

Pyrenula kakouettae sp. nov. from SW France

by

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With 2 figures

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Abstract: *Pyrenula kakouettae* Sérusiaux & Diederich is described as new from SW France; it is easily recognized by its large perithecia and spores with acute ends.

Introduction

Several excursions have been made by the authors in SW Europe since 1985, either alone or together with other fellow lichenologists (J. Etayo, P.W. James, F. Rose and J. Vivant). The areas visited include the Pyrenees, the Cantabrian mountains range, Galicia in NW Spain and N Portugal. The main objective was to study extensively the epiphytic and foliicolous lichen flora, as well as the numerous lichenicolous species present.

Many sites proved to be extraordinarily rich, with several unexpected species and several new ones. The recently described *Porina rosei* (Sérusiaux 1991) is one of them. This paper deals with another taxon that turned out to be new to science.

Pyrenula kakouettae Sérusiaux & Diederich sp. nov.

Pyrenula species Europeae insignis peritheciis usque ad 0.8-1.0 mm diam. attingentibus et sporis 26-30 × 11-14.5 μm extremitatibus abrupte contractis.

Type: France, dept. Pyrenees-Atlantiques, Kakouetta gorges, 400 m, 7 & 8.1985, Sérusiaux 7700 (LG-holotypus).

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Thallus present in young specimens, at least partly endophloeodal, greenish to orange brown, the dominant colour being olive, smooth and rather shiny, without pseudocyphellae or pockets of white crystals, eventually vanishing due to the peeling away of the bark (outer parts, = rhytidome) on which it grows (*Buxus* twigs), UV + orange probably due to lichexanthone. Photobiont most probably belonging to *Trentepohlia*.

Perithecia jet black, \pm immersed into the spongy bark on which they grow, at first half immersed and conical, eventually globose and sessile with a constricted basis, reaching 0.8-1.0 mm diam. when fully mature, rather scattered on the thallus, rarely contiguous and exceptionally confluent. Ostiole apical or subapical, usually seen as a tiny translucent depression on the top of perithecia. In cross sections, perithecia are rather conical, with a flattened basis, and stretched towards the ostiole. Involucrellum dark brown to black, including cellular fragments of the bark, \pm 100 μ m at the base and reaching 200 μ m laterally and even more (220-230 μ m) around the ostiole; excipulum indistinct.

Hymenium IKI-, without oil droplets; interthecial hyphae (pseudoparaphyses) abundant, branched and anastomosed, rarely simple; paraphyses absent. Asci cylindrical to somewhat clavate, with thick walls but without any apical thickening. Spores 8 per ascus, mostly uniseriate; when mature and examined in water, lumina greenish and walls pale brown or orange brown, elliptical to almost cylindrical, but always abruptly contracted at both ends into conical to triangular tips, 3-septate, with \pm uniform endospore-wall thickenings around the lumina so that these become ovoid to rhomboid, except for both outer cells whose outer side is distinctly flattened, (23-)26-30(-33) \times (10.5)11-14.5(-15) μ m.

Pyrenula Ach. (nom. cons.) is a large mostly tropical and subtropical genus, still poorly known in most parts of the world. It is however well covered in Eastern North America by the outstanding work of Harris (1989); recently Awasthi (1991) provided a key to species recorded in the Indian subcontinent. In Europe, it is usually said to be uninteresting. We believe that further studies on material from SW Europe will yield unexpected data. The gorges of Kakouetta should turn out to be a good example: indeed, besides *Pyrenula kakouettae* newly described in this paper, they shelter *Pyrenula laevigata* (Pers.) Arnold, *P. pseudobufonia* (Rehm) R.C. Harris (= *P. neglecta* R.C. Harris), and at least three others so far unidentified but not identical to any other European species.

Pyrenula kakouettae is a common species on *Buxus* twigs and branches in the gorges of Kakouetta in the French Pyrenees, a site of limited extent but with an exceptional lichen flora. It is easily recognized in the field by its large and scattered perithecia, almost globose in old specimens, and by its smooth olive thallus. Under UV light, it is distinctly orange, probably due to the presence of lichexanthone. This color is however almost absent in old specimens as the thallus vanishes away with the easily peeled bark on which it grows. Its spores are totally unusual for European *Pyrenula*: their size is matched only by the otherwise very different *P. macrospora* (Degel.) Coppins & James and *P. chlorospila* (Nyl.) Arnold, and differing in having abruptly contracted ends. They almost look like a small cylinder with two cones fitted into

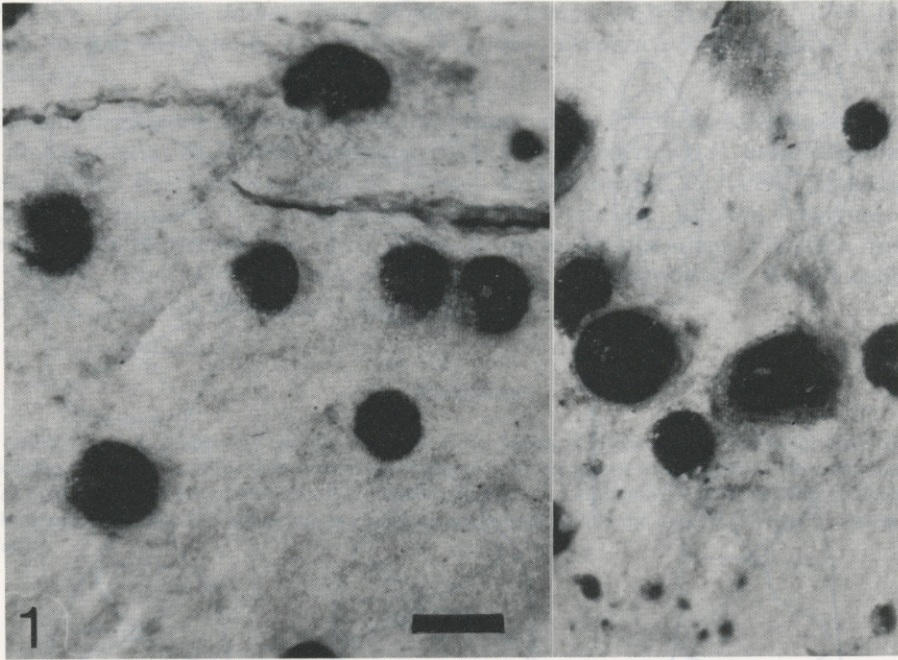


Fig. 1. *Pyrenula kakouettae* Sérusiaux & Diederich. Scale = 1 mm.

both ends. *Pyrenula acutalis* R.C. Harris, a recently described species from U.S.A., Louisiana (Harris 1989; Tucker 8461b, NY-holotypus!), has similar spores, albeit smaller ($22\text{-}29 \times 9\text{-}11 \mu\text{m}$). *P. acutalis* is however very different: it has smaller perithecia, numerous and sometimes contiguous on the thallus (superficially, this species looks like *P. chlorospila*) and its hymenium is interspersed with oil droplets near the ostiole.

Four different spore types are encountered in European *Pyrenula* (all species have 3-septate spores) (fig. 2):

- (a) elliptical, pale brown or hyaline, rather small spores with elliptical lumina [ex.: *P. laevigata* (Pers.) Arnold];
- (b) elliptical to almost cylindrical, brown, medium-sized spores with lumina elliptical to rhomboid, with terminal cell pressed against the exospore [ex.: *P. pseudobufo* (Rehm) R.C. Harris];
- (c) elliptical, brown, long and large spores with rhomboid, diamond-shaped lumina, inflated at the septa [ex.: *P. chlorospila* (Nyl.) Arnold and *P. macrospora* (Degel.) Coppins & James];
- (d) almost cylindrical, brown, long and large spores with ovoid-rhomboid lumina, abruptly contracted at both ends [*P. kakouettae*].

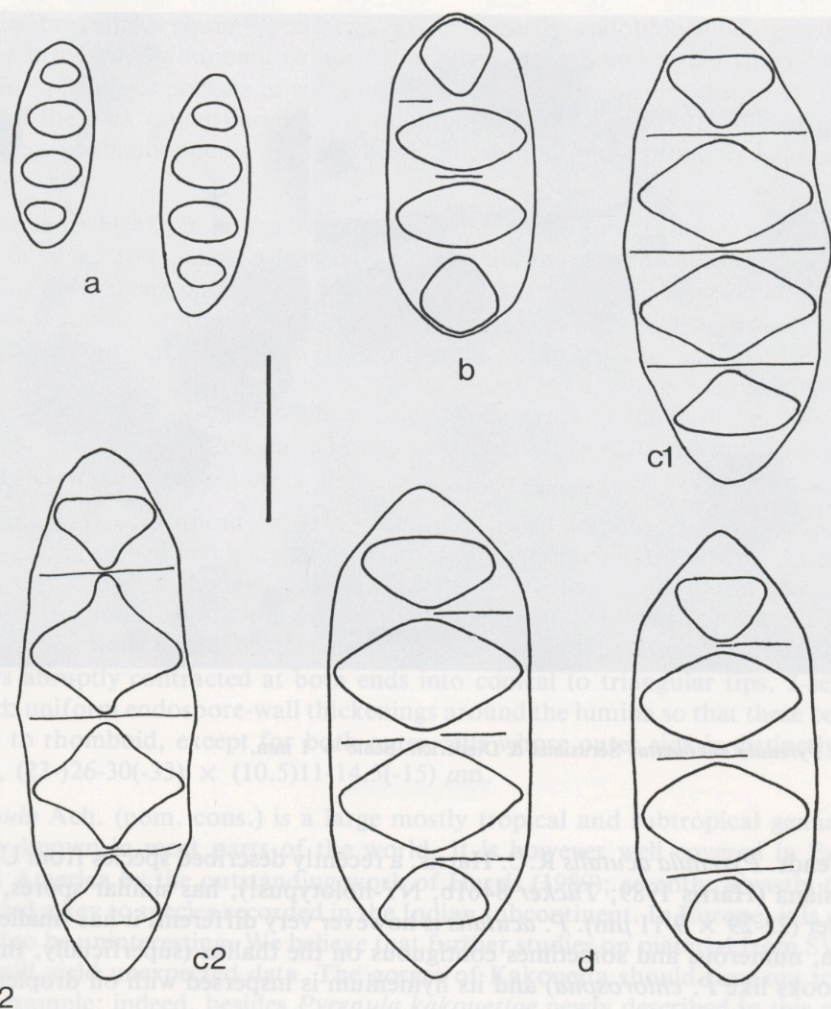


Fig. 2. Spores-type of *Pyrenula* from Europe. a: *P. laevigata*; b.: *P. pseudobufonia*; c: *P. chlorospila* (c1) and *P. macrospora* (c2); d: *P. kakouettae*. Scale = 10 μ m.

A further collection from Kakouetta (16.7.90, *Diederich* 9418, herb. *Diederich*) might also be referred to *P. kakouettae*: it was collected on *Sorbus aucuparia*; the involucrellum is very thick on lateral parts of the perithecia, as well as around the ostiole but is very thin at their basis. In cross sections, they are therefore quite different from typical *P. kakouettae*; these features however might result from the very different mechanical characteristics of the *Sorbus* bark. The collection is too scanty to reach a final decision.

Additional specimens examined: Same locality as the type, 7 & 8.1985, *Sérusiaux*

7695 (LG); 10.7.1989, James, Rose, Vivant & Sérusiaux 10536 (LG); 26.7.1990, Diederich 9439 & 9440 (herb. Diederich); 17.7.1991, Diederich 9572 & Etayo (herb. Diederich).

Specimens illustrated: *Pyrenula laevigata*: France, dépt. Pyrénées-Atlantiques, Gorges de Kakouetta, 26.7.1990, Diederich 9424 (herb. Diederich). *P. pseudobufonia*: France, dépt. Pyrénées-Atlantiques, Gorges de Kakouetta, 26.7.1990, Diederich 9423 (herb. Diederich). *P. chlorospila*: España, Asturias, Reserva Nacional de Sueve, 8.1987, Sérusiaux s.n. (LG). *P. macrospora*: France, dépt. Finistère, forêt du Cranou, 10.4.1970, Lambinon 70/294 (LG). *P. kakouettae*: Type-locality, 26.7.1990, Diederich 9439 (herb. Diederich).

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References

- AWASTHI, D.D. (1991): A Key to the Microlichens of India, Nepal and Sri Lanka. - *Bibl. Lich.* **40**, 337 pp. + addendum. Cramer, Berlin & Stuttgart.
- HARRIS, R.C. (1989): A Sketch of the Family Pyrenulaceae (Melanommatales) in Eastern North America. - *Mem. New York Bot. Gard.* **49**: 74-107.
- SÉRUSIAUX, E. (1991): *Porina rosei* sp. nov., une espèce nouvelle d'Europe Occidentale. - *Cryptogamie, Bryol. Lichénol.* **12**: 31-39.