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Autor: Raitviir, A. / Sacconi, S.
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Some Interesting Hyaloscyphaceae from North Italy. 2.

A. Raitviir

Institute of Zoology and Botany
21, Vanemuise Street, SU-202400
Tartu, Estonia

S. Sacconi

Via Repubblica 5, I-43045 Fornovo Taro
Italy

Summary. The authors describe and illustrate 4 species of the genus *Lachnum* from North Italy. *Lachnum elongatisporum* Baral in Raitv. & Sacconi and *L. saccardoi* Raitv. & Sacconi are described as new ones. Two arcto-alpine species *L. altaicum* (Raitv.) Huhtinen and *L. pudicelloides* (Raitv.) Raitv. are reported firstly from the Italian Alps.

Zusammenfassung. Die Verfasser beschreiben und illustrieren vier in Norditalien gesammelte Arten aus der Gattung *Lachnum*. *Lachnum elongatisporum* Baral in Raitv. & Sacconi und *L. saccardoi* Raitv. & Sacconi sind neu beschriebene Arten. Die zwei arcto-alpinen Arten *L. altaicum* (Raitv.) Huhtinen und *L. pudicelloides* (Raitv.) Raitv. wurden erstmals in den italienischen Alpen gefunden.

Riassunto. Gli autori descrivono e illustrano 4 specie del genere *Lachnum* del Nord Italia. Sono descritte come nuove *Lachnum elongatisporum* Baral in Raitv. & Sacconi e *L. saccardoi* Raitv. & Sacconi. Le due specie arcto-alpine *L. altaicum* (Raitv.) Huhtinen e *L. pudicelloides* (Raitv.) Raitv. sono state segnalate, per la prima volta, nelle Alpi italiane.

Résumé. Quatres espèces de *Lachnum* récoltées en Italie du Nord sont décrites et illustrées. *Lachnum elongatisporum* Baral in Raitv. & Sacconi et *L. saccardoi* Raitv. & Sacconi sont deux espèces nouvelles. Les espèces arcto-alpines *L. altaicum* (Raitv.) Huhtinen et *L. pudicelloides* (Raitv.) Raitv. sont signalées pour la première fois dans les alpes Italiennes.

The present report continues a series of studies on the Hyaloscyphaceae based on the collections made in the Italian Alps by the second author. All the cited specimens are deposited in TAA and in the personal herbarium of Silvio Sacconi. The dimensions of microscopic features are indicated as they were measured from material resoaked in 5 per cent solution of KOH in distilled water.

Lachnum altaicum (Raitv.) Huhtinen, Naturaliste can. (Rev. Ecol. Syst.), **112**: 500, 1985.

Syn.: *Dasyscyphus altaicus* Raitv., Fol. Crypt. Est. 9: 5, 1977.

Apothecia superficial, solitary, scattered or occurring in small groups,

seated on a long stipe, 0.3–1 mm in diameter. Disc concave, whitish to pale cream coloured, not changing after drying. Receptacle cupulate, white, not darkening with age or after drying in colour, externally covered by white hairs with particularly hairy margin; stipe cylindrical, straight, slender, usually longer than diameter of apothecium, covered by short hairs. Hairs cylindrical, straight, with clavate or capitate tips, thin walled, hyaline, usually 2-septate, granulate, bearing no crystals but sometimes irregularly encrusted with pieces of amorphous matter or bearing aggregations of colourless amorphous matter on their tips, 75–85 μm long, 3–3.7 μm in diameter, apically swollen up to 4.5–6 μm in diameter. Ectal excipulum consists of textura prismatica, cells hyaline, thin-walled, 7.5–11 \times 6–8.5 μm . Medullary excipulum thin, consists of loosely intervoven textura intricata. Asci arising from croziers, cylindric clavate with iodine positive apical pore, 8-spored, with biseriate arrangement of spores, 50–60 \times 4–5 μm . Ascospores narrowly fusoid, equilateral or slightly inequilateral, straight to slightly curved, aseptate, eguttulate, 13.5–20 \times 1.5–2 μm . Paraphyses lanceolate, aseptate or 1–3-septate, exceeding the asci up to 20 μm , 3–5 μm wide. (Fig. 1).

Growing on dead stems of dicotyledonous herbaceous plants.

Specimens examined: on dead stems of a dicotyledonous herbaceous plant, Eastern Alps, 1500 m, 25. 06. 1988., S. Sacconi; on dead stems of *Rumex* sp. (?), Eastern Alps, 1800 m, 25. 06. 1988, S. Sacconi.

This species was described from the Altai Mountains and it is widely distributed in the mountains of Middle Asia and South Siberia. It seems to be overlooked in the Alps until now. In the examined specimen about 60 per cent of paraphyses has no septa, the remaining ones are characterized predominantly by a single transverse septum but a few 3-septate paraphyses were also seen.

Lachnum elongatisporum Baral in Raitv. & Sacconi stat. et nomen nov
Basionymum: *Dasyscypha carneola* (Sacc.) Sacc. var. *longispora* Dennis, Mycol.
Papers 32: 20, 1949.

Lachnum elongatisporum Baral, Beihefte zur Zeitschr. Mykol. 8: 75, 1985 (nomen provisorum).

Apothecia superficial, scattered or occurring in small groups, seated on a long stipe, 0.3–0.5 mm in diameter. Disc concave, pale pinkish-yellow, darkening when aged and after drying. Receptacle cupulate, whitish, darkening after drying and turning pale brownish, externally covered by white to pale yellowish hairs with particularly hairy margin. Stipe cylindrical, straight, slender, usually longer than diameter of apothecium, covered by short hairs. Hairs cylindrical to slightly tapering, straight to slightly flexuous, with rounded tips, thin-walled, hyaline to light yellowish when fresh, turning

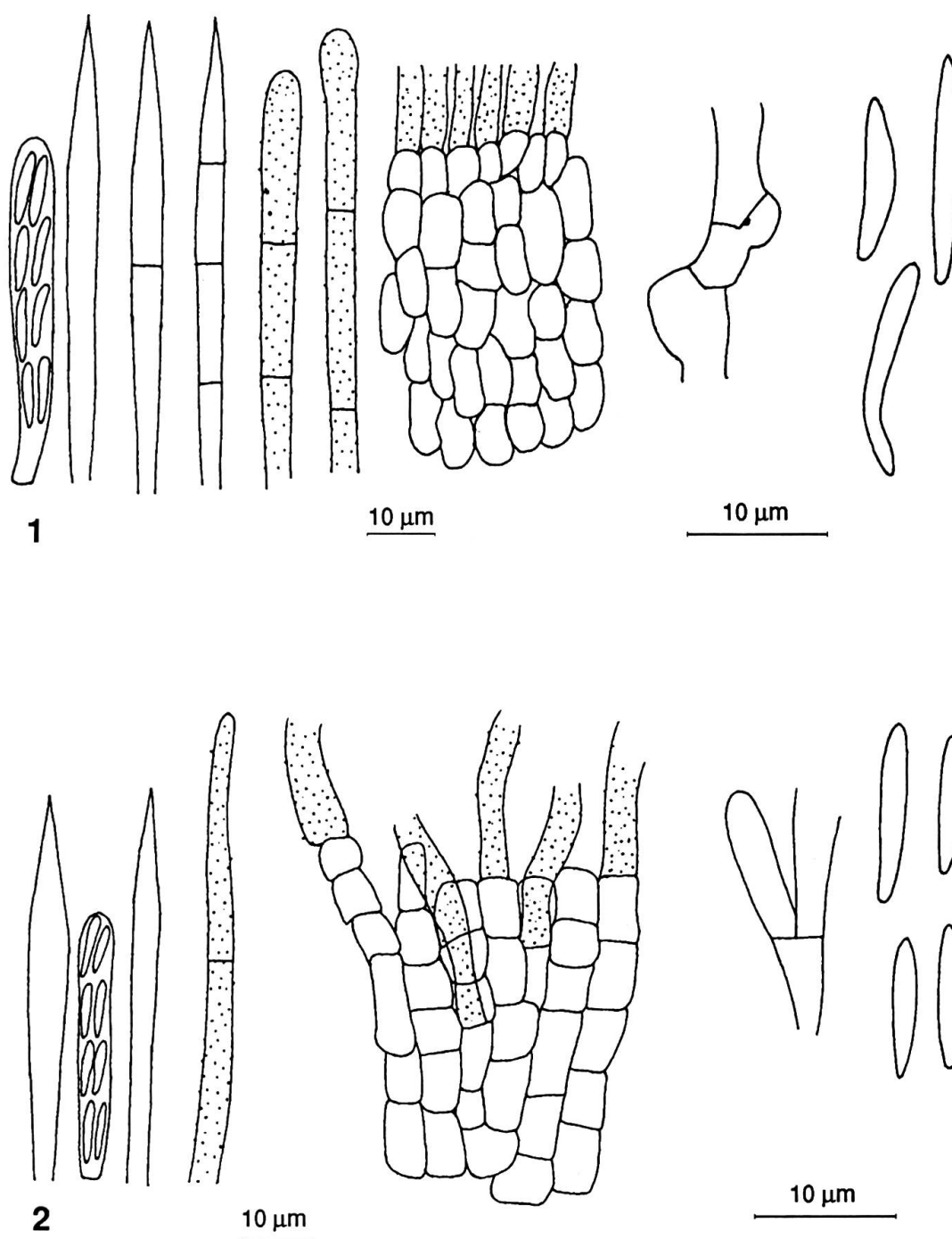


Figure 1: *Lachnum altaicum*. Ascus with spores, 3 paraphyses, 2 hairs, phragm of ectal excipulum. ascus basis with croziers and 3 spores.

Figure 2: *Lachnum elongatisporum*. Ascus with spores and paraphyses, hair, detail of ectal excipulum,, ascus basis with simple septa and 4 spores.

pale brownish when dry, aseptate to 2-septate, granulate, bearing no crystals, 65–75 μm long, 3–4 μm in diameter. Ectal excipulum consists of textura prismatica, cells hyaline, thin-walled. Medullary excipulum thin, consists of loosely intervoven textura intricata. Asci arising from simple septa, cylindric clavate with iodine positive apical pore, 8-spored, with biseriate arrangement of spores, 35–45 \times 3.5–4.5 μm . Ascospores narrowly fusoid, equilateral or slightly inequilateral, straight to slightly curved, aseptate, eguttulate, 7.5–13 \times 1–1.5 μm . Paraphyses lanceolate, aseptate, exceeding the asci 15–20 μm , 4–5.2 μm wide. (Fig. 2).

Growing on dead culms and leaves of grasses.

Specimen examined: on dead culms of *Holcus annuus* Salzm. ex C.A. Mey (*H. setosus* Trin.), Eastern Alps, 1500 m, 25. 06. 1988., S. Sacconi.

This taxon, described by Dennis (1949) as a variety of *Dasyscypha carneola* (Sacc.) Sacc. deserves certainly the specific rank. Baral (Baral and Krieglsteiner 1985) has come to the same conclusion also indicating that the name *Lachnum longisporum* is already preoccupied by *Lachnum longisporum* Karst. He has proposed, however, only a provisory name for this species, which is validated in the present paper.

L. elongatisporum is a good and easily recognizable species. *L. controversum* (Cooke) Rehm which has also darkening apothecia differs in its more robust apothecia seated on short and stout stalk and also in longer (45–50 μm) asci, whereas *L. pallide-roseum* (Saut.) Rehm which has long stalked apothecia with pinkish disc is described as not darkening after drying and with apically slightly swollen hairs 5–6 μm in diameter.

Lachnum pudicelloides (Raitv.) Raitv., Fol. Crypt. Est. 17: 3, 1984.

Syn.: *Dasyscyphus pudicelloides* Raitv., Fol. Crypt. Est. 9: 5, 1977.

Apothecia superficial, scattered or occurring in small groups, seated on a long stipe, 0.3–0.8 mm in diameter. Disc concave, whitish to pale cream coloured, not changing after drying. Receptacle cupulate, white, not darkening with age or after drying in colour, externally covered by white hairs with particularly hairy margin; stipe cylindrical, straight, slender, usually longer than diameter of apothecium, covered by short hairs. Hairs cylindrical, straight, with slightly capitate tips, thin walled, hyaline, usually 2–3-septate, granulate, bearing no crystals but sometimes irregularly encrusted with pieces of amorphous matter, 50–75 μm long, 3–4 μm in diameter, apically swollen up to 4.5 μm in diameter, marginal hairs sometimes slightly longer, 70–100 μm long. Ectal excipulum consists of textura prismatica, cells hyaline, thin walled. Medullary excipulum thin, consists of loosely intervoven textura intricata. Asci arising from simple septa, cylindric clavate with iodine positive apical pore, 8-spored, with biseriate arrangement of spores, 45–55 \times 4–5 μm . Ascospo-

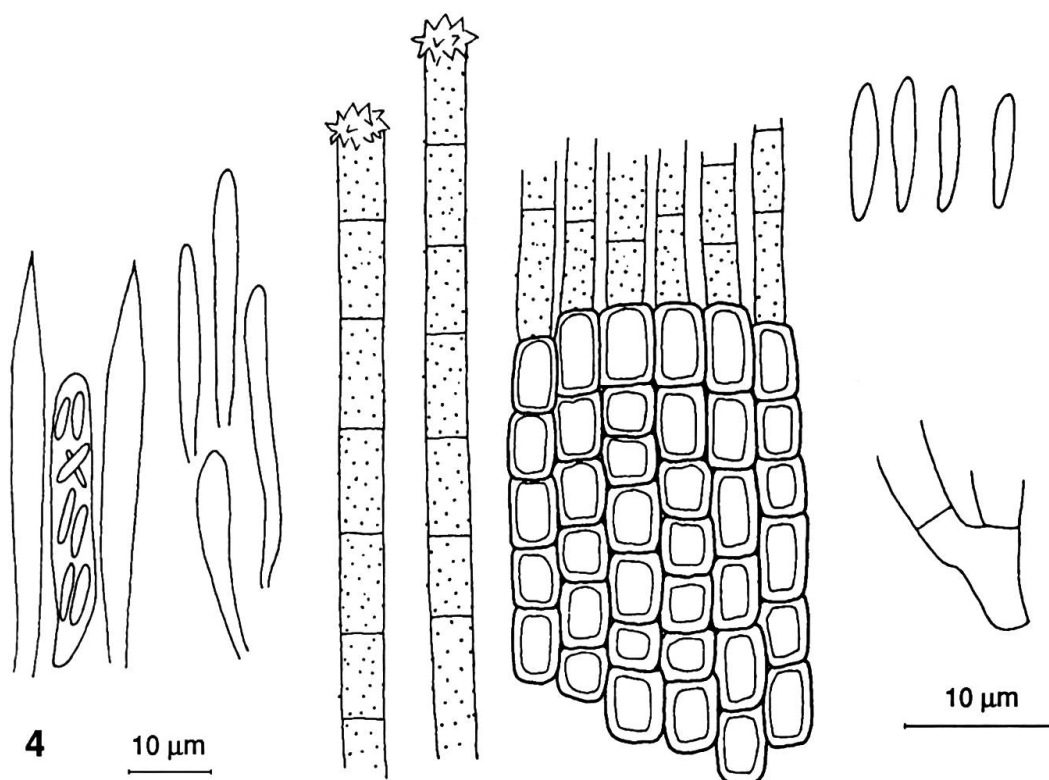
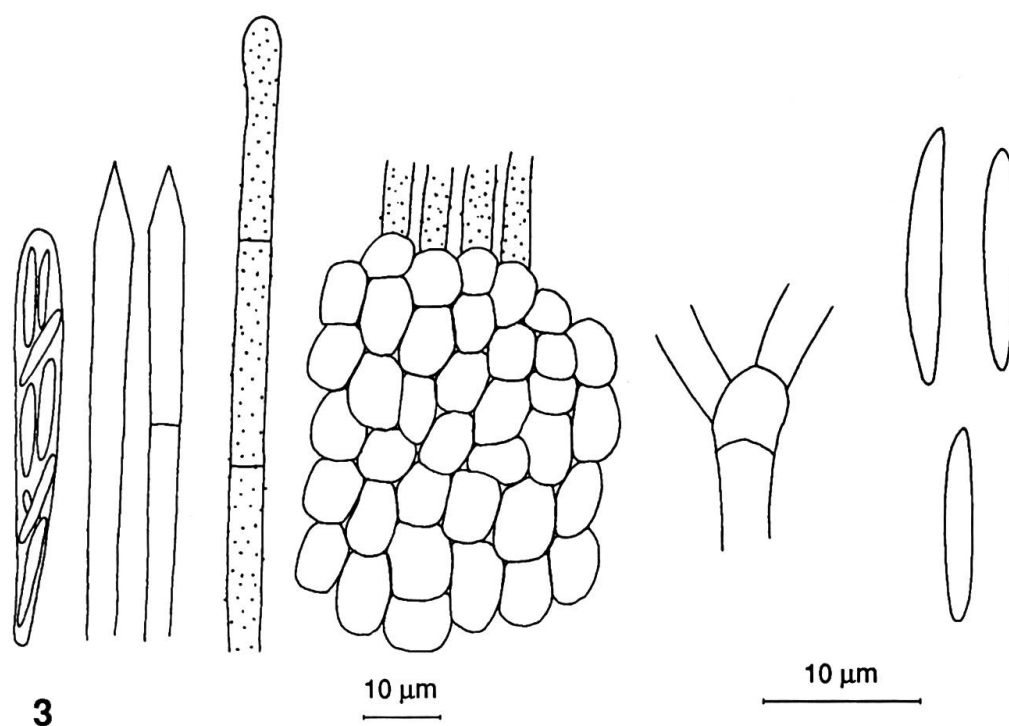


Figure 3: *Lachnum pudicelloides*. Ascus with spores, 2 paraphyses, a hair, ascus basis with simple septa and 3 spores. **Figure 4:** *Lachnum saccardoi*. An ascus with spores and paraphyses, two types of hairs, detail of ectal excipulum, ascus basis with simple septa and 4 spores.

res cylindric fusoid to fusoid, equilateral or slightly inequilateral, straight to slightly curved, aseptate, eguttulate, $12-15(-18) \times 1.5-2 \mu\text{m}$. Paraphyses lanceolate, mostly aseptate, rarely 1-septate, exceeding the asci $15-20 \mu\text{m}$, $4-5 \mu\text{m}$ wide. (Fig. 3). On dead culms of grasses.

Specimen examined: on dead culms of a grass, Dolomites (Eastern Alps), 1400 m., 02. 06. 1987., S. Sacconi.

This species was described from the subarctic Eastern Europe and it has a wide arcto-alpine distribution in North-East Europe, North-East Asia and Middle Asia. It is rather similar to the previous species but its apothecia are not darkening with the age, its hairs are slightly capitate not tapering and it has distinctly longer asci and longer spores. *L. nardi* Rehm is also distinct in its darkening apothecia and considerably shorter spores.

Lachnum saccardoi Raitv. et Sacconi species nova

Apothecia superficilia, substipitata vel breviter stipitata, 0.25 mm in diametro, cupulata, extus albido-grisea, densiter pilosa, albido-grisea, hymenio cremeo. Pili diffformes. Pili typici cylindranei, hyalini, subcrassiter tunicati, 6-7-septati, minute granulati, apicibus crystalliferis, $100-170 \times 4-4.5 \mu\text{m}$. Pili hyphoidei cylindraneo-clavati, aseptati solidi vel 1-septati celluli apicali solido, $25-45 \times 1.5-2.8 \mu\text{m}$. Excipulum ectale ex cellulis prismaticis hyalinis crassiter tunicatis compositur. Excipulum medullosum ex textura intricata compositur. Asci cylindraneo-clavati, poro iodo coerulescentia, octospori, oblique uniseriati vel irregulariter biseriati, $35-40 \times 3-4 \mu\text{m}$. Ascosporae fusioideae, aseptatae, eguttulatae, strigatae, $6-11 \times 1.2-1.4 \mu\text{m}$. Paraphyses lanceolatae, ascos $15-25 \mu\text{m}$ superantes $3.5 \mu\text{m}$ in diametro.

Ad graminum siccum crescit.

Holotypus: ad graminum siccum, Dolomites (East Alps), 1700 m, 23. 07. 1987., S. Sacconi

Lachnum roseum (Rehm) Rehm similis pilis difformibus, ascis et sporis brevis differt.

Apothecia superficial, scattered, substipitate to shortly stipitate, 0.25 mm in diameter. Disc deeply concave to concave, cream-beige coloured, not changing with age and after drying. Receptacle subsphaerical to deeply cupulate, whitish-gray, not changing with age and after drying in colour, externally densely hairy with particularly hairy margin. Stipe cylindrical, straight, shorter than diameter of apothecium, almost naked or only apically covered by short hairs, 0.12 mm long, 0.08 mm in diameter. Hairs of two kind. The typical hairs are cylindrical, straight, with rounded or slightly swollen tips, firm-walled with thin septa, hyaline, 6-7-septate, finely granulate, bearing crystals at their tips, $100-170 \mu\text{m}$ long, $4-5.5 \mu\text{m}$ wide. The other kind of hairs cover the flanks of the apothecium intermixed with the typical hairs.

They are cylindric-clavate, hyaline, aseptate and totally solid or 1-septate with solid apical cell, $25\text{--}45 \times 1.5\text{--}2.8 \mu\text{m}$. Ectal excipulum consists of textura prismatica, cells hyaline with restricted lumen and appearing thick-walled, $7.5\text{--}11 \times 6\text{--}7.5 \mu\text{m}$, sometimes almost cuboid and arranged in regular rows, $8.5 \times 8.5 \mu\text{m}$. Medullary excipulum comparatively thin, consists of textura intricata. Asci arising from simple septa, cylindric-clavate, with iodine positive apical pore, 8-spored, with obliquely uniseriate or irregularly biseriate arrangement of spores, $35\text{--}40 \times 3\text{--}4 \mu\text{m}$. Ascospores narrowly fusoid, aseptate, eguttulate, straight, equilateral, $6\text{--}11 \times 1.2\text{--}1.4 \mu\text{m}$. Paraphyses lanceolate, aseptate, containing small guttules, exceeding the asci $15\text{--}25 \mu\text{m}$, $3.5 \mu\text{m}$ in diameter. (Fig. 4).

Growing on dead leaves of grasses.

Specimen examined: on dead leaves of a grass, Dolomites, Eastern Alps, $1600 \mu\text{m}$, 23. 07. 1987., S. Sacconi (Holotypus in TAA, isotypus in herbarium of S. Sacconi)

This species resembles superficially *Lachnum roseum* (Rehm) Rehm from which it differs in shorter asci and spores. The structure of ectal excipulum which is composed of seemingly thick-walled cells arranged into more or less regular rows is also quite different and in fact a rather uncommon feature among the temperate species of *Lachnum*. Such excipular cells are, however, described and illustrated from several tropical and subtropical species of *Lachnum* e.g. *L. abnormis* (Mont.) Haines & Dumont and *L. sclerotii* (A.L. Smith) Haines & Dumont (Spooner 1987; Haines and Dumont 1984).

Lachnum radovii Svrček, Ceska Mykologie 38: 201 (1984) is also very similar to our species having the same structure of ectal excipulum. It differs, however, from *L. saccardoi* turning reddish brown when aging and after drying and having brownish red pigment in the walls of the cells of the ectal excipulum. Also, *L. radovii* has longer asci and shorter, more sparsely septate hairs covered by more irregular crystal aggregations than *L. saccardoi*.

The arrangement of excipular cells into more or less parallel rows suggests that this species belongs in fact to the subgenus *Belonidium* of the genus *Lachnum* (Raitviir 1987). Baral (Baral and Krieglsteiner 1985) has created three new genera to accommodate the species of *Lachnum* with thick-walled hairs. According to his classification this species should be placed in *Incrucipulum* Baral for which the correct name is *Belonidium* Mont. & Dur. as pointed out by Raitviir (1987). The authors agree that the taxonomy and nomenclature of the genus *Lachnum* in its current broad sense needs a critical revision. At the moment they, however, prefer to use the name *Lachnum* for the genus in its broadly defined sense. A very unique feature of *L. saccardoi* is the presence of short solid hyphoid hairs on the flanks of the apothecium. It should be

mentioned, however, that these hairs (or hyphal outgrowths) cannot be observed in all apothecia and their taxonomic significance remains unclear.

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