

**The first neotropical littoral lichen: *Collemopsidium crassostreicola* growing on 1  
living *Crassostrea* shells**

**The first neotropical littoral lichen: *Collemopsidium crassostreicola*  
growing on living *Crassostrea* shells**

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**Abstract:** A new species is described, viz. *Collemopsidium crassostreicola* Aptroot, & Gumboski sp. nov. It is the first neotropical littoral lichen, growing on living *Crassostrea* shells along the shore of the Atlantic coast of Brazil.

### **Introduction**

The genus *Collemopsidium* Nyl. is the only major genus in the Xanthopyreniaceae, which is the only family in the Collemopsidiales (Pérez-Ortega et al. 2016) and even in the Collemopsidiomycetes. The species are usually lichenized with various algae or cyanobacteria and usually grow on rock, but some grow on compacted sand or on living shells (Smith et al. 2009). About half of the species occur exclusively in the littoral zone, and they are one of only three or four taxonomic groups of littoral lichens. Most species are arctic to subtropical, and on every temperate rocky shore on both hemispheres, one or two species are usually present. The littoral species differ mainly in ascoma size, ascospore size, type of substratum and degree of immersion of the thallus and ascomata inside the substratum. No littoral species of *Collemopsidium* has so far been reported from living shells in the neotropics, only one species, *C. ostrearum* (Vain.) F. Mohr, was reported from São Thomé & Príncipe (Smith et al. 2009), and another from Liberia on mangrove prop roots, viz. *C. pneumatophorae* (Kohlm.) Aptroot (Aptroot 2006). The present authors independently noticed the presence of a *Collemopsidium* on the Atlantic shore of tropical Brazil, where it grows on living *Crassostrea* shells attached to coastal rock or even a concrete boulevard. It was immediately clear that this represents an undescribed species, locally very common but so far overlooked by both lichenologists and marine biologists. Therefore we describe it here as new.

### Material and methods

Specimens were observed with an Olympus SZX7 with an attached Nikon Coolpix 995. Hand-made sections of ascomata and thallus were studied in water, 5% KOH and/or Lugol's reagent (1% I<sub>2</sub>) after pre-treatment with KOH. Microscopic observations were made using an Olympus BX50 with Nomarski interference contrast and an attached Nikon Coolpix 995. Chemical spot reactions were applied where needed. All specimens are preserved in CGMS.

### Results

*Collemopsidium crassostreicola* Aptroot, & Gumboski, *sp. nov.*

Type: Brazil, Santa Catarina State, Municipality of Governador Celso Ramos, Vila dos Ganchos's Beach, on living *Crassostrea* shells on rocks on the shore, 0 m alt., leg. E. L. Gumboski 5491, February 11, 2017 (JOI, holotype).

Diagnosis: *Collemopsidium* with ascomata single, largely immersed in living *Crassostrea* shells, without clypeus, wall completely carbonized, ascospores 1-septate, 20-23 x 8-10 µm.

Thallus crustose, more or less immersed in the substratum, up to 3 cm diam., not corticate, with a violet tinge, without prothallus line, with *Hyella* cyanobacteria. Ascomata closed, 0.1-0.2 mm diam., not aggregated, black, half immersed in the substratum. Wall entirely carbonized, c. 50 µm thick, with small grey clypeus fringe. Ostioles apical, black, minute. Ascospores 8/ascus, 1-septate, hyaline, 20-23 x 8-10 µm, upper cell much wider than lower cell; surrounded by a c. 1 µm thick gelatinous sheath. Pycnidia not observed or at least none seen with conidia (some of the smallest fruting bodies were empty and could be either young ascomata or empty pycnidia).

Additional specimen examined: Brazil, Bahia State, Municipality of Porto Seguro, on living *Crassostrea* shells on the rocks on the boulevard, 20 February 2019, leg. A. Aptroot no. 78322 (ABL, CGMS). Santa Catarina State, Municipality of Governador Celso Ramos, Vila dos Ganchos's Beach, on living *Crassostrea* shells on rocks on the shore, 0 m alt., leg. E. L. Gumboski 5492, 5494, 5497, 5499, February 11, 2017, (JOI).

Discussion: This is the first *Collemopsidium* reported from neotropical littoral rocky shores, the first species reported to grow on living *Crassostrea* shells, and even the first reported littoral lichen from the neotropics, although the first author already encountered a littoral *Verrucaria* on the Pacific coast of Costa Rica in 2004. The new species is also morphologically distinct from every described species; for instance, the somewhat similar *C. ostrearum* has aggregated ascomata below a clypeus, and *C. pneumatophorae* is not lichenized.

**The first neotropical littoral lichen: *Collemopsidium crassostreicola* growing on 3 living *Crassostrea* shells**

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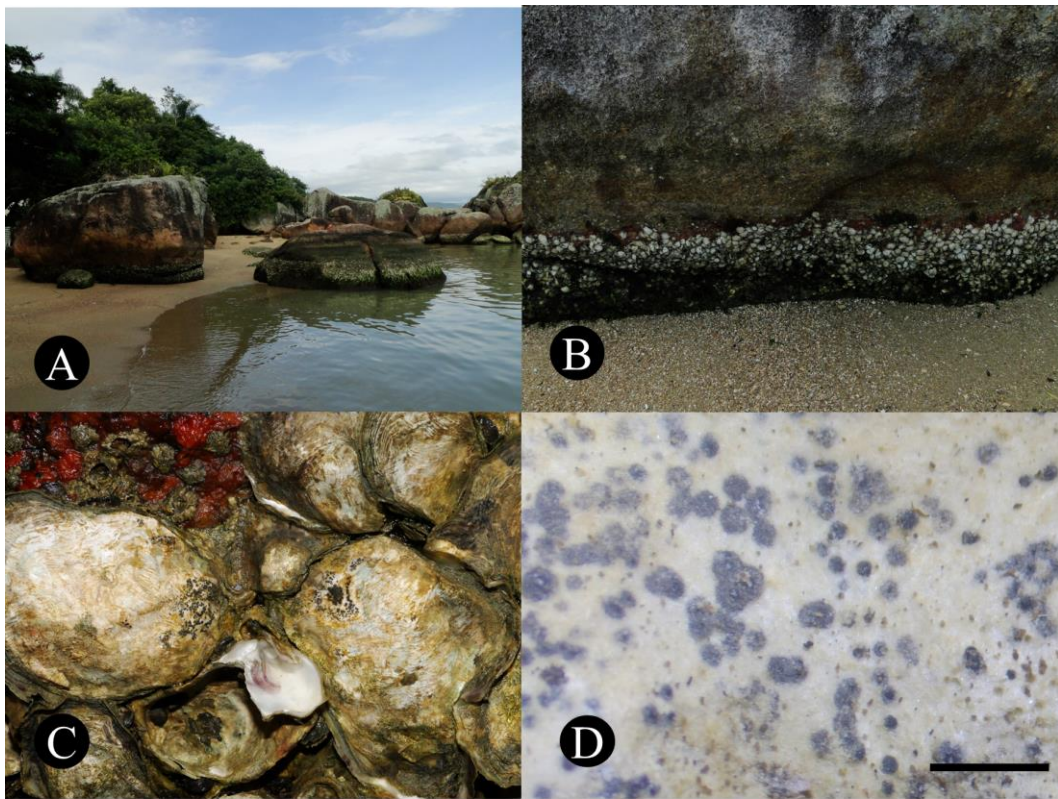


Figure 1. *Collemopsidium crassostreicola* Aptroot & Gumboski; A, B habit; C, D habitus. Scale is 1 mm.