

# MYCOTAXON

Volume 106, pp. 435–439

October–December 2008

## ***Canoparmelia sanguinea*, a new *Parmeliaceae* from Brazil**

MICHEL N. BENATTI & MARCELO P. MARCELLI

*michel\_benatti@yahoo.com.br*

*Instituto de Botânica, Seção de Micologia e Liquenologia  
Caixa Postal 4005, São Paulo/SP, CEP 01061-970, Brazil*

JOHN A. ELIX

*John.Elix@anu.edu.au*

*Department of Chemistry, Building 33, Australian National University  
Canberra, A.C.T. 0200, Australia*

**Abstract** — *Canoparmelia sanguinea*, a Brazilian species of *Parmeliaceae* from São Paulo State, is described as new to science.

**Key words** — *Canoparmelia caroliniana*, *Canoparmelia conrescens*, evernic acid

### **Introduction**

*Canoparmelia* Elix & Hale, a segregate of the eciliate genus *Pseudoparmelia* Lyngé (Hale 1976), is characterized by typically gray or rarely yellow-green thalli containing cortical atranorin and chloroatranorin [or rarely usnic acid], 3.0–5.0 mm wide, rotund or subrotund, eciliate lobes, a white medulla, a black lower surface with naked brown margins and simple concolorous rhizines, small ellipsoid ascospores 10–14 × 6–8 µm, and fusiform or bifusiform conidia 7–10 µm in length (Elix et al. 1986, Elix 1993).

The new species is based on specimens collected in the State Forest Reserve of Serra da Cantareira (23° 20'–23° 27'S, 46° 28'–46° 42'W), in an open area near the Atlantic Rainforest in the very north of São Paulo city, and adjacent municipalities.

### **Material and methods**

The morphological characters were examined under a stereo-microscope. Anatomical sections were made with razor blades. The chemical constituents

were analyzed by color reaction spot tests including potassium hydroxide (K), sodium hypochlorite (C) and paraphenylenediamine (P). All specimens were tested under UV light, and chemical constituents were identified by thin-layer chromatography (TLC) using solvent C (Bungartz 2001), high performance liquid chromatography (HPLC) (Elix et al. 2003) and comparison with authentic samples.

In the description, the Latin diagnosis refers exclusively to the holotype and the English text includes data from all the specimens examined.

*Canoparmelia sanguinea* Marcelli, Benatti & Elix, sp. nov.

FIGURE 1

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DIAGNOSIS: *Species thallo similis Canoparmelia caroliniana sed obscurior, superus rugosus vel scrobiculatus, distincte maculatus, isidiis fuscatis vel apicibus brunneis, simplicibus vel parum ramosis, arcte aggregatis, subtus niger vel atrobrunneus, medulla C+ sanguineus, KC+ sanguineus et acidis olivetolcarboxylico, 4-O-methylolivetolcarboxylico, decarboxyanziaico, decarboxystenoporico, decarboxyperlatolico, divaricatinico et glomelliferico, glomellino, et depsidellino B continens differt.*

HOLOTYPE—Brazil, São Paulo State, Municipality of Mairiporã, Cantareira Range, on a tree trunk felled during village construction, leg. M.P. Marcelli 6029, 03-XI-1989 (SP).

THALLUS sublobed, dark cinereous green becoming dusky green in the herbarium, up to 9.0 cm diam., submembranaceous, corticolous. Lobes irregularly ramified to subdichotomous, 1.0–3.5 mm wide, contiguous to imbricate in the younger parts and becoming somewhat crowded in the center, closely adnate, with subrotund or sometimes subtruncate apices, the margins entire to partly subcrenate, frequently involute, the upper surface continuous to irregularly cracked, often rugose or slightly scrobiculate especially in the older parts, ±smooth in the distal parts. MACULAE irregularly linear, laminal, becoming confluent and more conspicuous near the lobes apices, sometimes forming inconspicuous fissures. CILIA absent. LACINULAE absent, but sometimes forming small, simple, flat, subtruncate adventitious lobules in the older parts, 0.3–1.2 × 0.3–1.6 mm. SOREDIA and PUSTULES absent. ISIDIA laminal, granular to short cylindrical, 0.05–0.50 × 0.05–0.10 mm, smooth, simple to sparsely branched, generally densely clustered, not coralloid; erect, smooth, firm, partially darkened or with brown apices, eciliate. MEDULLA white. LOWER SURFACE mottled, black to dark brown, shiny to opaque, smooth to rugose, sometimes slightly veined or papillate. MARGINAL ZONE brown, shiny, 0.5–1.5 (–4.0 at the lobes apex) mm wide, less evident in some parts, smooth to rugose or veined, usually naked but sometimes sparsely papillate or rhizinate approaching the center. RHIZINAE dark brown to black, but brown or white near the marginal zone, simple to rarely furcate, acute, (0.10–) 0.20–0.70 (–1.00) × ca. 0.05 mm, frequent, ±evenly distributed. APOTHECIA not seen. PYCNIDIA rare, submarginal, with black ostioles. CONIDIA not seen.

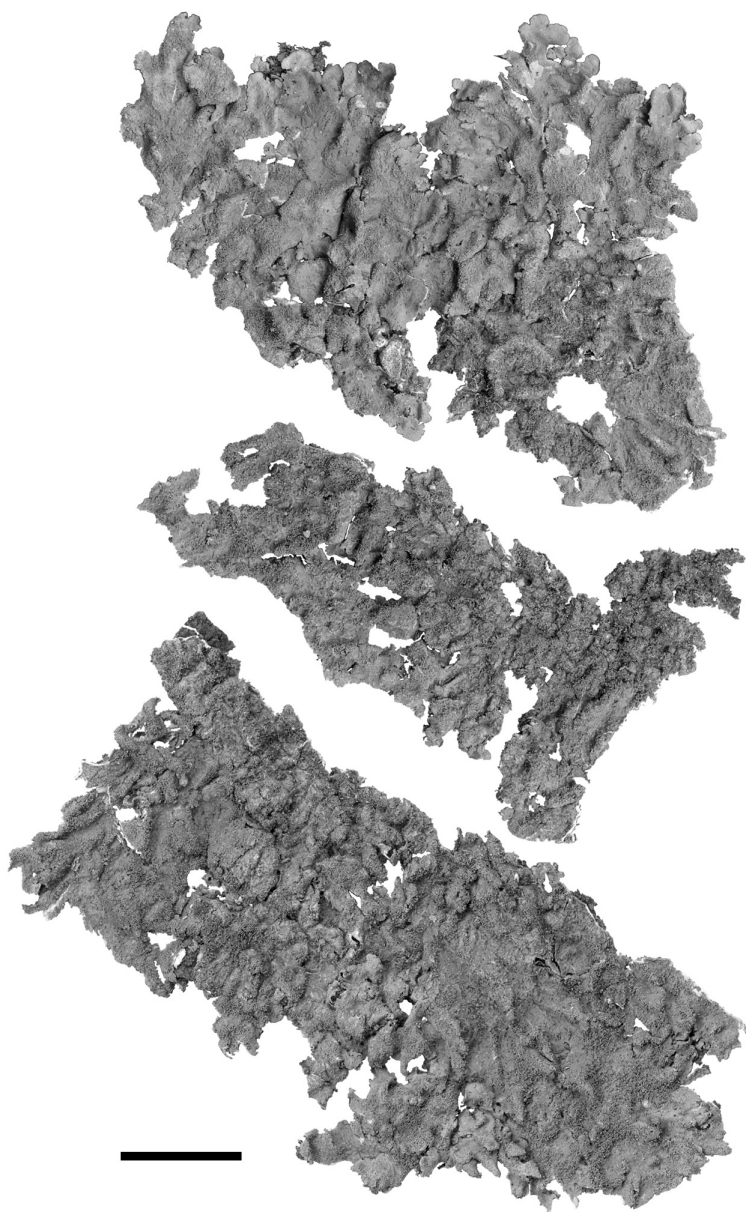


FIGURE 1. The holotype (a single specimen) of *Canoparmelia sanguinea* (SP).  
Bar = 1 cm.

SPOT TESTS: cortex K+ yellow, UV–; medulla K–, C+ reddish rose, KC+ red, P+ (?) very faint yellowish, UV–.

TLC/HPLC: cortical atranorin (minor); medullary olivetolcarboxylic acid (minor), 4-O-methylolivetolcarboxylic acid (minor), glomelliferic acid (minor/absent), glomellin (trace/minor), decarboxyanziac acid (major), decarboxystenoporic acid (minor), decarboxyperlatolic acid (minor), divaricatinic acid (minor), depsidellin B (minor), unknowns (minor).

PARATYPE—Brazil, São Paulo State, Municipality of Mairiporã, Cantareira Range, on a tree trunk brought down during village building, leg. M.P. Marcelli 6028, 03-XI-1989 (B, SP).

COMMENTS— *Canoparmelia sanguinea* is an isidiate species which has a dark gray green thallus, imbricate or crowded lobes, often with involute margins, an almost entirely subrugose or slightly scrobiculate upper surface with prominent maculae, especially near the lobes tips, and a mottled dark brown to black lower surface. The rhizines are commonly paler in distal areas.

Due its size, overall thallus shape, the presence of isidia and prominent macules, in the field *C. sanguinea* could be mistaken for darkened specimens of the very common *C. caroliniana* (Nyl.) Elix & Hale.

However, its medullary chemistry is unique and very different from *C. caroliniana*, as was first noted by the immediate C+ and KC+ red spot tests [which in *Parmeliaceae* usually indicate the presence of the lecanoric/gyrophoric acids, olivetoric acid or anziac acid complexes] instead of the C– and KC+ faint violet/rose reaction of *C. caroliniana* (due to the presence of perlatolic acid).

The new species produces dense, intensely clustered and ramified isidia with brown apices (which give the false impression of being coralloid), so that the isidia appear darker and more dense by comparison with those of *C. caroliniana*.

According to Hale (1976) *C. conrescens* (Vain.) Elix & Hale, another similar species, differs in having a flat, continuous, emaculate upper surface and in producing only divaricatic acid in the medulla.

This species is named after the red C and KC spot tests.

### Acknowledgments

The authors wish to thank Harrie J. M. Sipman (Berlin) and Richard Harris (New York) for the critical revision of the manuscript and help with the Latin diagnosis.

This work could not have been accomplished without the support of the FAPESP (Fundação para o Amparo à Pesquisa do Estado de São Paulo) for Scientific Initiation grant (nº 00/01009-1) and the Conselho Nacional de Desenvolvimento Científico e Tecnológico (CNPq) — for the research support to the second author.

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