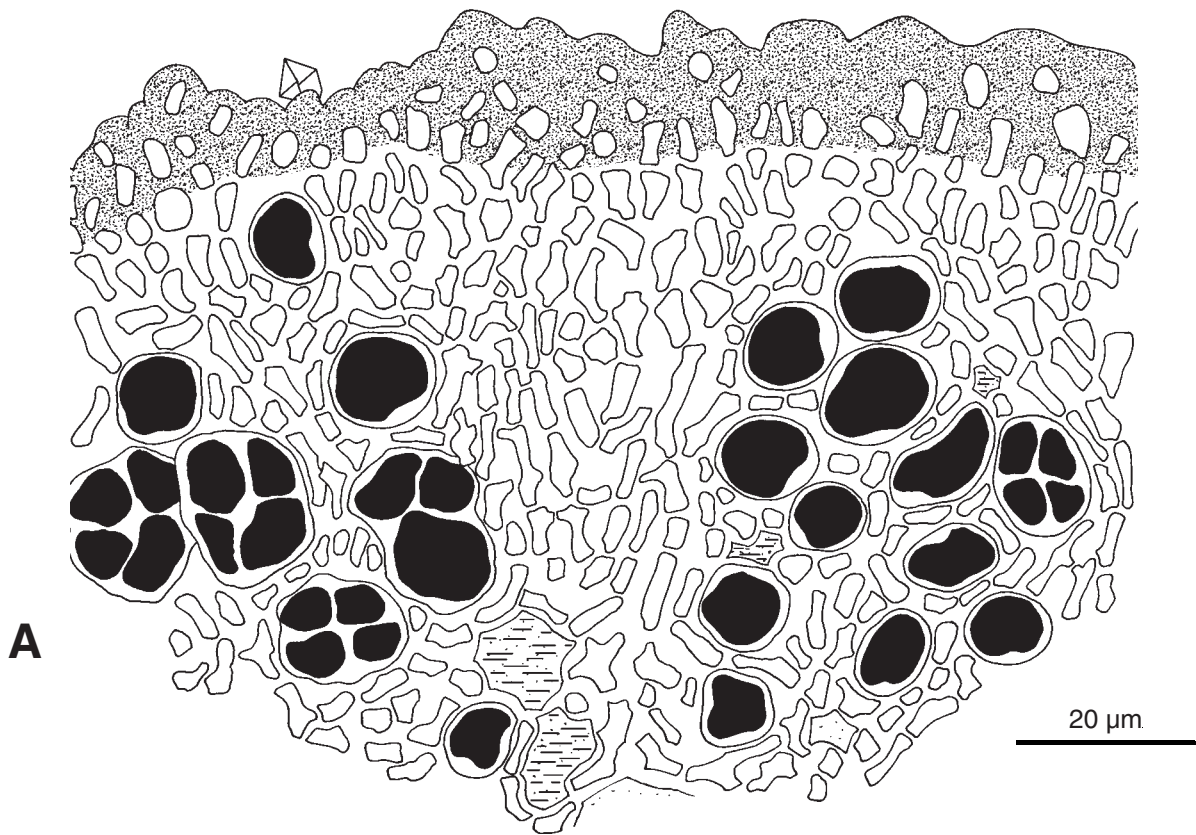


10 μ m

C

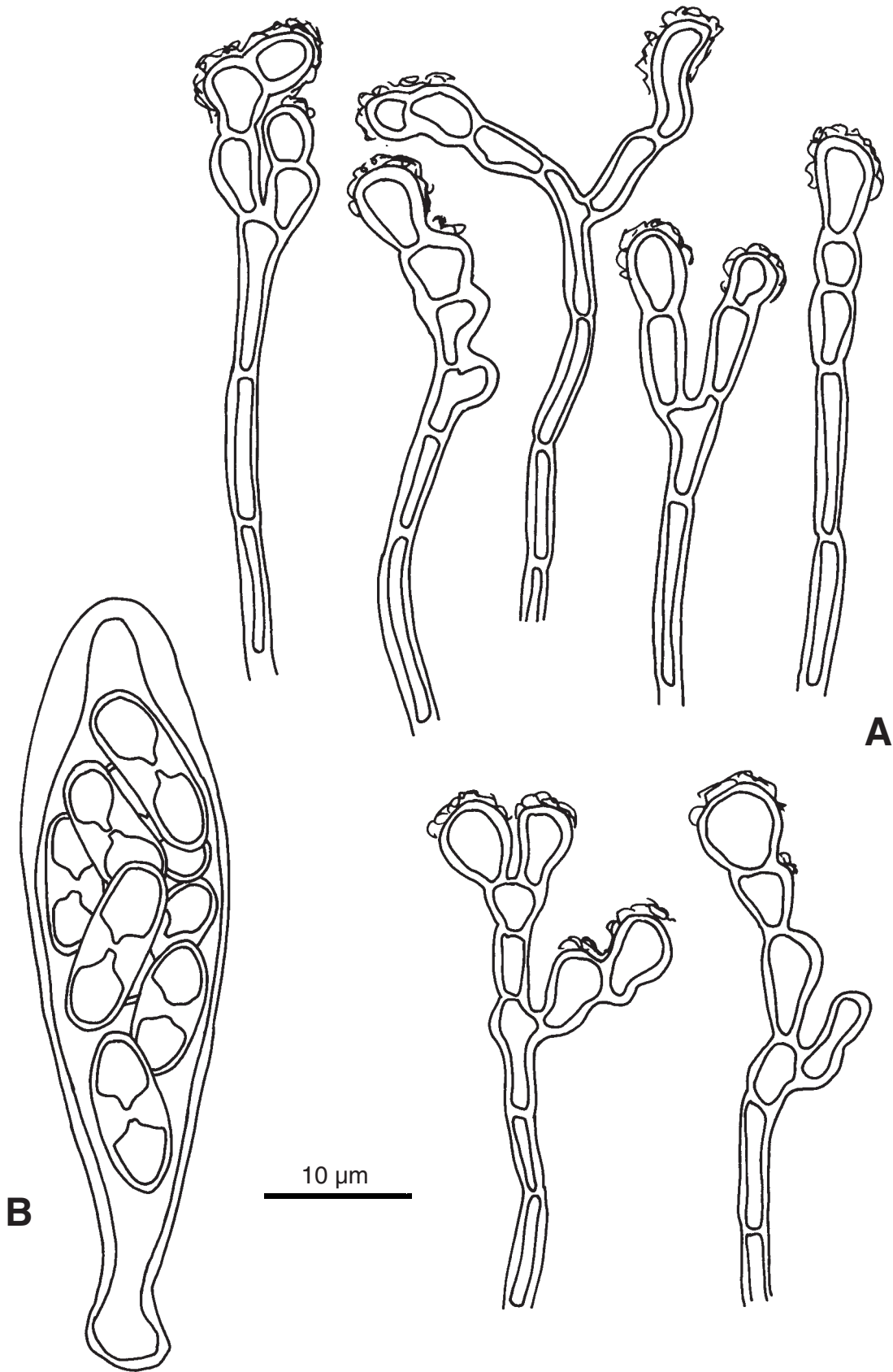
Caloplaca rouxii (Hoffm.) Gaya, Nav.-Ros. & Llimona
nom. nov.

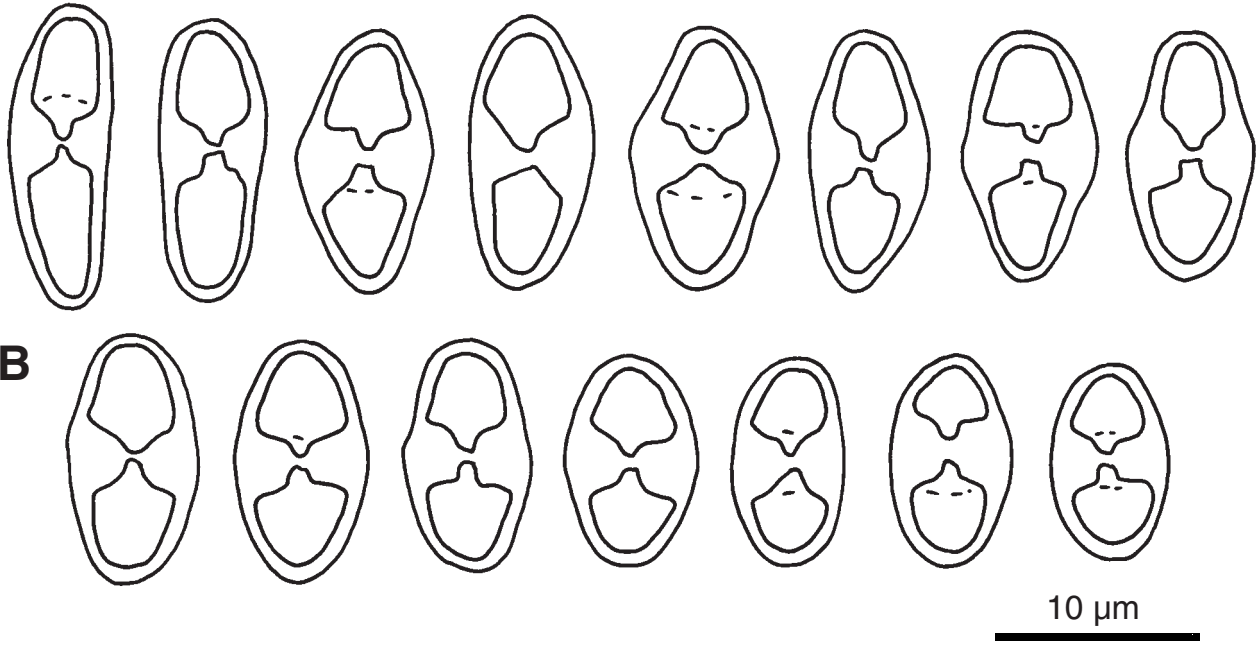
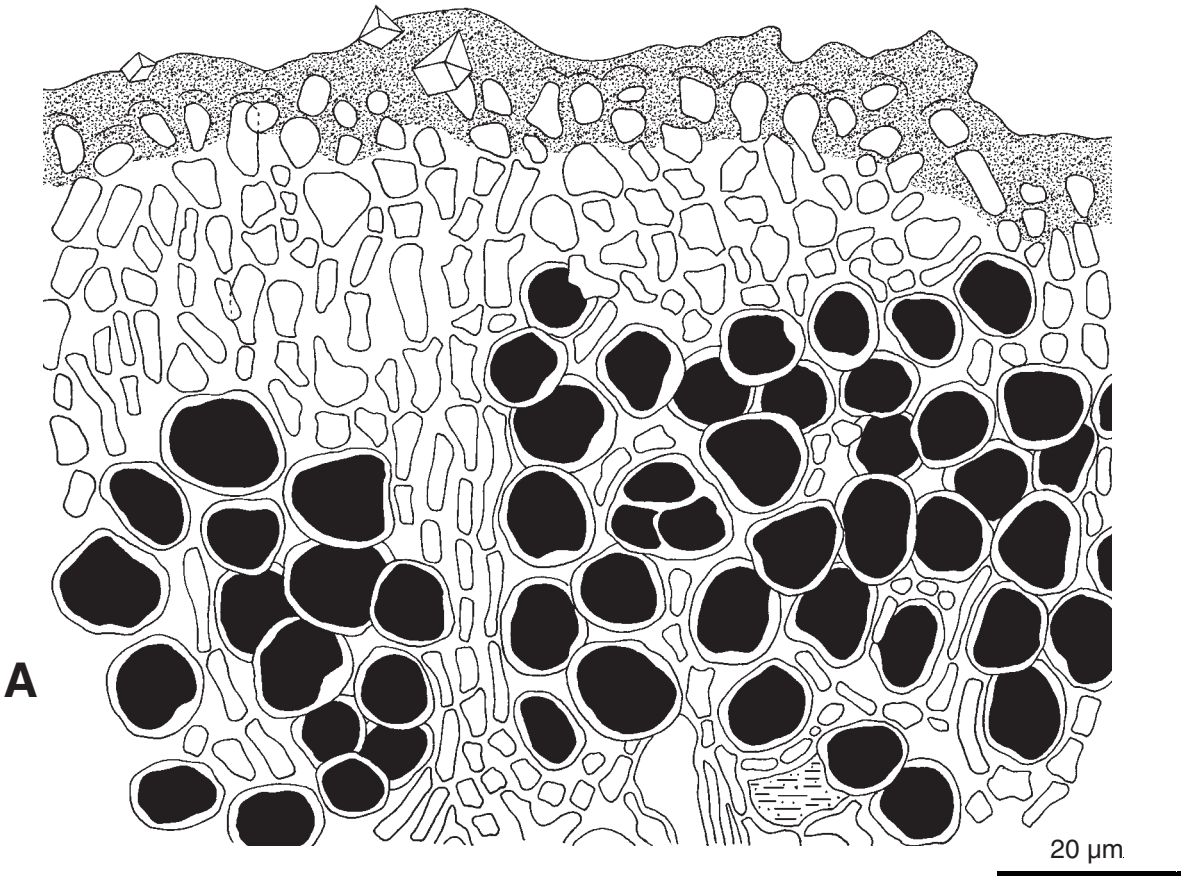
Làmina. 16

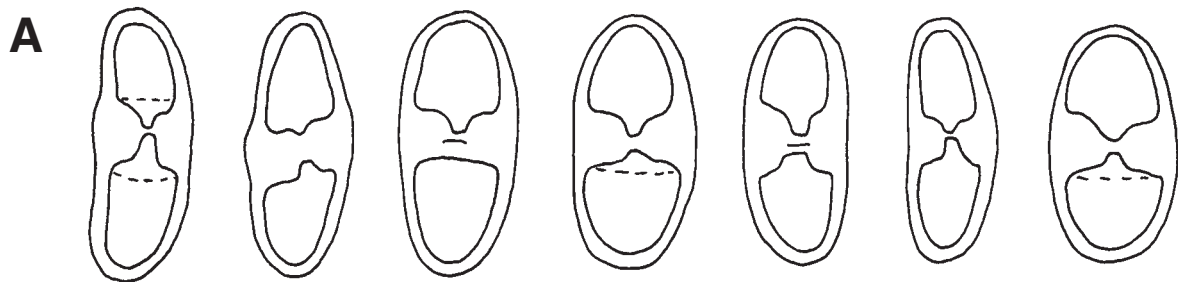
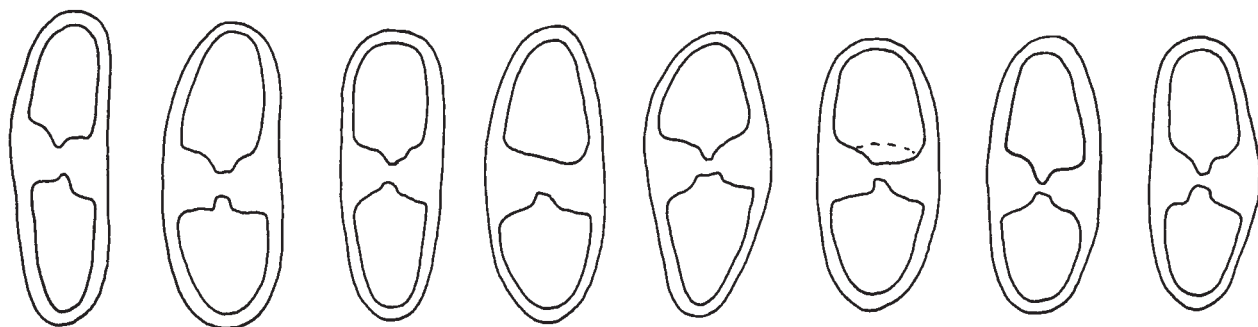


***Caloplaca rouxii* (Hoffm.) Gaya, Nav.-Ros. & Llimona
nom. nov.**

Làmina. 17

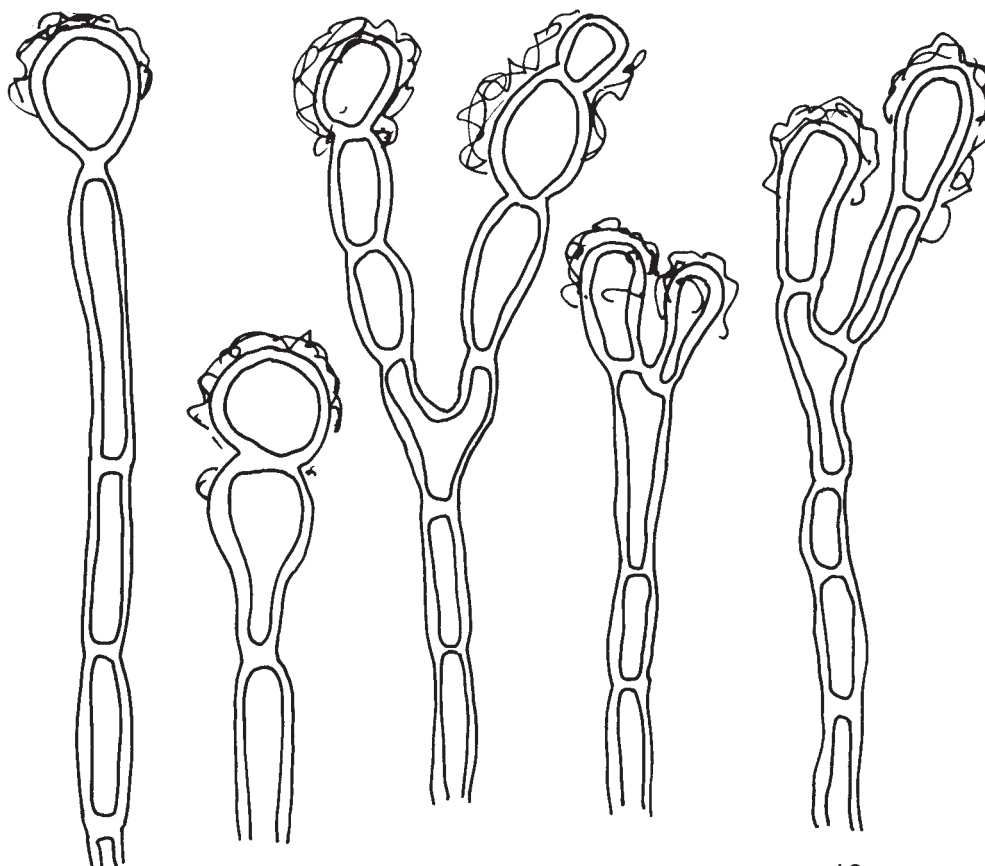




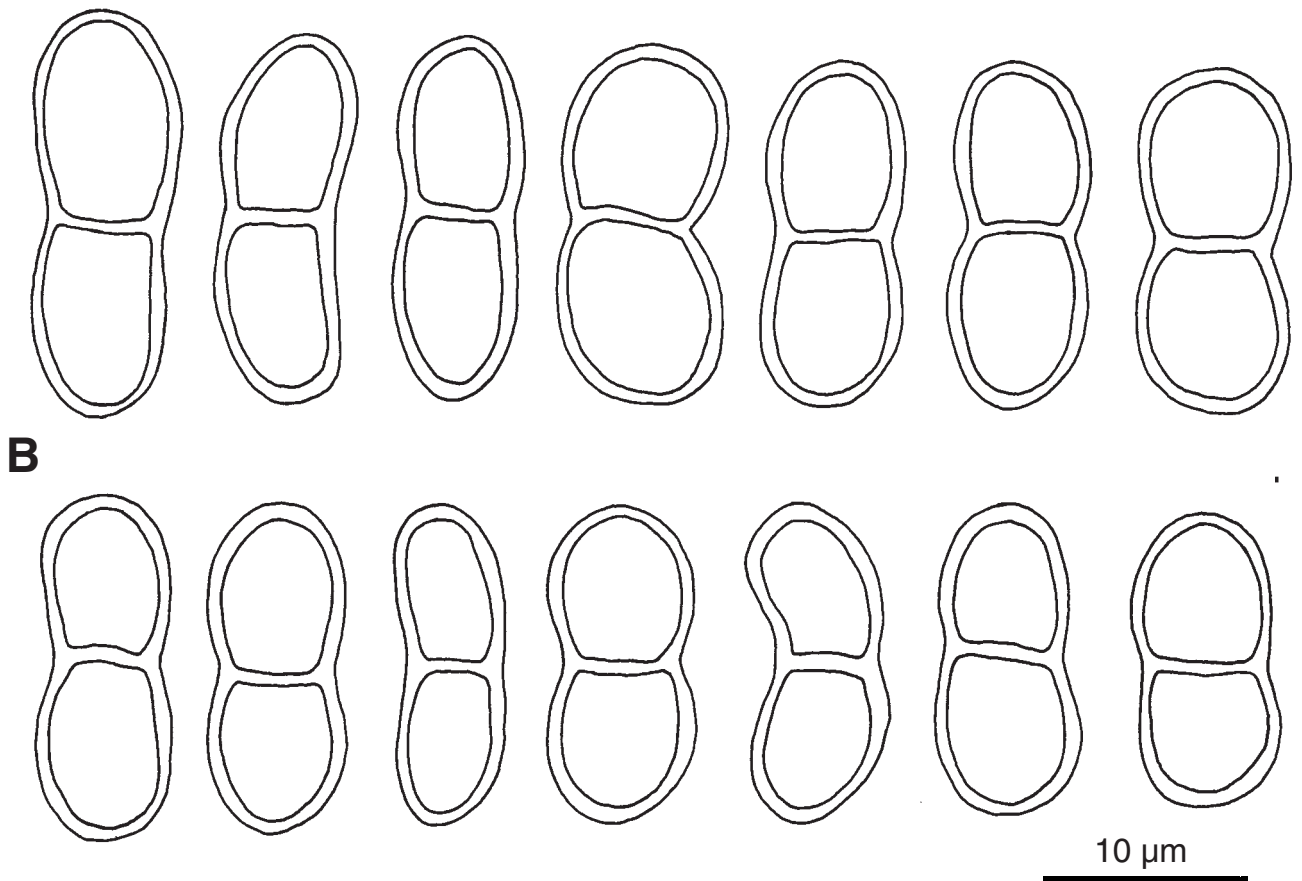
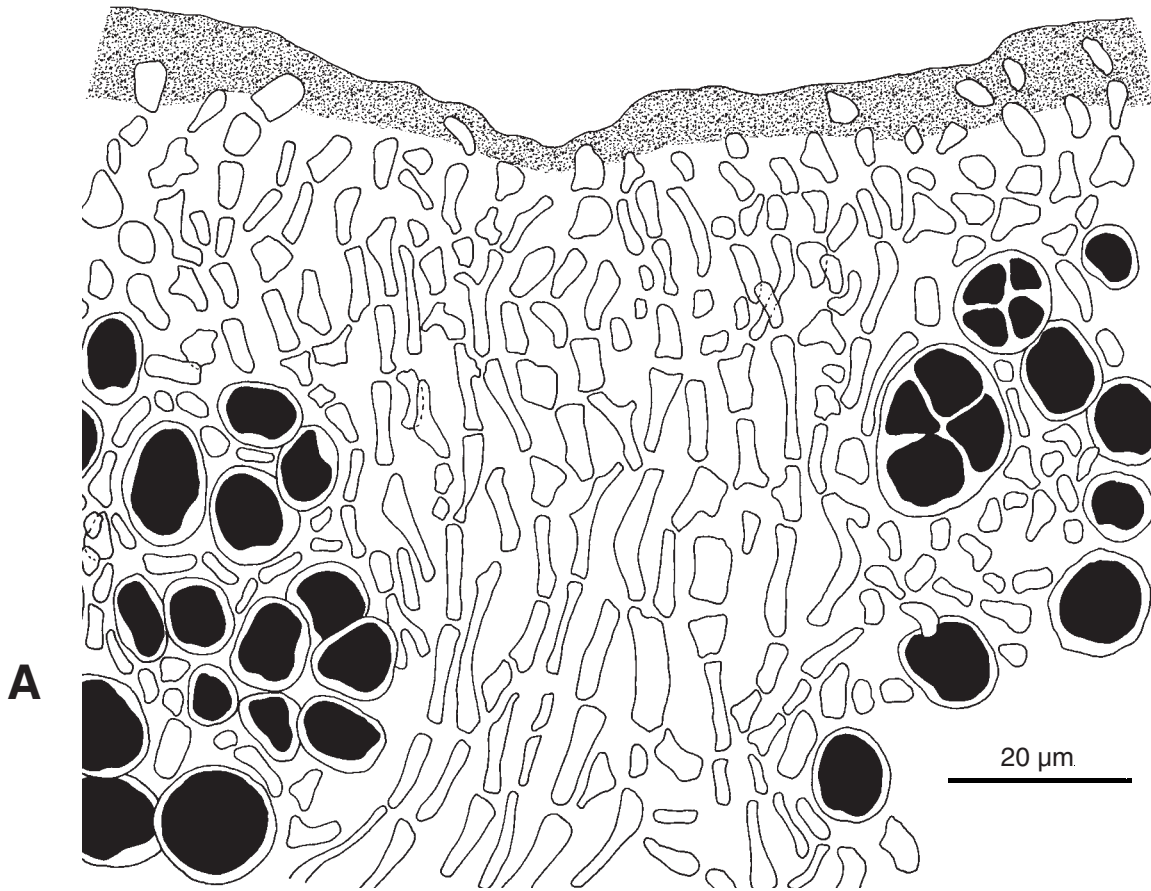


10 μ m

B

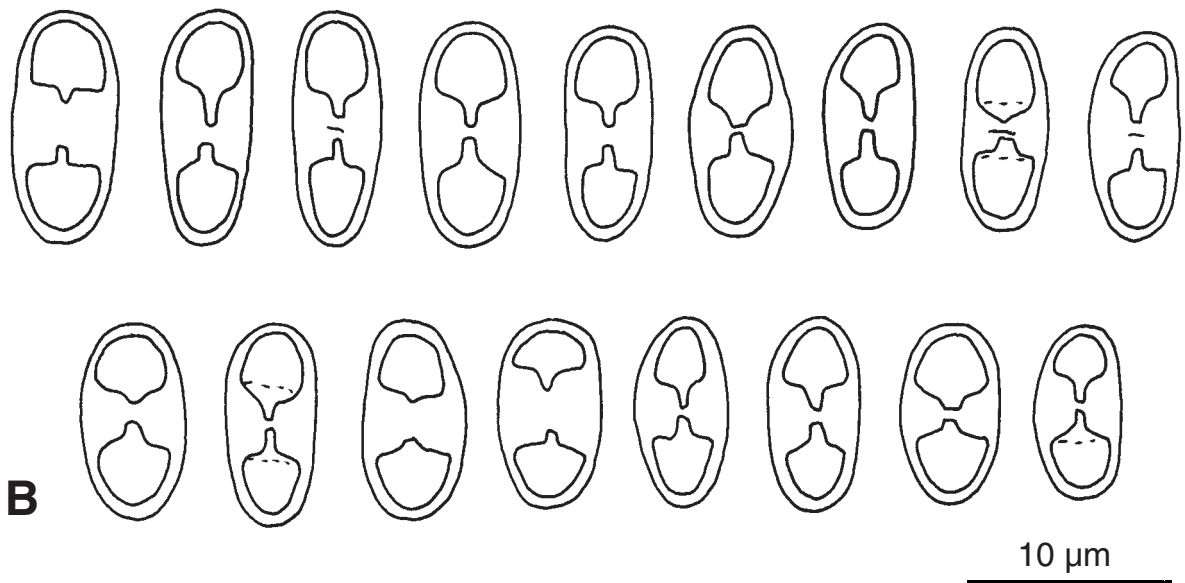
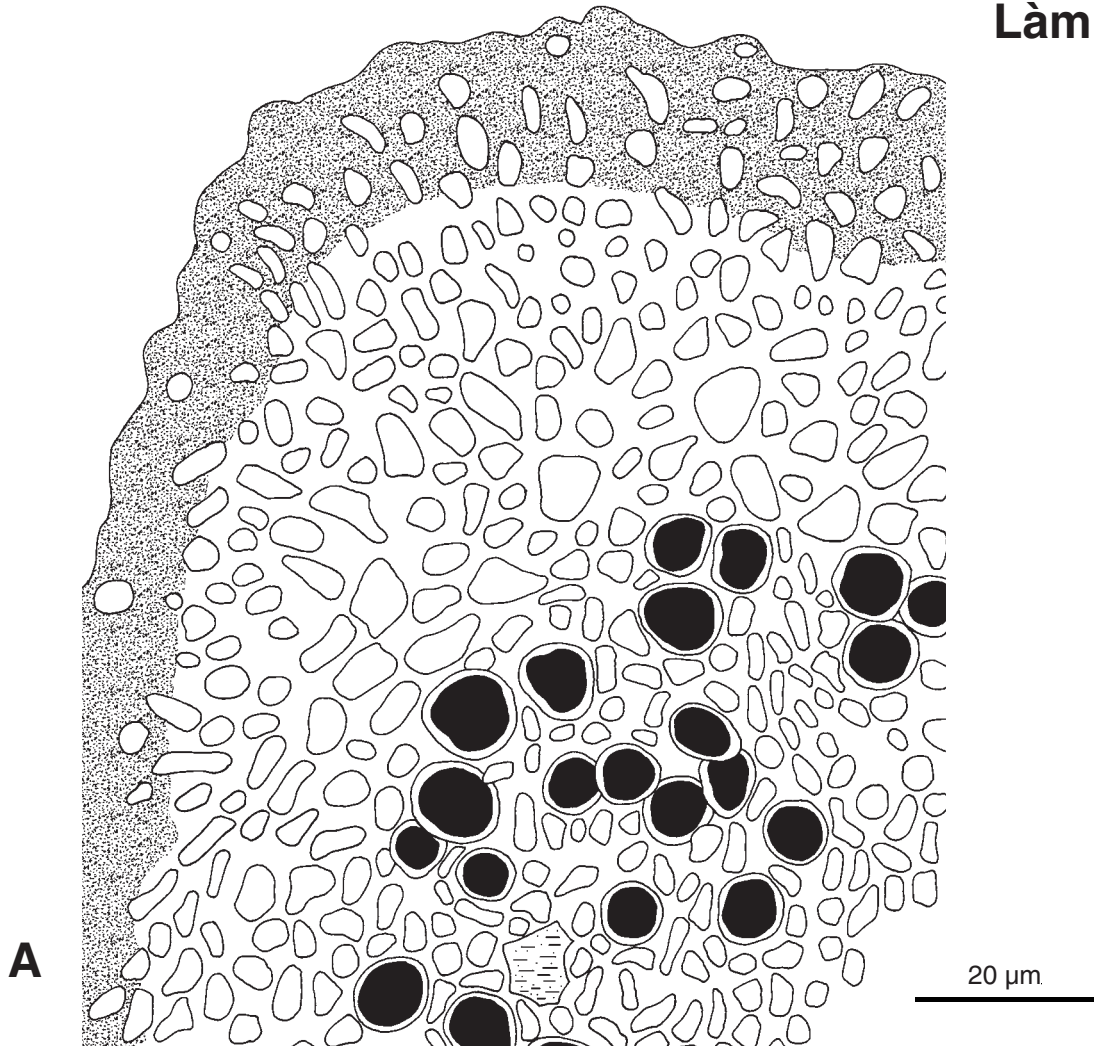


10 μ m



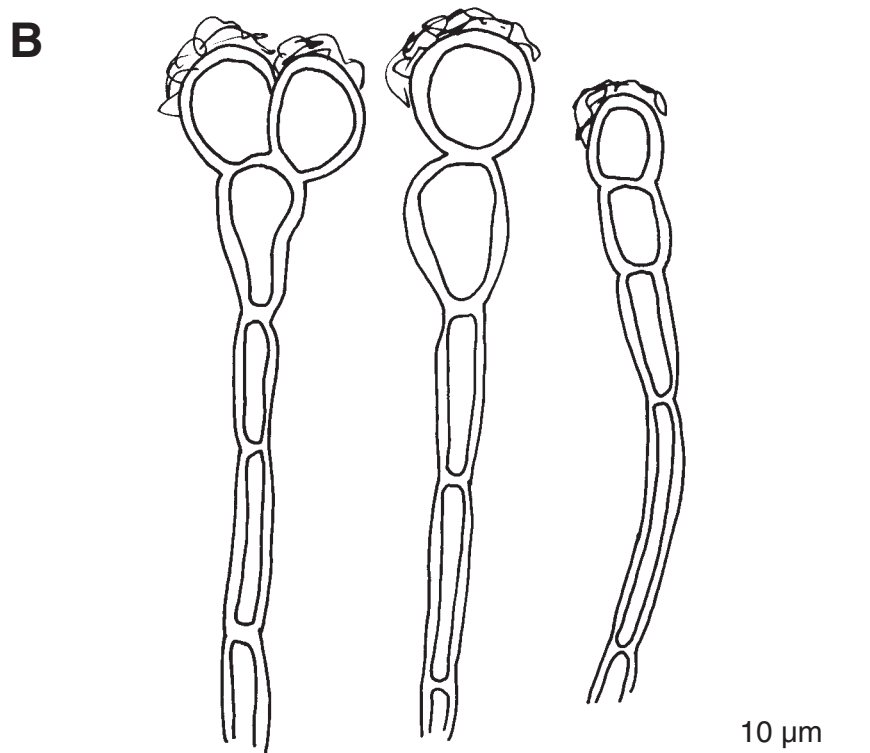
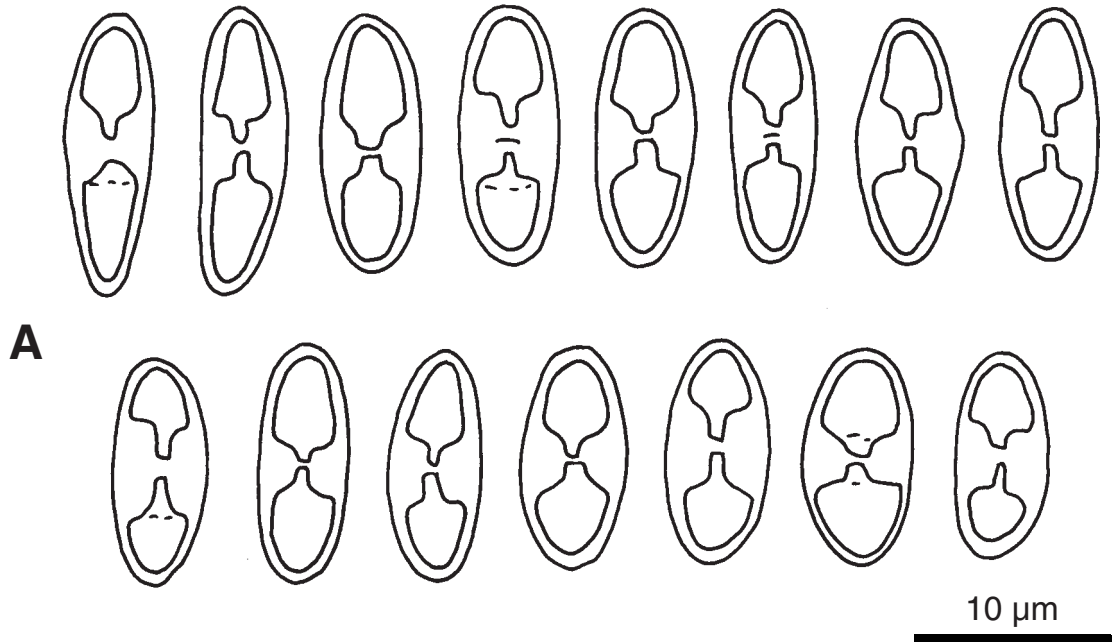
***Caloplaca tegularis* sensu auct., non (Ehrh.) Sandst.**

Làmina. 21



***Caloplaca tegularis* sensu auct., non (Ehrh.) Sandst.**

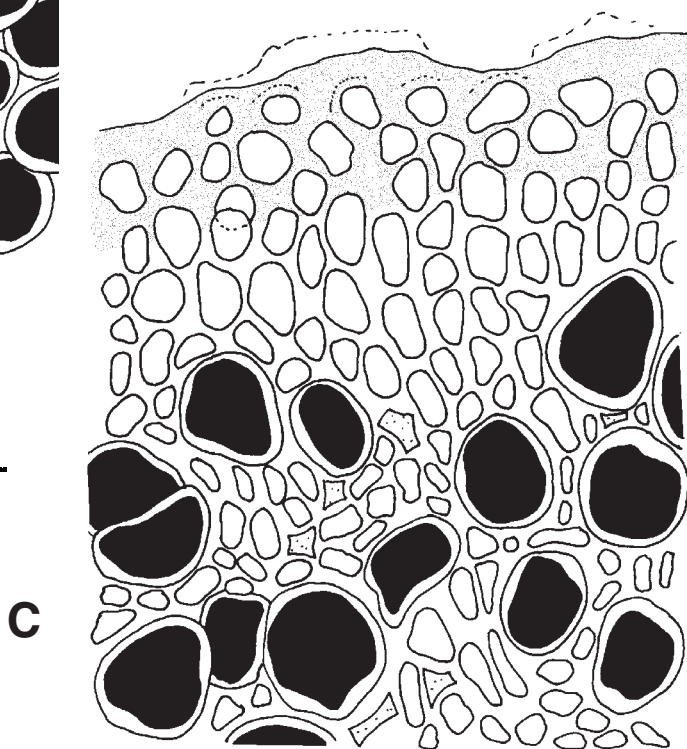
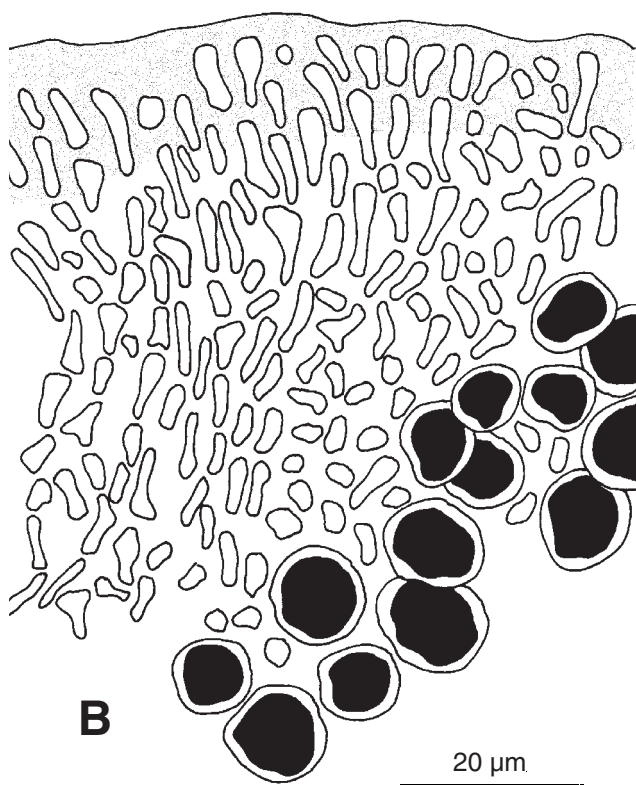
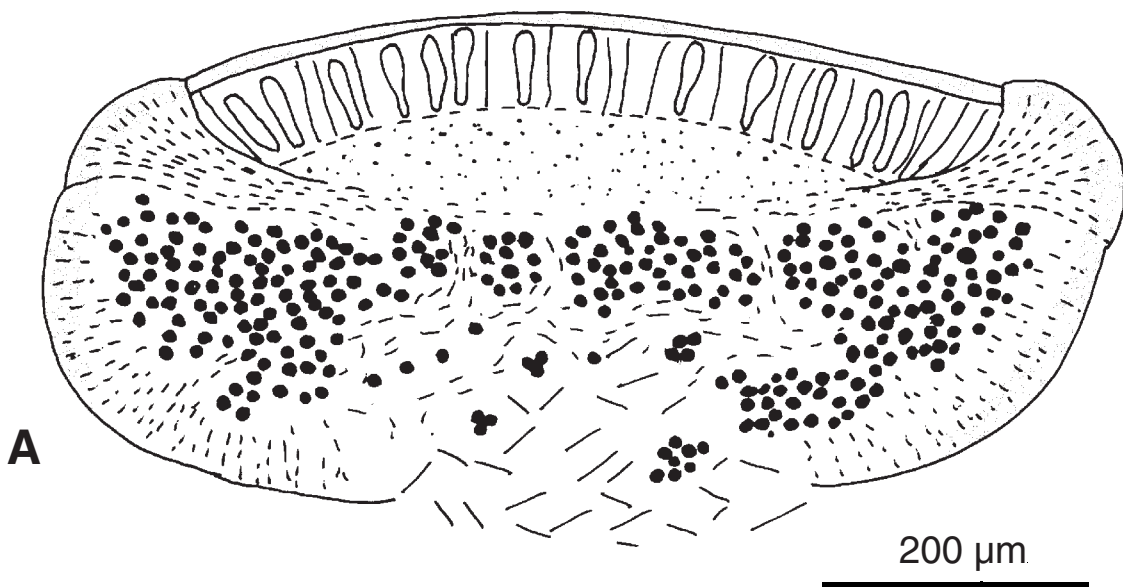
Làmina. 22



Caloplaca biatorina ssp. *gyalolechioides* (Müll. Arg.)

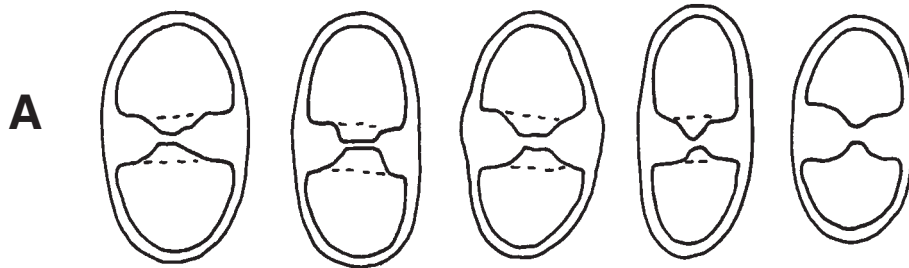
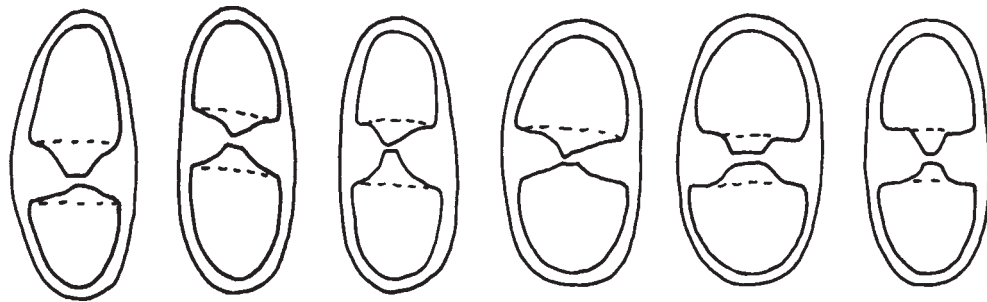
Clauzade & Cl. Roux

Làmina. 23

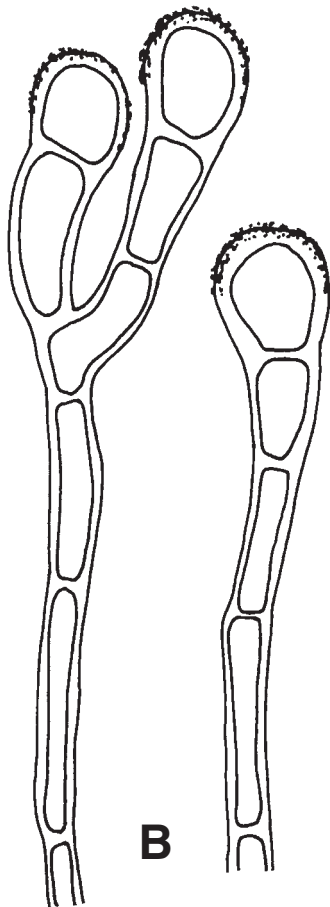


Caloplaca biatorina ssp. *gyalolechioides* (Müll. Arg.)
Clauzade & Cl. Roux

Làmina. 24

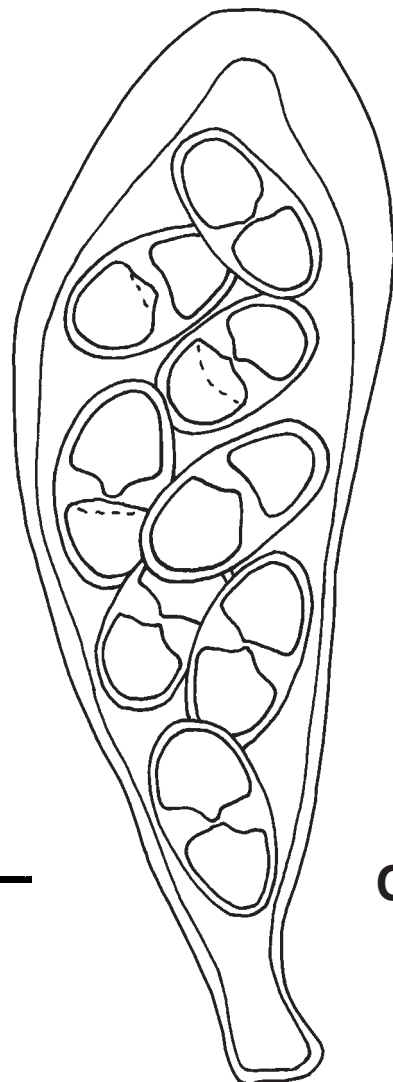


10 μ m

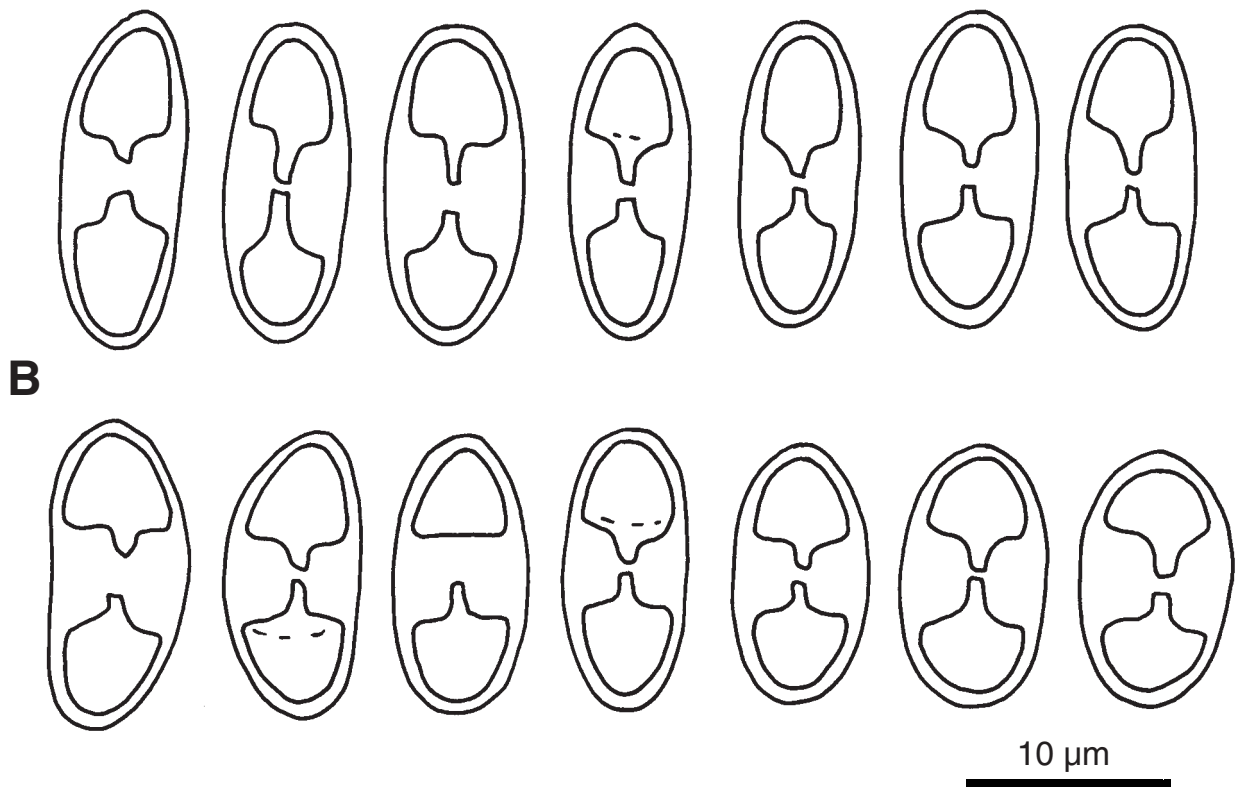
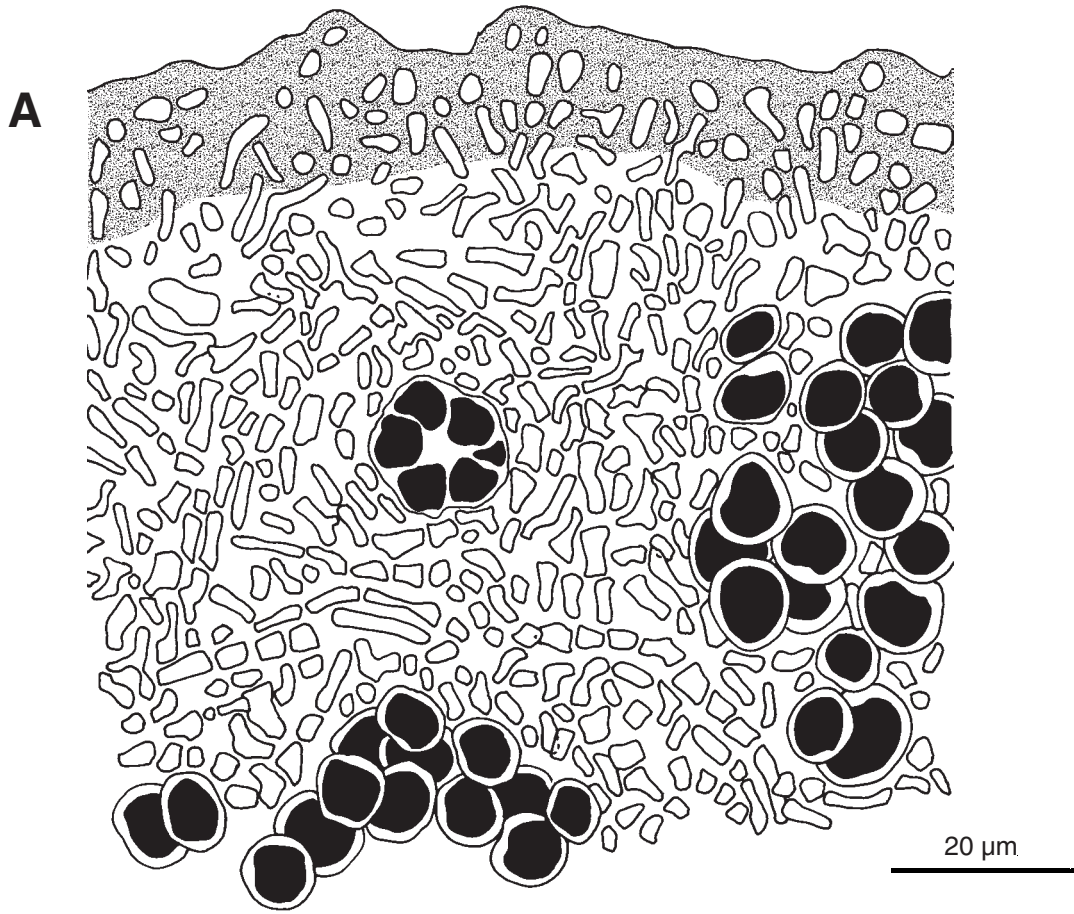


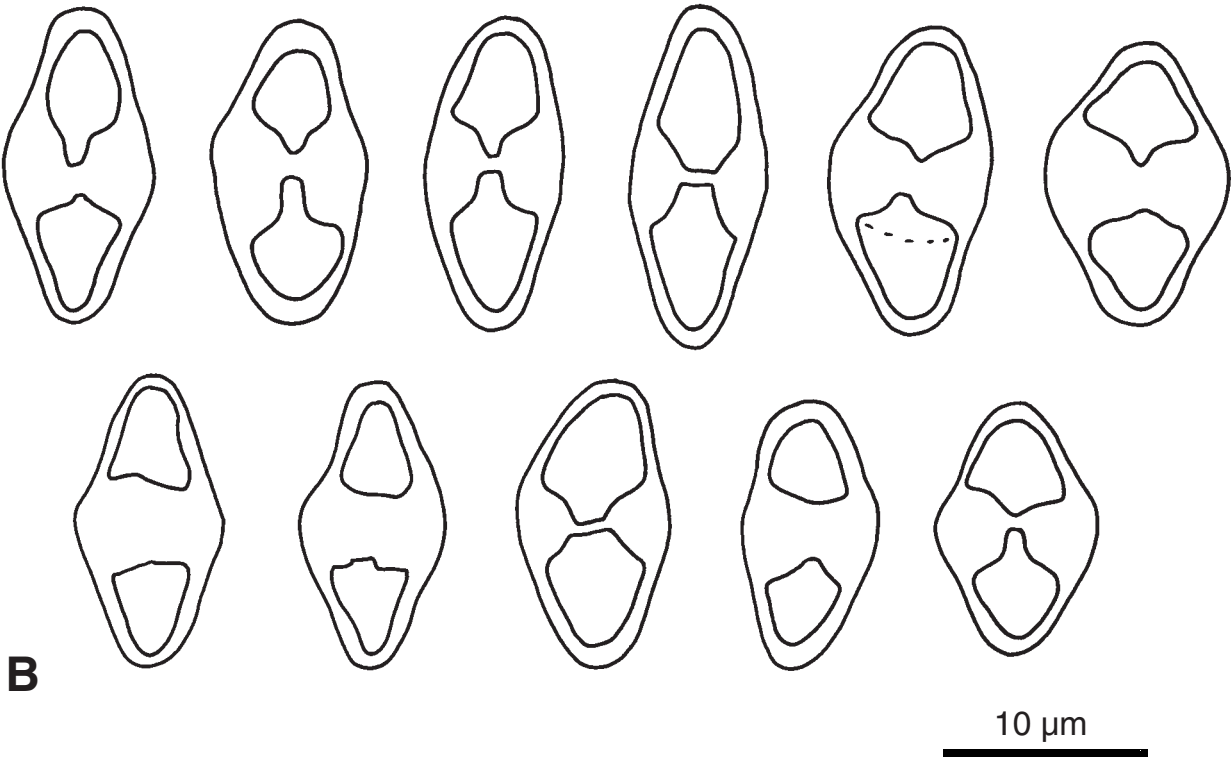
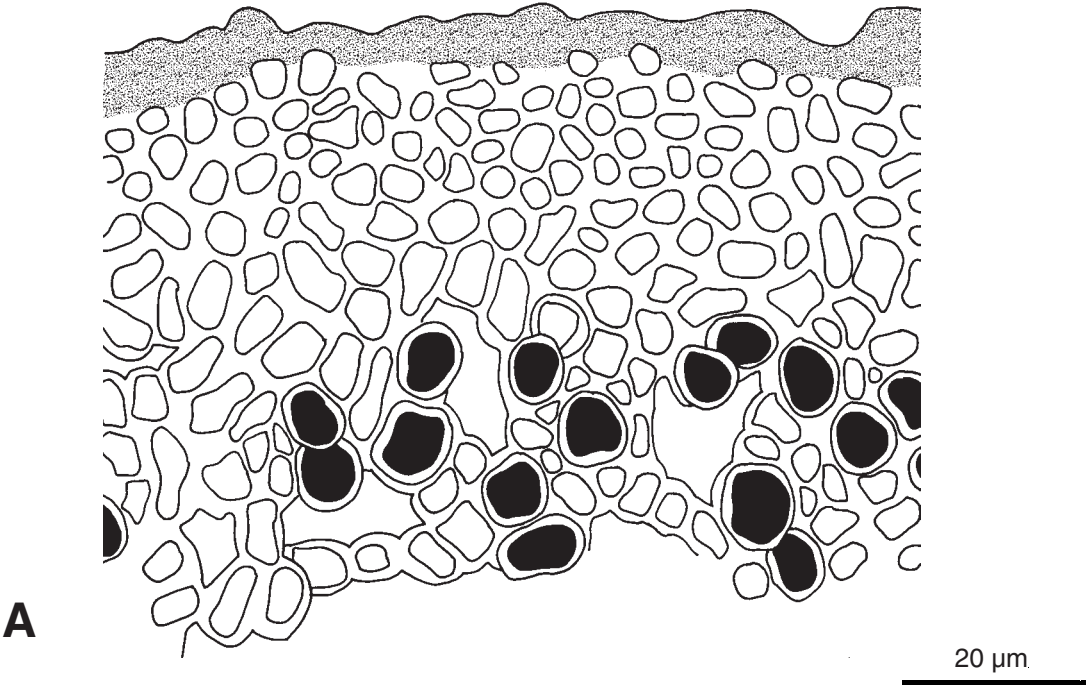
B

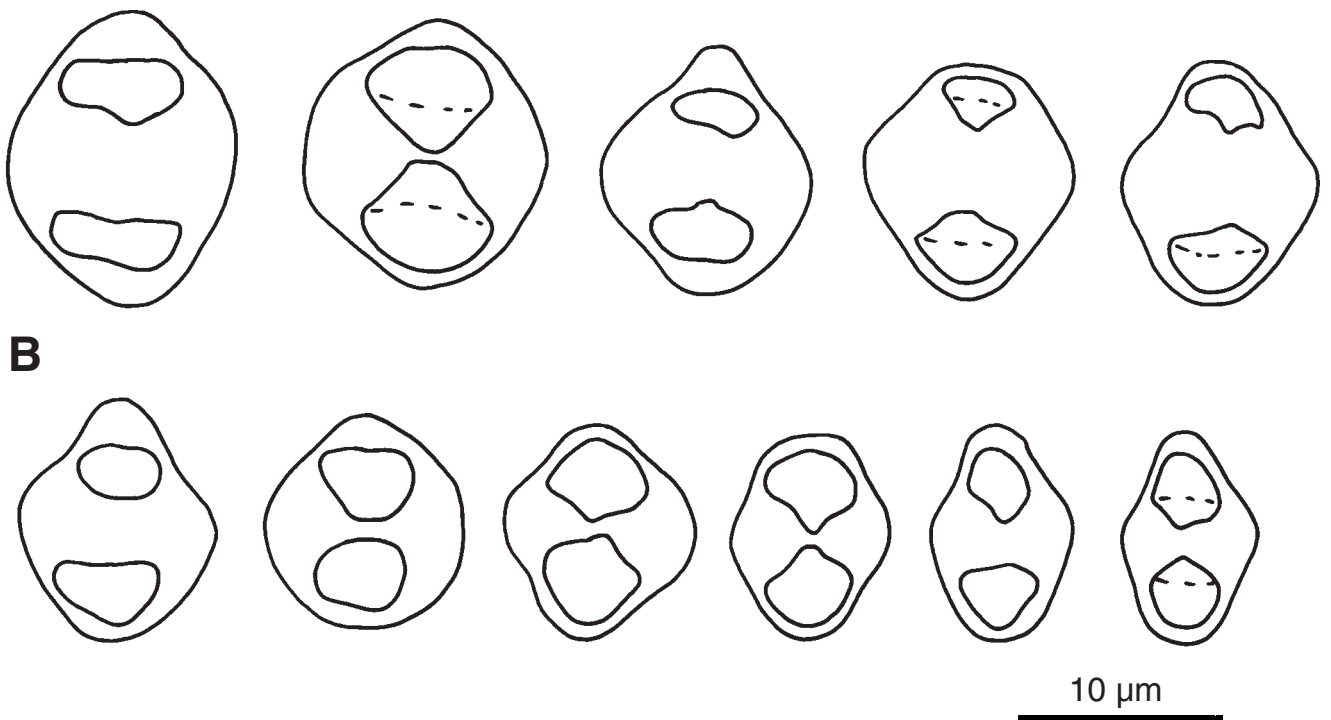
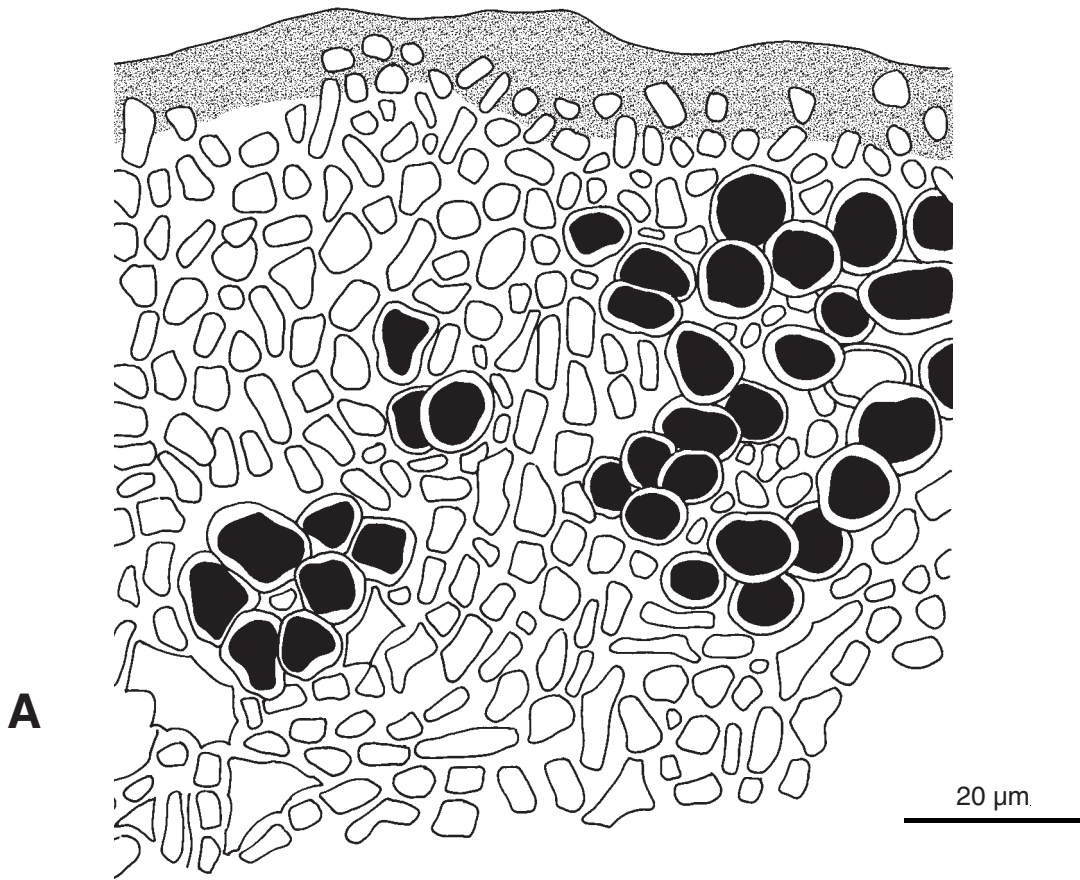
10 μ m



C

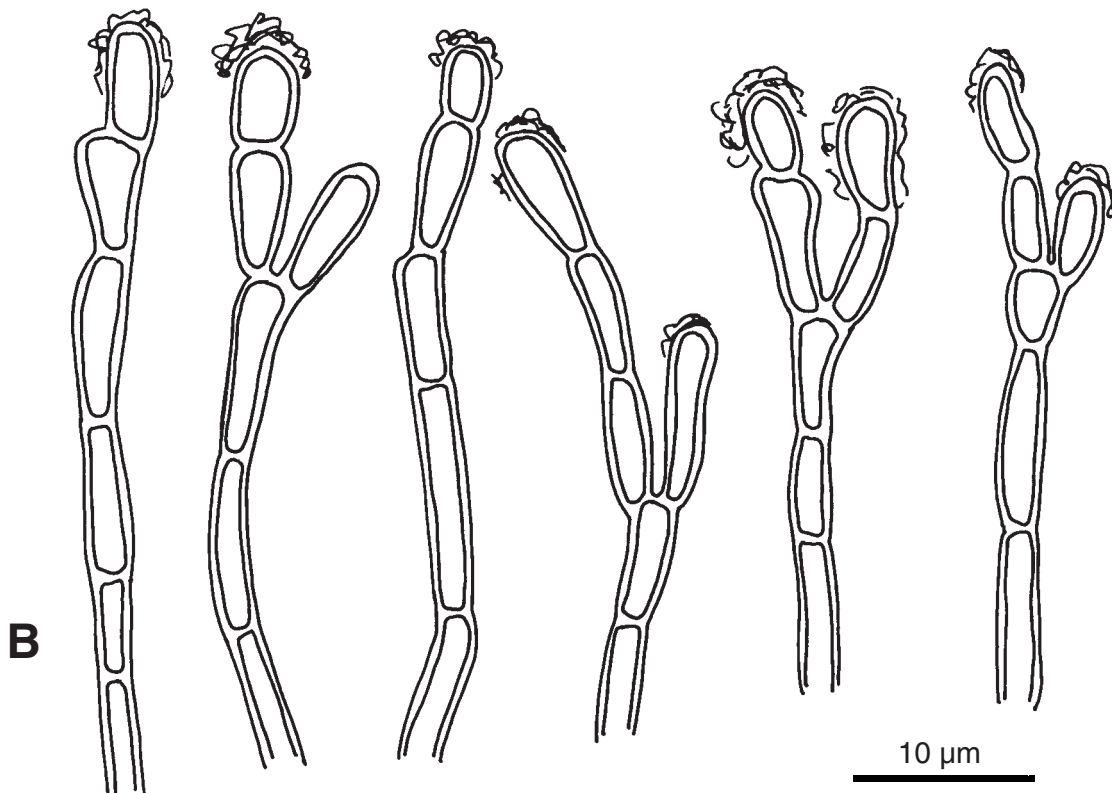
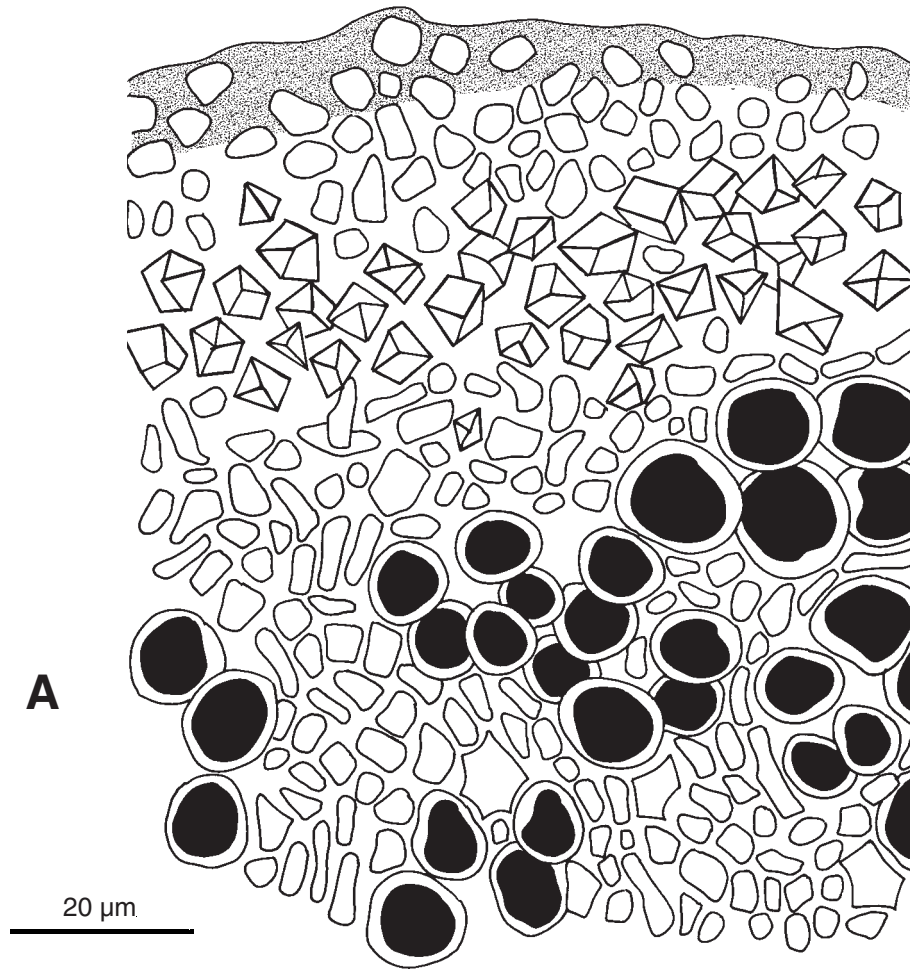




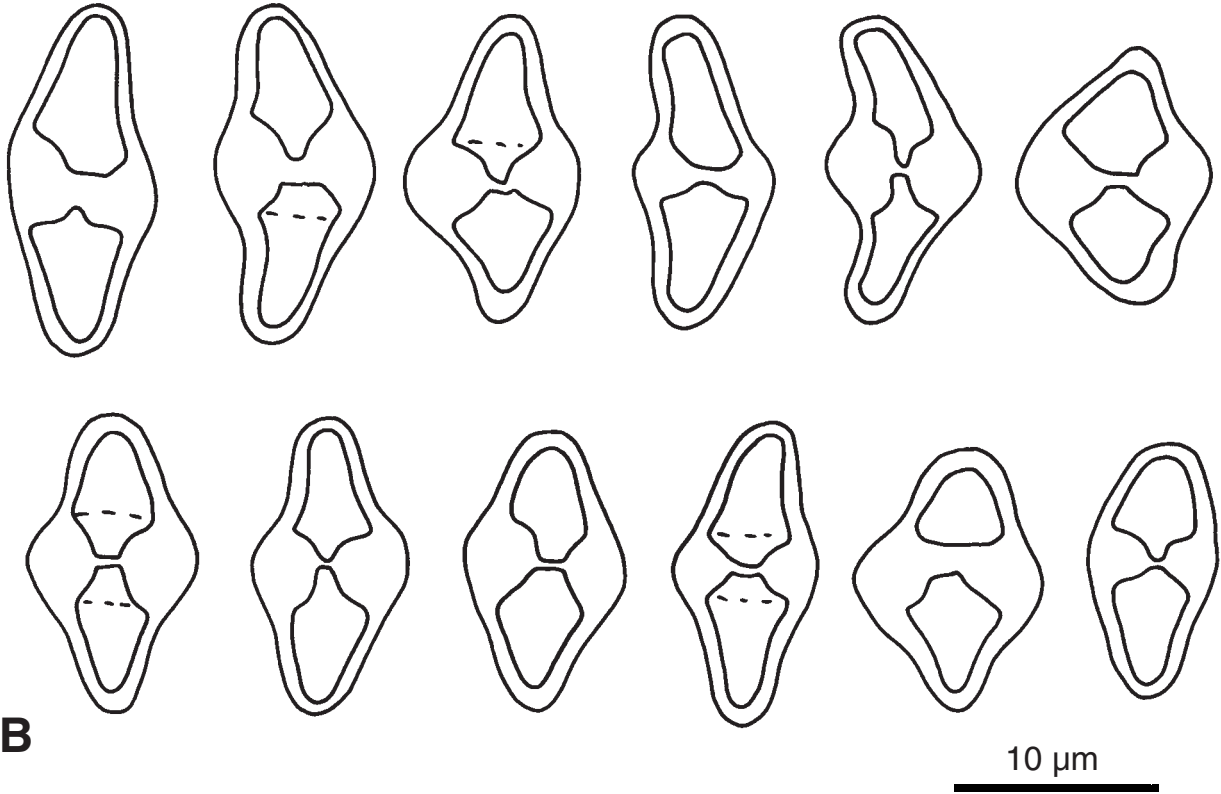
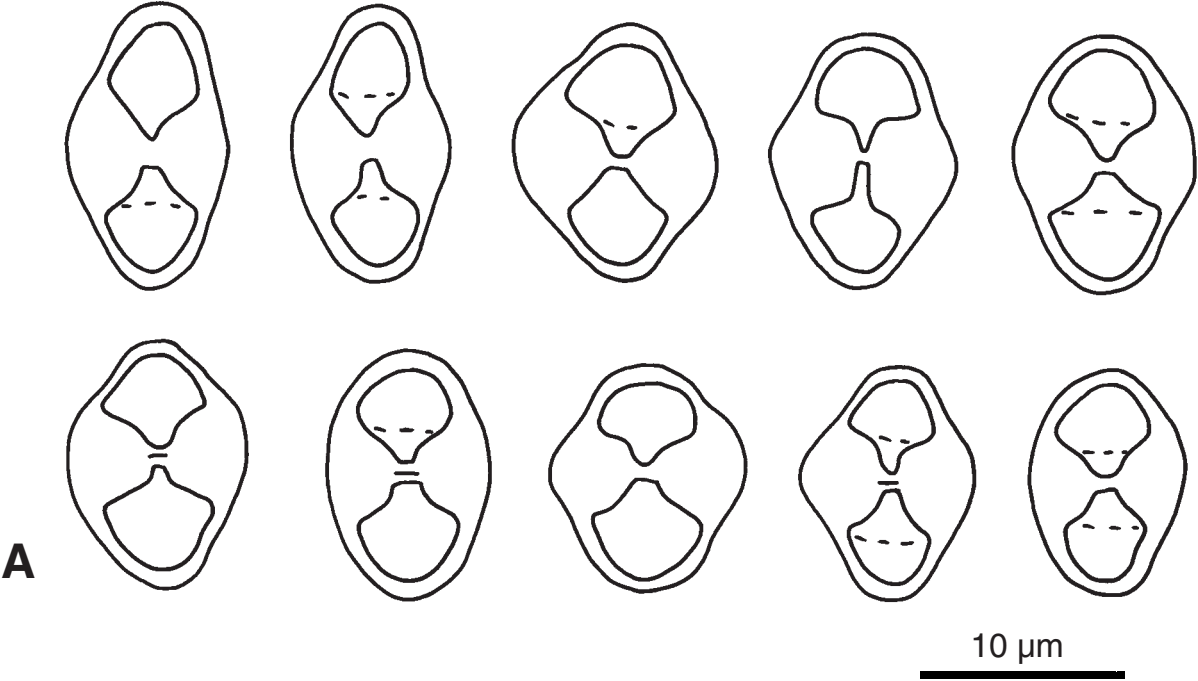


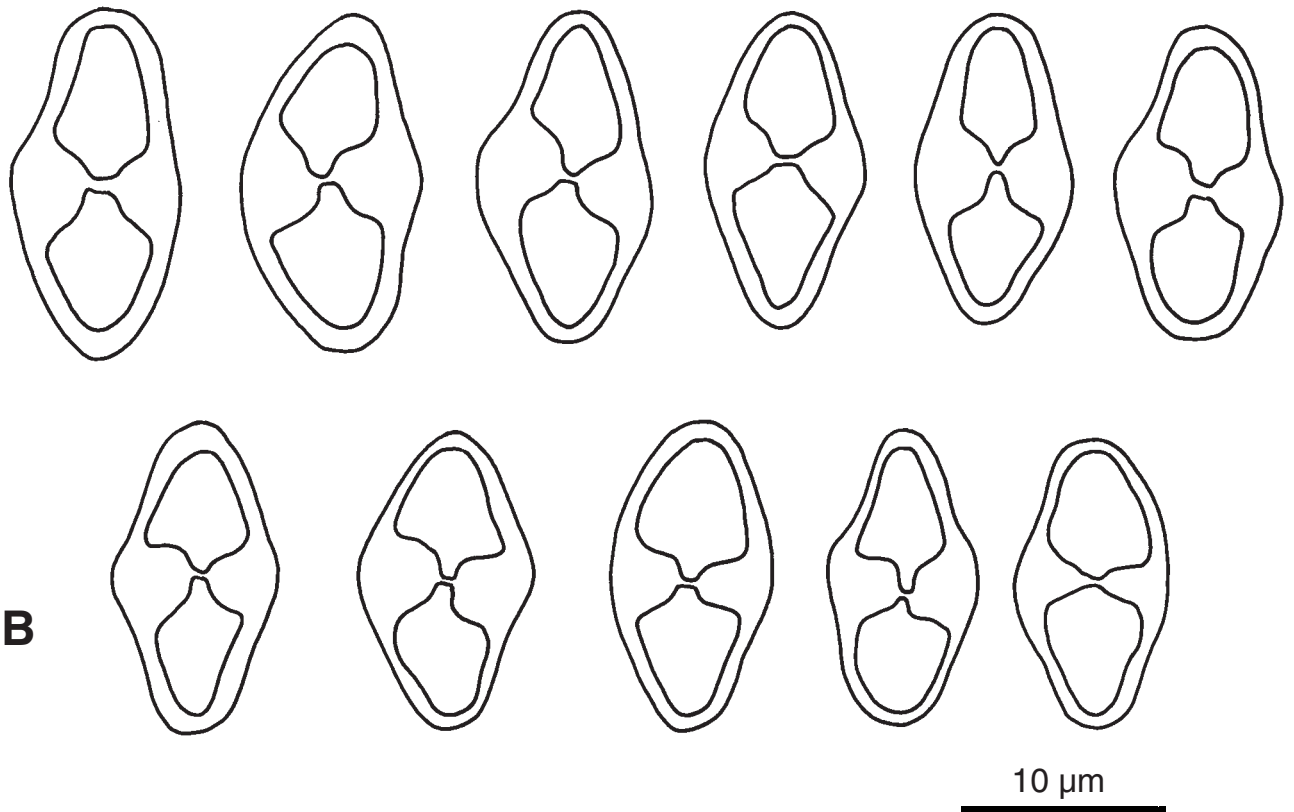
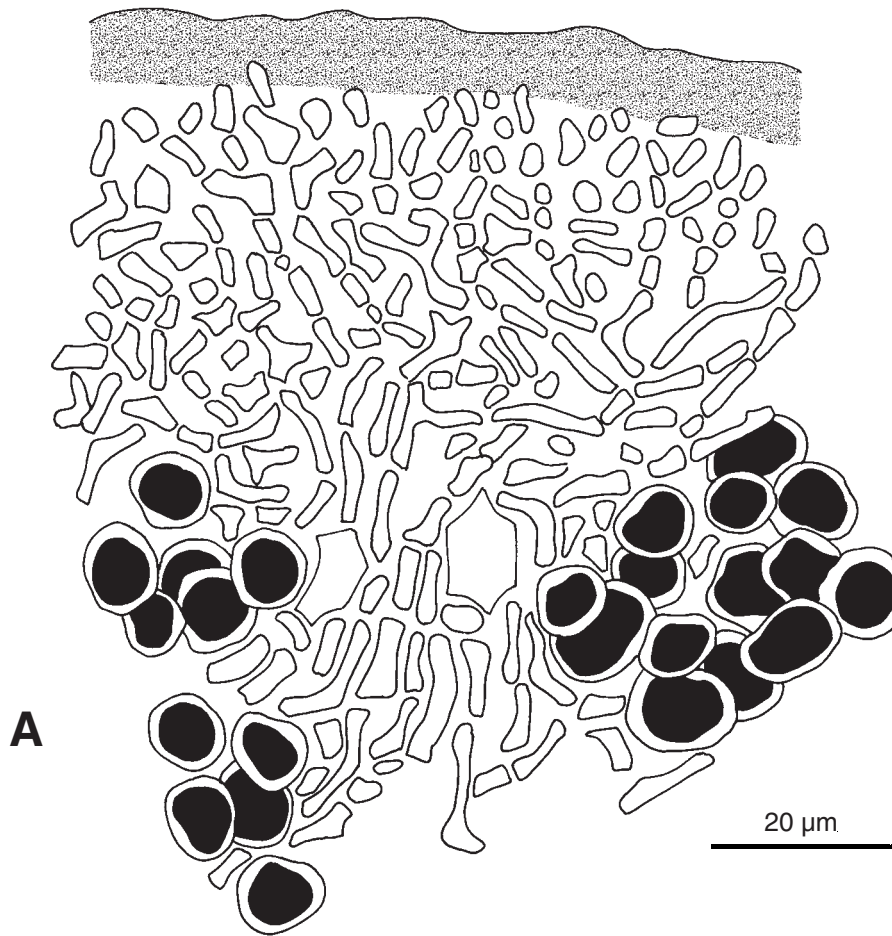
Caloplaca flavescens (Huds.) J.R. Laundon

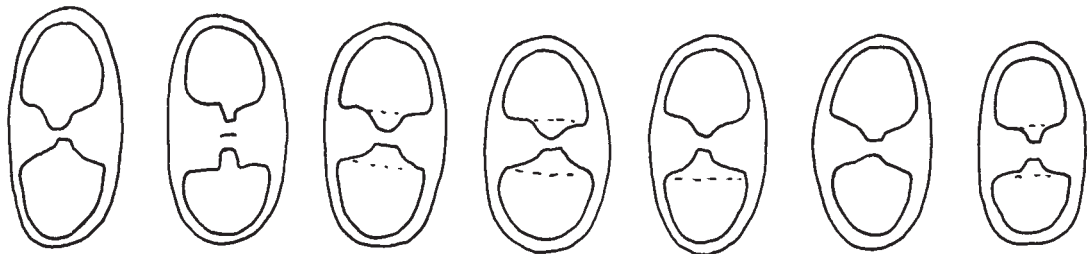
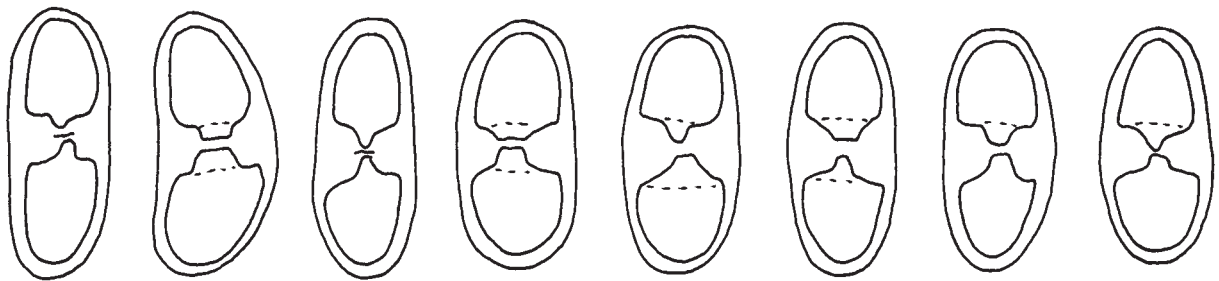
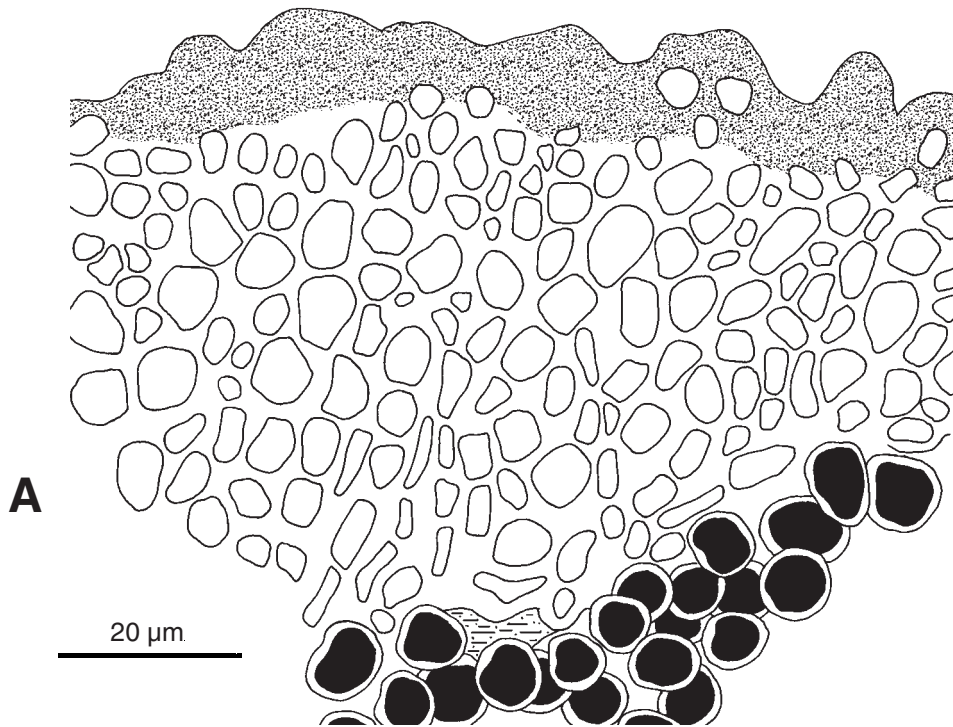
Làmina. 28



Caloplaca flavescens (Huds.) J.R. Laundon

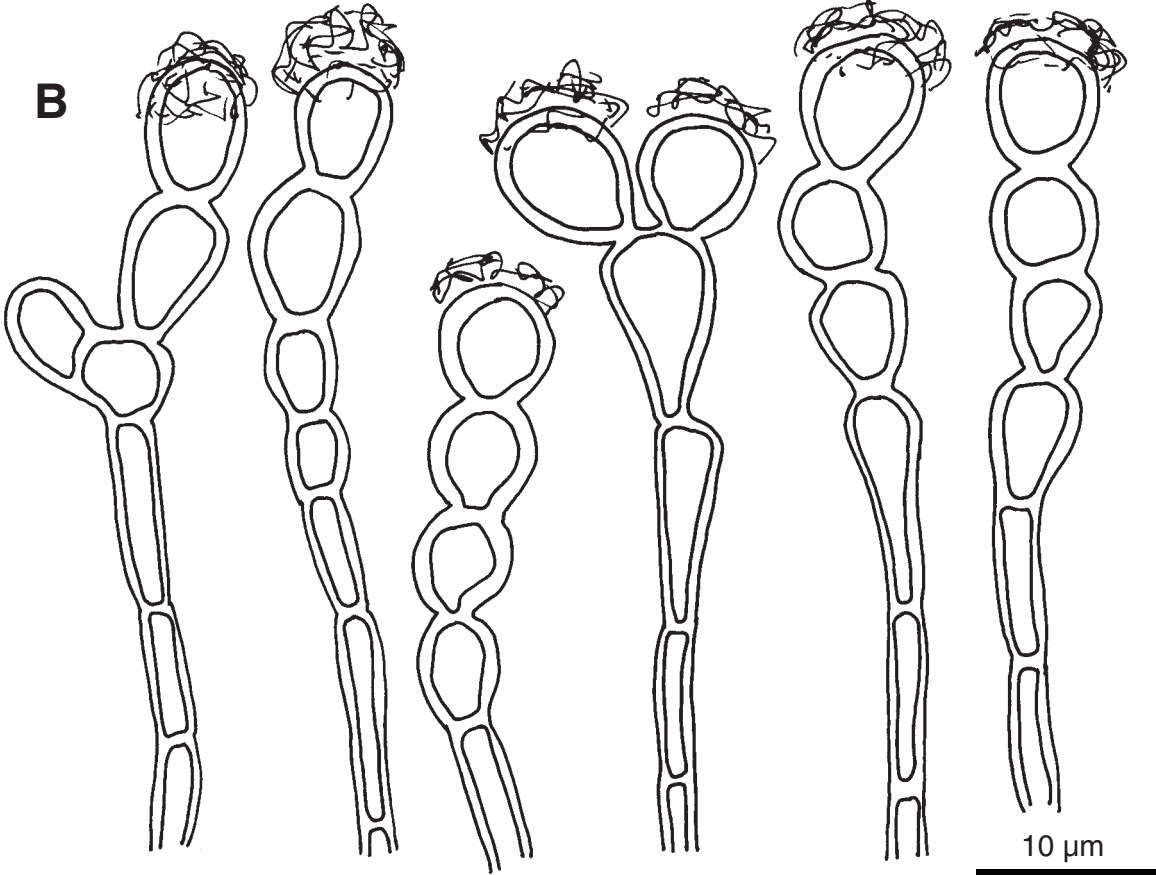
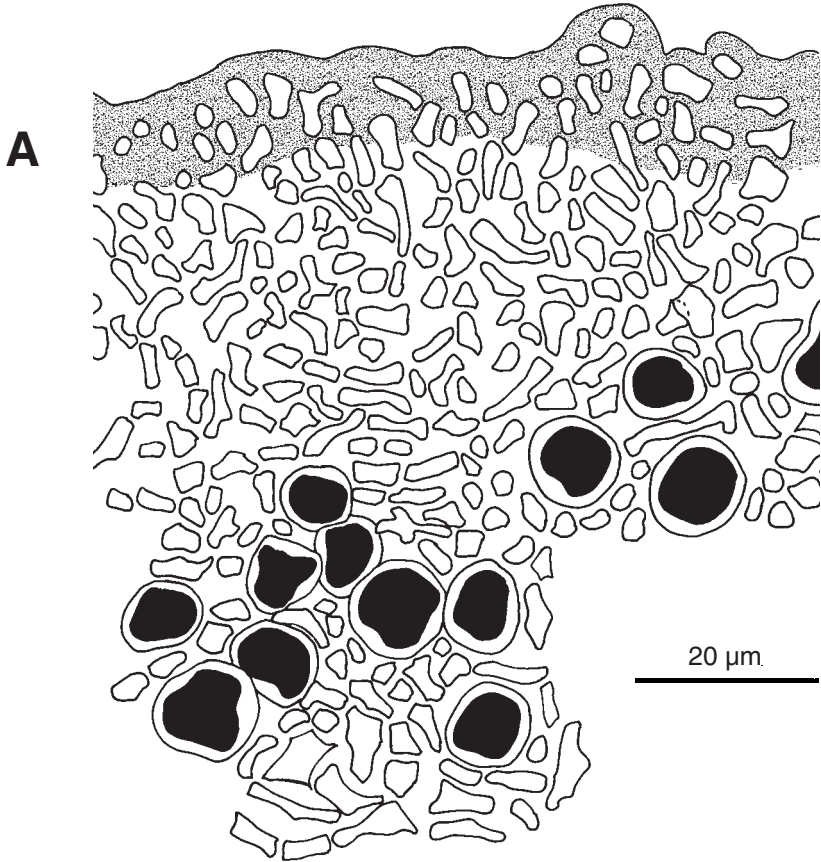


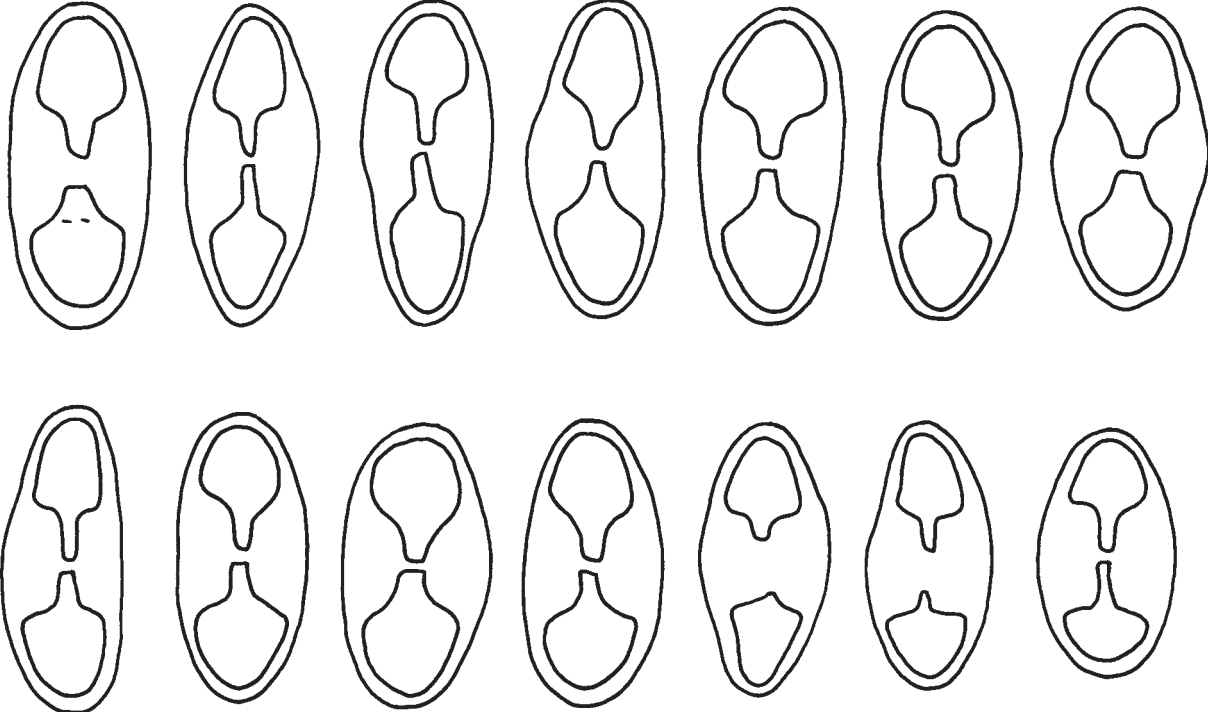




B

10 μm





10 μ m



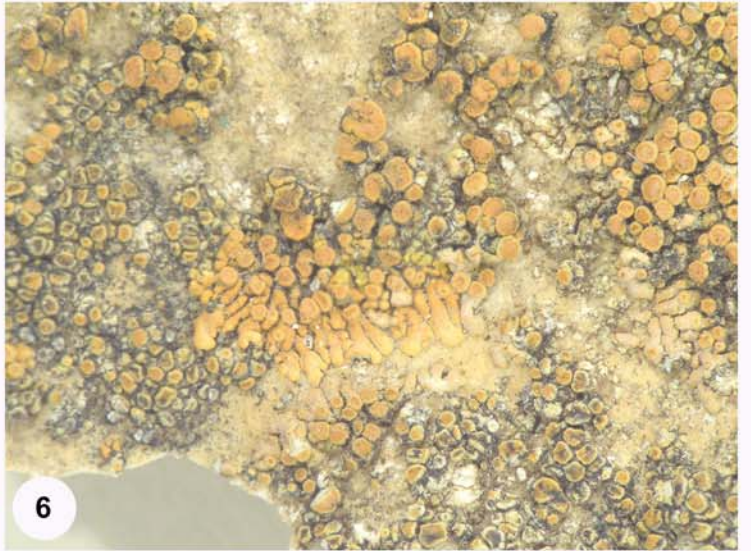
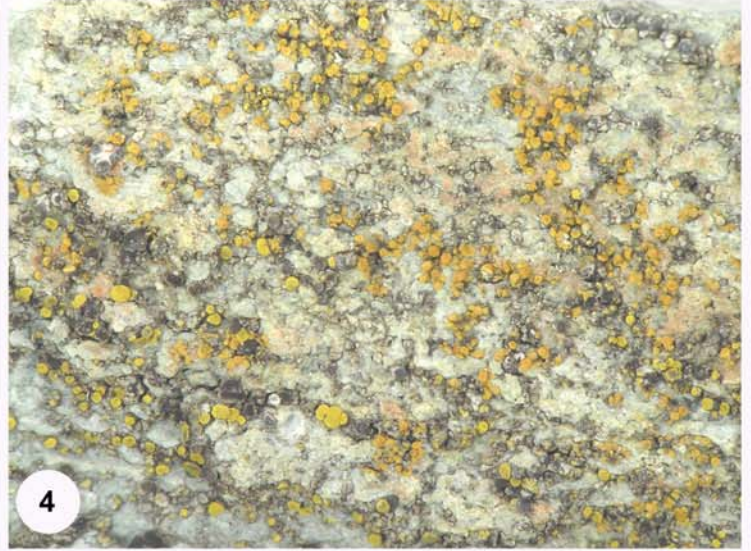
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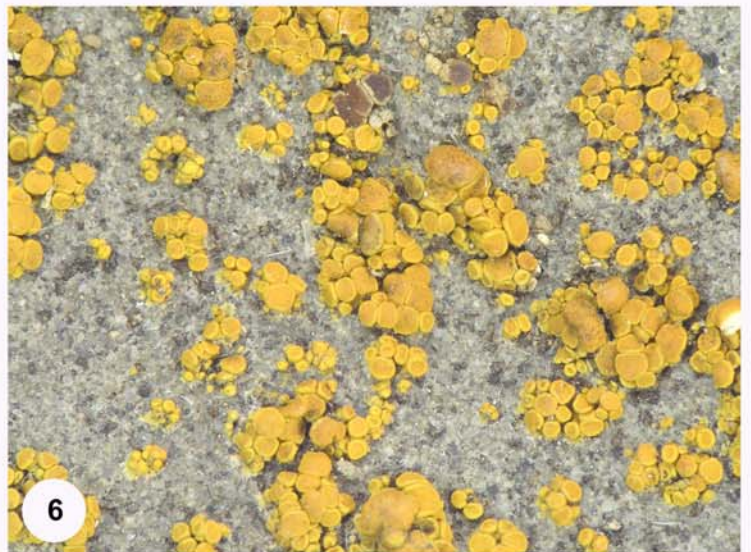
Làmina 33. 1.- *C. arnoldii* s.str. (Àustria, Sonneeberges, W). 2.- *C. arnoldii* sensu Poelt (Àustria, Sonneeberges, W). 3.- *C. arnoldii* Àsia (Nepal, Himalaya, GZU). 4.- *C. pusilla* (Itàlia, Verona, VER, herb. Massalongo, holotipus). 5.- *C. decipiens* (Segarra, Cervera, BCN). 6.- *C. clauzadeana* (França, Vaucluse, MARSSJ, herb. Cl. Roux, holotipus).



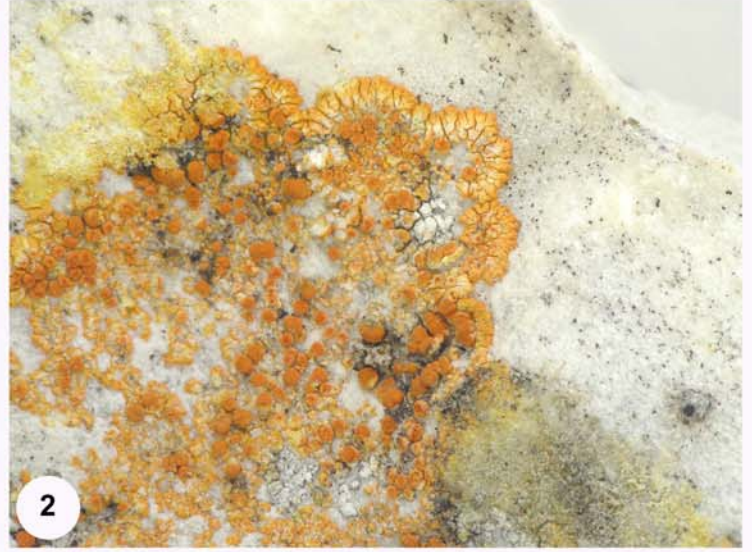
Làmina 34. 1.- *C. pseudofulgensia* (França, Aveyron, MARSSJ, herb. Roux). 2.- *C. nana* (Conca de Barberà, Vimbodi, BCN). 3.- *C. biatorina* (Estats Units, Montana, MIN). 4.- *C. rouxii* (Pallars Sobirà, Els Encantats, BCN). 5.- *C. schistidii* (Alt urgell, Coll de Nargó, BCN). 6.- *C. saxicola* ssp. *laceratula* (Alemanya, Pottenstein, M).



Làmina 35. 1.- *C. saxicola* s.str. (Finlàndia, Tavastia, W). 2.- *C. tegularis* [morfortipus '*C. miniatula*'] (Escòcia, Braemar, H, herb. Nylander, holotipus). 3.- *C. tegularis* [morfortipus '*C. obliterascens*'] (Escòcia, Craig Tulloch, H, herb. Nylander, holotipus). 4.- *C. tegularis* [morfortipus '*C. pyraceoides*'] (Ligúria, Savona, UPS, topotipus). 5.- *C. tegularis* [morfortipus '*C. saxicola* ssp. *obliterata*'] (Alemanya, B). 6.- *C. biatorina* ssp. *gyalolechioides* (França, Salève, O, isotipus).



Làmina 36. 1.- *C. aegaea* (La Selva, Cap de Creus, BCN). 2.- *C. aurantia* (Conca de Barberà, Vimbodí, BCN). 3.- *C. flavescens* (Menorca, Cala Pilar, BCN). 4.- *C. thallicola* (Galícia, illa de Cortegada, SANT). 5.- *C. scopularis* (Escòcia, West Ross, E). 6.- *C. alcarum* (Rússia, Novaya Zemlya, Goosebay, M).



Làmina 37. 1.- *C. cirrochroa* (Conca de Barberà, Vimbodí, BCN). 2.- *C. proteus* (Àustria, Kärnten, GZU). 3.- *C. obliterans* (Noruega, Dovre, UPS, isotipus). 4.- *C. obliterans* (Noruega, Dovre, UPS, isotipus). 5.- *C. ignea* (Mèxic: Baja Califòrnia, BCN).

