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Racomitrium lusitanicum (Musci, Grimmiaceae), a new species from Europe

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ABSTRACT: *Racomitrium lusitanicum* Ochyra & Sérgio is described and illustrated as a new species from eight collections from north-western and central Portugal. This moss is an aquatic species readily recognized by its pilose leaves with salient, broad, swollen and 2–4-stratose limbidia extending from the apex to the base, smooth or slightly pseudopapillose lamina cells and moderately strong costa, 60–80 μm wide at the base that is bistratose and weakly dorsally convex in the distal part as well as by its narrowly oblong-cylindrical capsules with the long rostrate operculum and spherical, brownish and finely papillose spores, 14–16 μm wide. The affinities of this new species are briefly assessed and it is tentatively placed in the *R. heterostichum* group of section *Laevifolia*.

KEY WORDS: Bryophyta, Grimmiaceae, taxonomy, distribution, endemic, Portugal

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INTRODUCTION

Racomitrium Brid. is a medium-sized genus consisting of several dozens of species found throughout the world, with special preference for cool and temperate areas of the both hemispheres and altimontane elevations in the tropics. The real number of species in the genus still cannot be precisely established since no full revision of *Racomitrium* is available. It is now generally known that the number of species described in most larger genera of mosses decreases, often dramatically, in the result of detailed and careful taxonomic revisions. However, the case of *Racomitrium* is rather non-typical and an opposite tendency can even be observed. A revision of the type section of *Racomitrium* (Frisvoll 1983) or section *Laevifolia* (Kindb.) Nog. in the Northern Hemisphere and Central America (Frisvoll 1988) showed that necessary reductions of several species names to synonymy are balanced or even outnumbered by ressurection of several untimely killed species or description of many new species. It proved that costal structure is a consistent feature of most species and it should be primarily used for their discrimination, whereas such characters as the type of branching, the presence and shape of hair-points or the size and

shape of lamina cells which had generally been used by older students of the genus are in the main less important in taxonomy of *Racomitrium*.

In 1984 a *Racomitrium* was collected from Serra do Gerês in the Province of Minho in north-western Portugal which at first sight was taken for *R. heterostichum* (Hedw.) Brid. Several years later a similar material was rediscovered in the same province at some stations in Parque Natural da Peneda-Gerês. Moreover, additional search through the bryophyte herbarium at Lisboa (LISU) yielded one more specimen evidently belonging to this species from Serra do Estrela in the Province of Beira Alta in central Portugal. It was collected by F. Welwitsch in 1848 and subsequently determined by P. Coutinho as *R. affine* (Web. & Mohr) Lindb. A thorough examination of the material revealed that a species of section *Laevifolia* was at hand, but no name could be applicable for it, either from among European or extra-European taxa.

The European species of section *Laevifolia* of *Racomitrium* have already been revised taxonomically by Frisvoll (1988) and additionally Muñoz (1991) has reviewed this section for the Iberian Peninsula. The Portugese plant cannot be placed in the classification scheme proposed by these authors and is unlike any other species of this genus of which we are aware and evidently represents a new species. In this way the number of *Racomitrium* species in Europe increased by one distinct species (Corley & Crundwell 1991) and now totals eighteen species in comparison to ten species included in the first checklist of the mosses of the continent (Corley *et al.* 1981).

DESCRIPTION

Racomitrium lusitanicum Ochyra & Sérgio, *sp. nov.* (Figs 1–2)

Mediocre, caespitibus laxis, obscure viridibus vel olivaceo-viridibus, intus fuscescentibus vel rubello-fuscis, rare fusco-viridibus vel fuscis in toto. Caulis erectus vel prostratus, 1.5–3.5 mm altus, parce vel valde irregulariter ramificatus, basi radiculosus, radiculis laevis, pallide fuscis, in sectione transversali rotundatus, e cellulis externis 2–3-stratosis, minoribus, luteo-fuscis, parietibus crassis, internis 4–5-stratosis, magnis stramineis vel hyalinis, parietibus tenuibus, fasciculo centrali nullo, pilis axillaribus multis, hyalinis, 10–13-cellularibus. Folia dense conferta, rigida, sicca erecta appressaque, humida erecto-patentia, 2.0–3.0 mm longa (sine pilo hyalino), 0.4–0.5(–0.75) mm lata, anguste lanceolata vel ovato-lanceolata, auriculata, longe acuminata, frequentissime in pilum hyalinum, 0.1–0.5 mm longum, denticulatum producta, marginibus integerrimis, e basi ultra medio unilateraliter recurvis, superne erectis vel deflexis, ubique 2–4-stratoso limbatis, limbis crassis, 3–multo-seriatis, cellulis laminis laevibus vel pseudopapillosibus, parietibus longitudinalibus valde incrassatis nodulosisque, supra bistratosibus, infra unistratosibus saepe radiis bistratosis praeditis, superioribus brevioribus, 8–15 μm longis, 5–8 μm latis, inferioribus rectangularibus vel linearibus, 15–55 μm longis, basalibus breviter rectangularibus, 20–25 μm longis, 7–9 μm latis, luteis, parietibus mediocre incrassatis, porosis, cellulis alaribus magnis, ovalis vel breviter rectangularibus, decurrentibus, aliquando non distinctis, costis solitaribus, validis, inferne 60–80–100 μm, superne 50–70(–80) μm latis, luteis vel luteo-fuscis, canaliculatis, dorse convexis, in sectione transversali bistratosibus solum inferne 3–5-stratosibus. Dioicum. Folia

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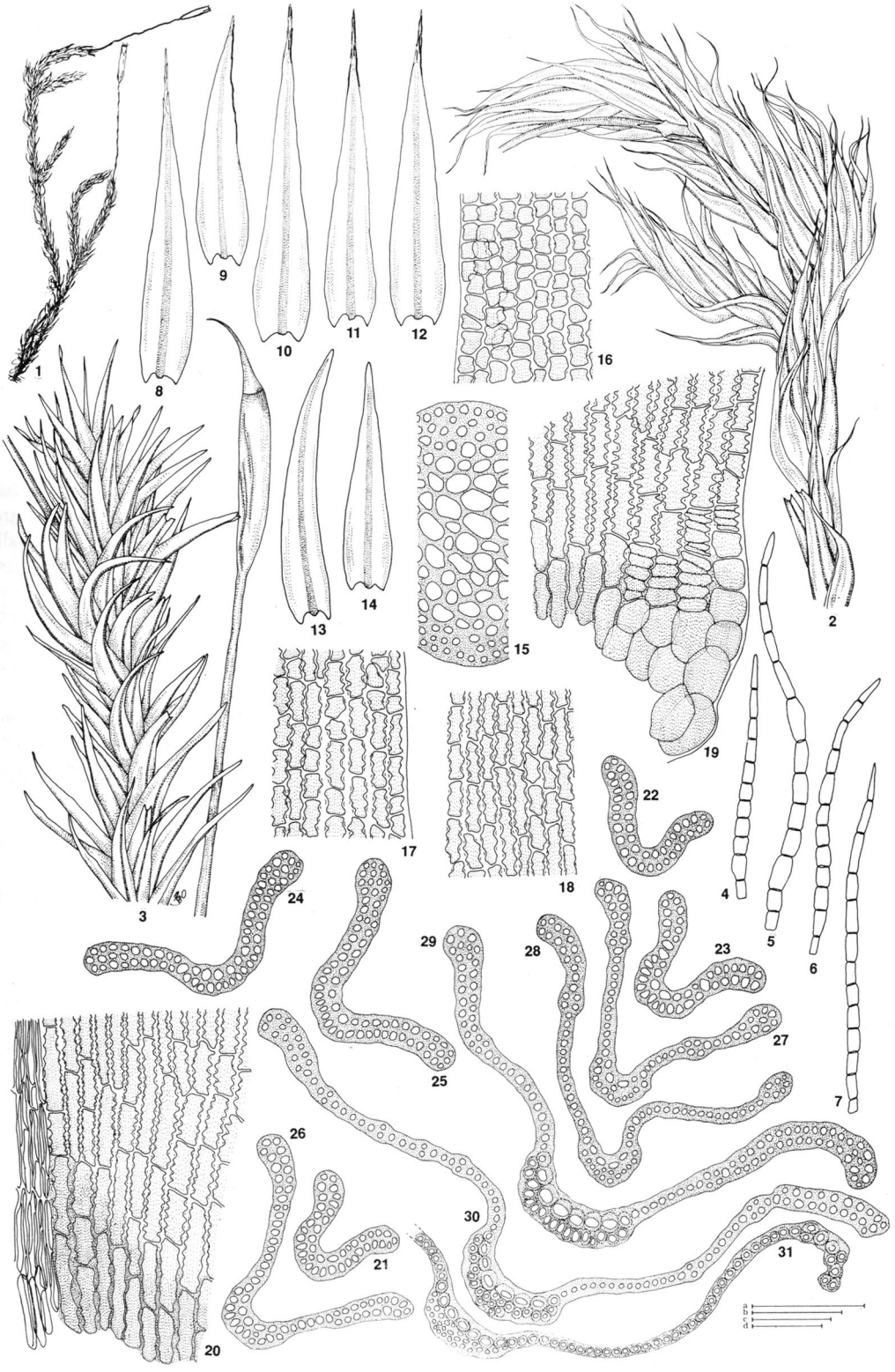
Fig. 1. *Racomitrium lusitanicum* Ochyra & Sérgio. 1: habit; 2: portion of stem with branches when dry; 3: portion of stem and branches of epilose ecad and sporophyte when wet; 4–7: axillary hairs; 8–12: pilose leaves; 13–14: epilose leaves; 15: transverse section of the stem; 16: upper lamina cells; 17: lamina cells in the middle of the leaf at the margin; 18: lamina cells in the mid-leaf; 19: alar cells; 20: basal paracostal cells; 21–31: transverse sections of leaves from the apex to the base. Scale bars: a – 1 mm (8–14); b – 1 cm (1); c – 0.5 cm (2–3); d – 100 μm (4–7 & 21–31) and 50 μm (15–20) (all drawn from isotype – KRAM-B).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perichaetialia interna valde modificata, inferne vaginata, lutescenti-hyalina vel hyalina, chlorophyllosa, 1.8–2.0 mm longa, 0.7–1.0 mm lata, cellulis leptodermaticis. Sporophyta solitaria vel rarissime geminata, cladogena. Setae brunnescentes, laeves, siccae dextrorsae flexuosaeque, 4–7 mm longae. Capsula anguste oblongo-cylindrica, cylindrica vel anguste pyriformis, 2.1–3.0 mm longa, 0.7–1.0 mm lata, erecta, brunnescens vel fusca, ore concolor. Operculum 1.3–1.6 mm longum, rostratum, obliquum, apice curvatum. Calyptra e basi conico-mitraeformi lobata in subulam rectam producta. Annulus latus, biseriatus, deciduus. Peristomii dentes 16, membrana basilari lutea vel fuscescenti-lutea, minutissime papillosa vel laevis, ad 40 µm supra capsulae orificium emergente suffulti, luteo-fuscae, siccitate erecti vel patentes, 230–260 µm longi, papillosi, aut irregulariter in crura 2–3 inaequalia a medio fissi aut cribrosi aut perforati longitudinaliter lineis medianis. Sporae sphaericae, obscurae fuscae (10.0–)14.0–16.0(–20.0) µm latae, tenuiter verrocosae.

Plants medium-sized in dull, rigid, loose tufts, dark green to olivaceous-green above, brownish or reddish-brown below, rarely brownish-green to brownish throughout. Stems erect or prostrate with ascending, curved apices, 1.5–3.5 cm long, sparsely to much irregularly branched, often with a few tuft-like horizontal branchlets on the stems and developed branches, densely tomentose at base with clusters of smooth, branched, brown rhizoids, in transverse section round, without central strand, composed of 2 or sometimes 3 layers of small, thick-walled, yellow-brown cells surrounding 4–5 layers of large, hyaline or yellowish medullary cells with thin to moderately thick walls. Axillary hairs numerous in the axils between the stem or branches and the leaves, hyaline 10–13-celled, usually with short basal cells and elongated upper cells. Leaves rigid, erect, straight or occasionally somewhat falcate, tightly appressed to the stem and with more or less reflexed apex when dry, erect-spreading when moist, 2.0–3.0 mm long without hair-point, 0.4–0.5(–0.75) mm wide in the widest part above the base, narrowly lanceolate to ovate-lanceolate, with distinct, shortly decurrent auricles, strongly keeled throughout, gradually long acuminate, tapering to a short, hyaline hair-point or to an obtuse, muticous apex, especially on the lower leaves; hair-points 0.1–0.5 mm long, straight or often recurved when dry, sharply toothed to almost smooth, usually distinctly decurrent down margin of lamina; margins entire, erect or somewhat deflexed above, more or less narrowly recurved on one side below to the base, erect and plane on the other side, distinctly bordered with 3 to many rows of 2–3, occasionally 4-stratose cells forming a distinct, swollen limbidium extending from the base up to the apex; costa single, clearly demarcating from lamina cells below and usually gradually merging into lamina cells above, reaching the apex or usually vanishing below in bistratose lamina cells, intensively yellow to yellow-brown, ventrally canaliculate throughout and distinctly convex on the dorsal side, in lower and central part 60–80(–100) µm wide, somewhat thinner, 50–70(–80) µm wide, above, in transverse section bistratose almost throughout, only 3–5-stratose in the lowest part, reniform and very prominent dorsally in median and lower part, semicircular or somewhat flat and less prominent dorsally above, composed of larger ventral cells, usually round or elliptic, 5–8 in median and lower part, and smaller dorsal cells; lamina bistratose in upper part, occasionally with narrow unistratose streaks, unistratose in median and lower part with more or less frequent bistratose spots; lamina cells smooth or slightly pseudopapillose, with strongly incrassate and nodulose longitudinal walls and thin, oblique or truncate transverse walls; upper lamina cells subquadrate to short rectangular, 8–15 µm long, 5–8 µm wide, becoming more elongate, 15–30 µm long, in median part, and long rectangular, 25–55 µm long, in lower part; marginal areolation generally opaque and dark-coloured throughout because of the multistratose limbidia composed of quadrate to short rectangular, sometimes transversely rectangular cells; basal cells intensively yellow, short rectangular, 20–25 µm long, 7–9 µm wide, with moderately thickened, porose walls forming a narrow belt usually of 1–3 rows along the insertion or, especially on younger leaves, a small area near the costa and becoming strongly nodulose towards the margins; alar cells deeply yellow to brownish-yellow, enlarged, quadrate to short rectangular, moderately firm-walled, often forming somwewhat inflated and decurrent and auricles, occasionally undifferentiated; marginal cells above alars not or scarcely differentiated.

Dioicous. Perigonia bud-like, 1.0–1.2 mm long; inner perigonial bracts broadly ovate rapidly or gradually narrowed into a broad, short apex, with a single, relatively strong costa reaching the apex, thin, chlorophyllose, yellowish-brown and pellucid below and with normal areolation of thick-walled, short cells in the apex; antheridia few, brownish, claviform, short-stalked; paraphyses few, hyaline,

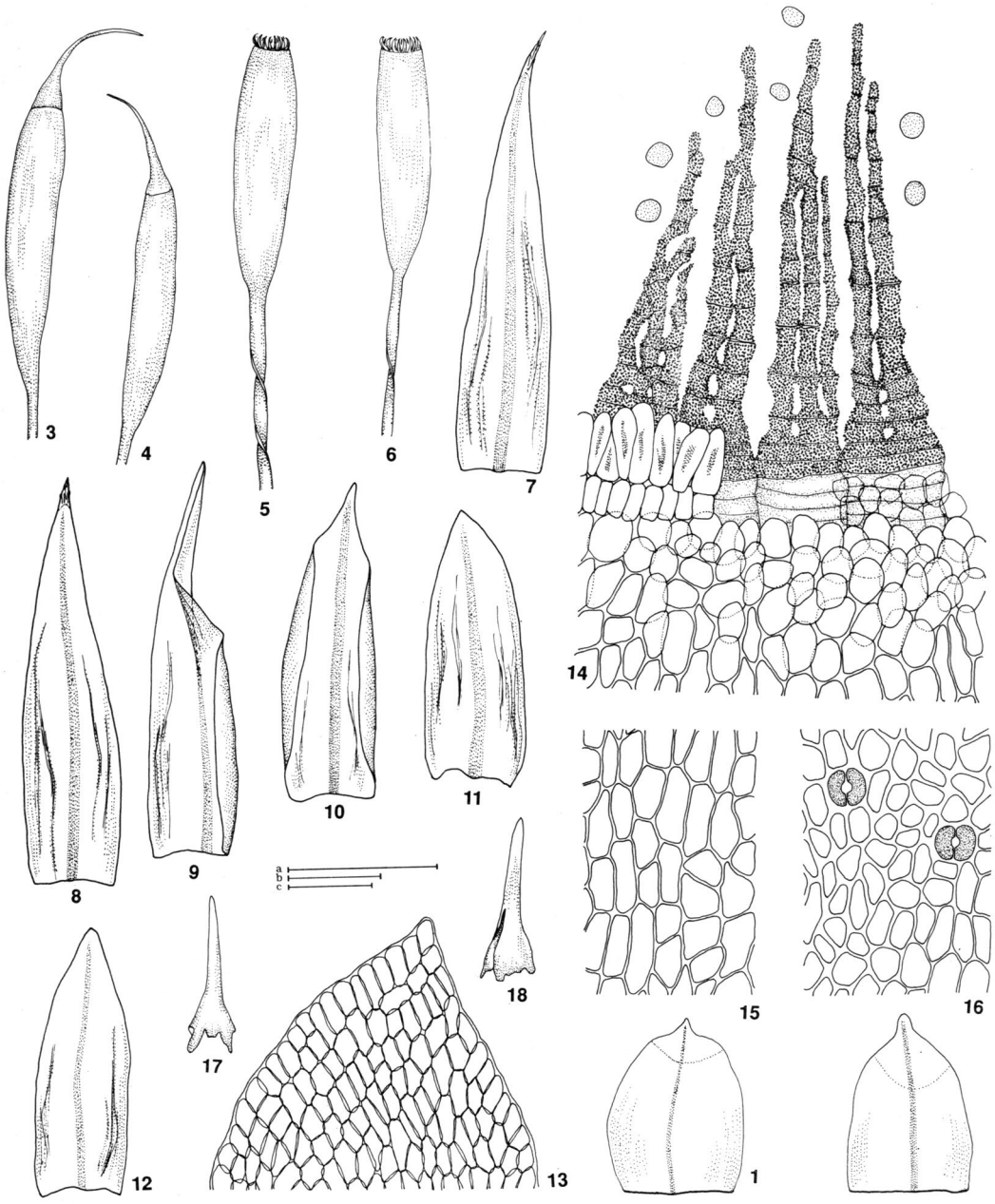

Fig. 2. *Racomitrium lusitanicum* Ochyra & Sérgio. 1–2: inner perigonial bracts; 3–4: operculate capsules when wet; 5–6: deoperculate capsules when dry; 7–9: outer perichaetial leaves; 10–12: innermost perichaetial leaves; 13: apex of the innermost perichatial leaf; 14: portion of the peristome showing the annulus, preperistome and spores; 15: median exothecial cells; 16: exothecial cells at the base of the urn with the stomata; 17–18: calyptrae. Scale bars: a – 1 mm (1–2 & 7–12); b – 100 μm (13–16); c – 1 mm (3–6, 17–18) (all drawn from isotype – KRAM-B).

filiform, reaching beyond the antheridia. Outer perichaetial leaves similar to stem leaves, not squarrose when wet, usually pilose; the innermost perichaetial leaves 2–4, strongly modified, sheathing below, yellowish-hyaline to hyaline, chlorophyllose throughout or close to the apex, 1.8–2.0 mm long, 0.7–1.0 mm wide, with a relatively weak costa vanishing below the apex and areolation of thin-walled cells, rectangular below, oblong-hexagonal to hexagonal above. Sporophytes solitary or occasionally geminate in one perichaetium, terminal on the branches near the apex; setae brown, 4–7 mm long, smooth, twisted clockwise in upper half and usually flexuose or curved when dry; vaginula short, naked; urn erect, narrowly oblong-cylindric to cylindric or narrowly pyriform, sometimes slightly curved, 2.1–3.0 mm long, 0.7–1.0 mm wide, gradually or suddenly narrowed into the seta, not or slightly constricted below the mouth, smooth, light to dark brown, weakly glistening to dull; exothecial cells variable, predominantly elongate mixed with irregular-shaped cells, 13–25 μm wide, 30–70 μm long, thin- to moderately firm-walled, becoming shorter and thick-walled in the neck and isodiametric, reddish-brown in 2–3 rows around mouth; stomata numerous at the extreme base of the urn, bicellular with round pores; operculum 1.3–1.6 mm long, slanted, rostrate and somewhat curved at the apex; calyptra from the conic-mitrate base narrowed to the straight, elongate apex, naked, not plicate; annulus wide, well developed of 2 rows of cells, deciduous. Peristome single; teeth 16, yellowish-brown, erect to widely flaring when dry, densely low-papillose throughout, 230–260 μm long, of 2–3 irregular prongs, usually split above and irregularly cribrose or perforated along the median line below; basal membrane up to 40 μm high, brownish-yellow to yellow, finely papillose to almost smooth; preperistome present consisting of smooth, hyaline membrane closely adhering to the basal membrane. Spores spherical, brownish, finely papillose, (10.0–)14.0–16.0(–20.0) μm wide in longest dimension.

TYPE: PORTUGAL. **MINHO**. Serra do Gerês: Ribeira da Lage, estrada para Leonte, alt. 750 m (UTM grid square 29TNG72), nas rochas; 22.06.1984, *Sérgio & Schumacker 5341* (Holotype: LISU; isotype: KRAM-B).

PARATYPES: PORTUGAL. **MINHO**. Serra do Gerês: Albergaria, alt. 650–700 m (UTM grid square 29TNG72), talude sombrio próximo da água, 22.06.1984, *Sérgio & Schumacker 5367* (LISU, LGHF, KRAM-B). Serra do Gerês: Rio do Forno, alt. 750 m (UTM grid square 29TNG72), 30.03.1989, *I. Melo s.n.* (LISU). Serra do Gerês: Portela do Homem, alt. 1000 m, (UTM grid square 29TNG72), 9.07.1948, *Barros s.n.* (LISU, LISFA) and 23.08.1990, *J. Muñoz 2019* (LISU). Parque Natural da Peneda-Gerês, Lordelo, alt. *ca*. 1000 m (UTM grid square 29TNG54), 9.03.1990, *Sérgio & Séneca 6973* (LISU, KRAM-B). Serra de Castro Laboreiro, Dorna, alt. 850 m (UTM grid square 29TNG65), 11.01.1990, *Sérgio & Séneca 6806* (LISU, PO). **BEIRA ALTA**. Serra da Estrela, Lagoa Escura (UTM grid square 29TPE16), ad rupes, 08.1848, *Welwitsch 55* (LISU-53998, LISU-54000, KRAM-B).

DISCUSSION

Racomitrium lusitanicum is an impressive and almost unmistakable species readily distinguished by its peculiar leaves which are distinctly bordered from the base to the apex by the broad, multiseriate, fleshy and 2–3 or occasionally 4-stratose limbidia. Additionally, the leaf lamina is distally bistratose with only occasional unistratose streaks and unistratose below with frequent bistratose spots and strands and the alar cells form very often enlarged, coloured, somewhat inflated and decurrent auricles. This unique in *Racomitrium* leaf structure brings immediately in mind *R. lamprocarpum* (C. Muell.) Jaeg., another species of moss which was neglected for a long time in Europe (Ochyra *et al*. 1988). Apart from the striking similarity of the leaves both species are aquatics and their range

covers the same regions of northern and central Portugal, although *R. lamprocarpum* has recently been recorded also from several localities in Spain (Casas 1991; Casas *et al*. 1992). Nevertheless *R. lusitanicum* can be at glance distinguished from *R. lamprocarpum* by the presence of the hyaline hair-points at the leaf apices, which are entirely lacking in the latter. Such a situation could also suggest that *R. lusitanicum* is a pilose ecad of *R. lamprocarpum* since in several typically epilose species, for example in *R. obtusum* (Brid.) Brid., occur populations with more or less elaborated hair-points, in the case cited here called fo. *trichophorum* Frisv. (Frisvoll 1988). This assumption can additionally be supported by the occurrence in tufts of *R. lusitanicum* plants entirely lacking the leaves with hair-points which are intermixed with normally pilose plants.

Additionally, there are other characters, both gametophytic and sporophytic, enabling safe and unmistakable recognition of *R. lusitanicum* from *R. lamprocarpum*. Both species can be readily and without mistake distinguished by their spore size. The spores in *R. lusitanicum* are finely papillose and reach on an average 14–16 μm in diameter and only the largest spores have to 20 μm in the longest dimension, while the smallest ones are about 10 μm wide (Fig. 3). This spore size is typical for the overwhelming majority of *Racomitrium* species. Nevertheless the remarkable range of the spore size in this species is worth to note. It can be interpreted as spontaneous aberration induced by meiotic irregularities caused, for example, by increasing ambient temperature and this case resembles the situation described for *Hookeria lucens* (Hedw.) Sm. by Newton (1985). It should be added that the spores with aberrant size constitute a very small fraction of the total amount of spores in the capsules in this species. On the contrary, *R. lamprocarpum* has the largest spores in the genus. They are roughly papillose and have 18–32 μm in diameter and only very occasionally some smallest spores are 16 μm wide. Moreover, *R. lusitanicum* has dull or only slightly lustrous, narrowly oblong-cylindrical capsules, whereas they are ellipsoid to shortly cylindrical and usually with a varnish luster in *R. lamprocarpum*; the operculum is long rostrate (1.5–1.6 mm long) and curved at the apex in *R. lusitanicum* in contrast to the shorter, 1.0–1.2 mm long, straight or slightly slanted opeculum in *R. lamprocarpum*. As well, both species differ remarkably in their costa condition. In *R. lusitanicum* the costa is less strong and reaches on an average 60–80 μm in width at the base, only occasionally exceeding 100 μm. In addition, in the upper part the costa is entirely bistratose in cross-section and gradually merges into the bistratose lamina and it is not prominent dorsally. On the other hand, in *R. lamprocarpum* the costa is very strong, 80–130 and occasionally even to 145 μm wide at the base. Furthermore, in the upper part it is 3–4-stratose and distinctly convex dorsally.

Of European species of *Racomitrium* only *R. macounii* Kindb. is likely to be confused with *R. lusitanicum*. This species possesses also strongly thickened margins in the upper part of the leaf and additionally both species share similar ecological requirements. However, in *R. macounii* the leaf lamina is entirely unistratose and the costa is distally multistratose and dorsally distinctly convexed. Moreover, perichaetial leaves in this species are only weakly modified and resemble very much vegetative leaves.

Although *Racomitrium* has not been revised taxonomically as a whole, Noguchi (1974) divided the Northern Hemisphere taxa of the genus into four sections, sect. *Papil-*

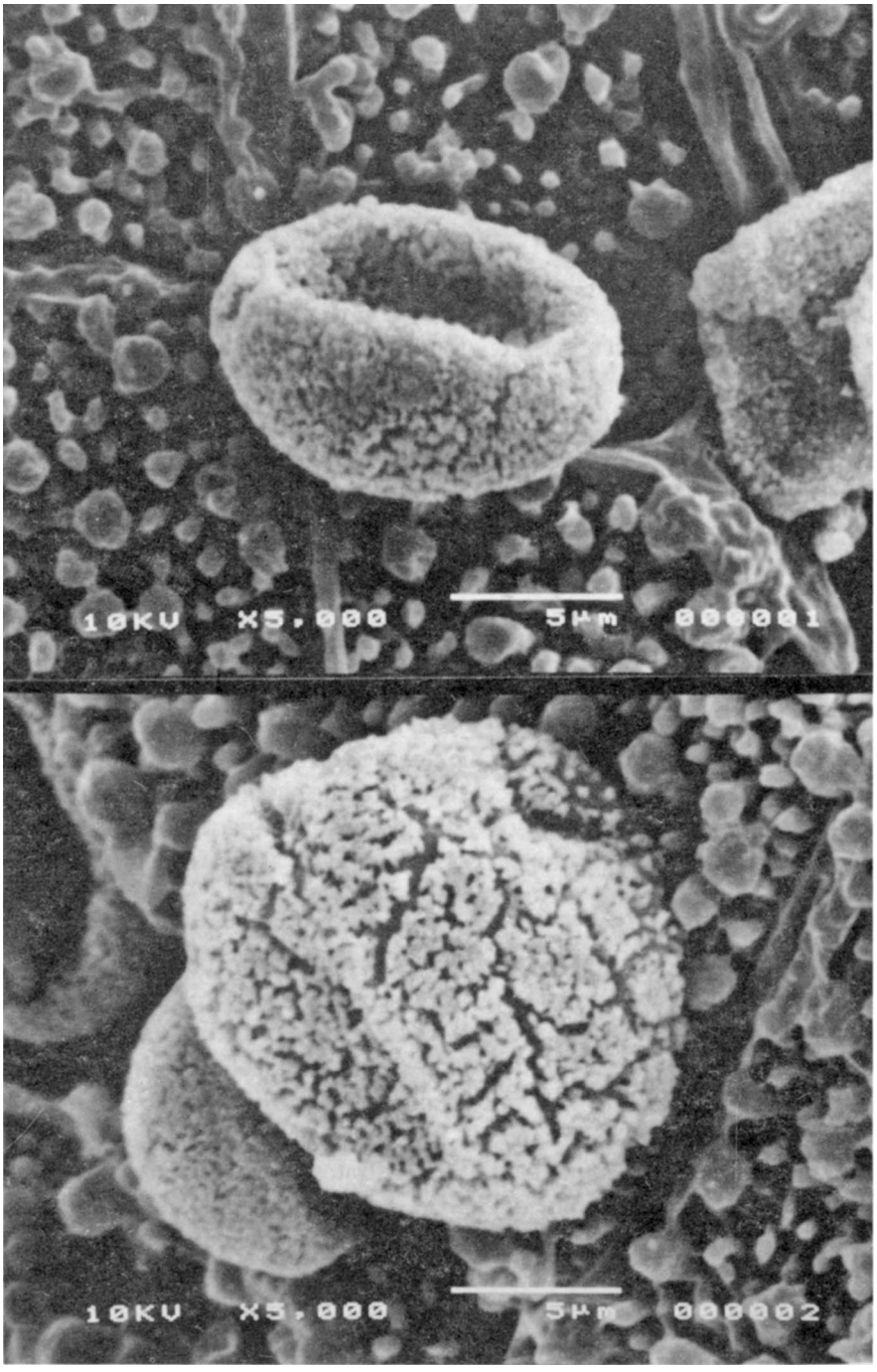

Fig. 3. SEM micrographs of spores of *R. lusitanicum* Ochyra & Sérgio from the same capsule showing their various size (from *Melo s.n.*, 30.03.1989 – LISU).

losa (Kindb.) Nog., sect. *Lanuginosa* (Kindb.) Nog., sect. *Laevifolia* (Kindb.) Nog. and the type section *Racomitrium.* They are distinct and clearly delimited taxa by a number of both gametophytic and sporophytic characteristics. Later, Ochyra *et al.* (1988) established the new section *Ellipticodryptodon* (Vilh.) Ochyra, Sérg. & Schum. for three species with a very robust costa, epilose leaves, strongly thickened leaf margins and partially bistratose lamina cells as well as large and roughly papillose spores, viz. *R. lamprocarpum* (C. Muell.) Jaeg., *R. bartramii* (Roiv.) H. Robins. and *R. ellipticum* (Turn.) B., S. & G.

Of all sections of *Racomitrium*, *Laevifolia* is the largest section consisting of no less 25 species in the Northern Hemisphere and apparently twice as many in the Southern Hemisphere and in the tropics. Nevertheless, the exact delimitation of this section is not clear and it seems apparent that a world monograph is required before the group of pseudopapillose species of *Racomitrium* now placed in section *Laevifolia* can be subdivided in any meaningful way.

Racomitrium lusitanicum shares some features of section *Ellipticodryptodon*, especially the condition of the innermost perichaetial leaves and the form of the leaf lamina. On the other hand, multistratose and multiseriate limbidia as well as partially bistratose leaf laminae can be interpreted as adaptation to aquatic habitats and not as an evolutionary trend. The spore size and the hyaline hair-points ally *R. lusitanicum* with section *Laevifolia*. It appears that this section includes also several species with similar leaves. For example *R. crispulum* (Hook. f. & Wils.) Hook. f. & Wils. of the Southern Hemisphere has the leaves with prominent bistratose limbidia composed of 4–9 rows of cells and terminated with a subhyaline hair-point. The austral species is also an aquatic moss but it can easily be separated from *R. lusitanicum* by its shorter setae (1.5 mm versus 4–7 mm), shorter urns (1.5 mm vs. 2.1–3.0 mm) and the presence of the basal marginal borders of 10–24 esinuose, yellowish-hyaline cells as well as the lack of alars. The basal marginal borders show the relationship of *R. crispulum* to the *microcarpon* group sensu Frisvoll (1988), while the lack of such a border and the leptodermous innermost perichaetial leaves indicate the affinity of *R. lusitanicum* to the *heterostichum* group in the provisional subdivision of the section by Frisvoll (1988). Nevertheless it occupies a rather isolated position in this group. Most species of the *R. heterostichum* complex has totally unistratose laminae with only very occasional bistratose spots at the margin in the distal part. There are only two species in this complex with bistratose margins but they can hardly be mistaken for *R. lusitanicum. R. obesum* Frisv. from western North America has similar narrowly oblong-cylindric capsules and slightly differentiated alars, but differs at once in its broadly recurved or revolute leaf margins that are bistratose distally only for 1–3 rows of cells. Likewise *R. venustum* Frisv. from eastern North America has leaf margins bistratose above for 1–4 rows of cells, but has generally much narrower costae and shorter capsules.

Racomitrium lusitanicum is presently known from eight collections that came from montane elevations of 650–1000 m in four UTM grid squares in north-western and central Portugal (Fig. 4). It is an acidophilous moss growing on granite rocks, especially along mountain streams and brooks as well as by cascades and waterfalls. It thrives on

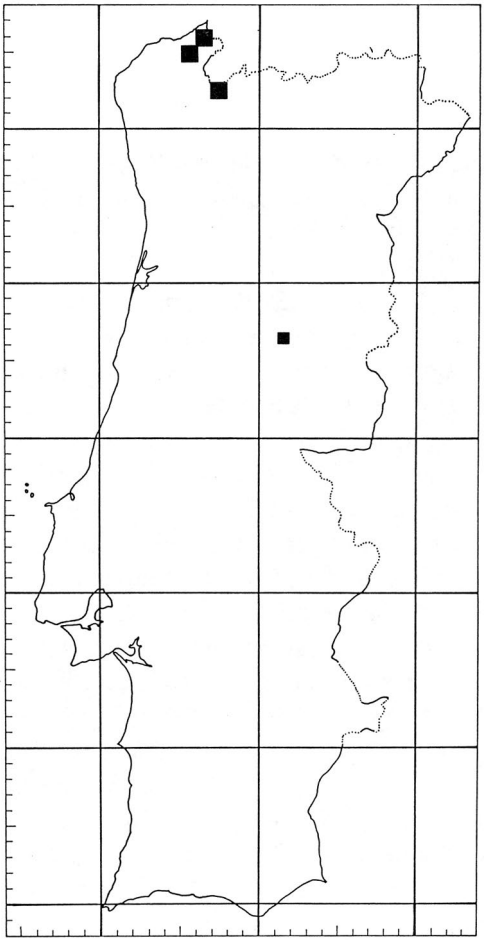

Fig. 4. Distribution map for *Racomitrium lusitanicum* Ochyra & Sérgio in Portugal in the UTM grid square system 10 x 10 km (■ – pre-1950 records; ■ – post-1950 records).

steep rock faces periodically irrigated or totally submerged. *R. lusitanicum* develops usually in loose or compact tufts and it is associated with other species of *Racomitrium* (*R. aquaticum, R. aciculare, R. lamprocarpum* as well as other species of the *R. heterostichum* group). In the close proximity of habitats occupied by *R. lusitanicum* such species as *Marsupella emarginata, Scapania undulata, Andreaea rothii, A. megistospora, Heterocladium heteropterum, Isothecium myosuroides, Rhynchostegium alopecuroides* and *Schistidium apocarpum* can frequently be found.

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STRESZCZENIE

Rodzaj *Racomitrium* Brid. z rodziny Grimmiaceae liczy w Europie 17 gatunków (Corley & Crundwell 1991). W niniejszej pracy autorzy podają opis nowego dla nauki gatunku z tego rodzaju, *R. lusitanicum* Ochyra & Sérgio, znalezionego na ośmiu stanowiskach w północno-zachodniej i środkowej Portugalii. Nowy gatunek jest mchem związanym z siedliskami mokrymi lub wilgotnymi, rosnącym na kwaśnych skałach w górskich potokach lub strumiemiach na wysokości 650–1000 m n.p.m. Jego cechami diagnostycznymi są: (1) liście zakończone krótkim, ząbkowanym hyalinowym włoskiem; (2) silnie zgrubiałe, 2–4-warstwowe obrzeżenie liści przechodzące w górnej części w dwuwarstwową blaszkę liściową; (3) gładkie lub tylko delikatnie brodawkowane komórki blaszki liściowej; (4) stosunkowo słabe żebro o szerokości 60–80 μm w nasadzie, w przekroju poprzecznym w górnej części dwuwarstwowe i słabo na grzbiecie wypukłe; (5) długa, wąskocylindryczna puszka z wieczkiem zakończonym długim, szydlastym dzióbkiem; oraz (6) delikatnie brodawkowane zarodniki osiągające średnio 14–16 μm szerokości.

Powyższe cechy jednoznacznie odróżniają *R. lusitanicum* od pozostałych gatunków tego rodzaju, a w szczególności od *R. lamprocarpum* (C. Muell.) Jaeg., który ma podobnie obrzeżone liście, zupełnie jednak pozbawione hyalinowego włoska, ale z żebrem w przekroju poprzecznym w górnej części wielowarstwowym i wybitnie na grzbiecie wypukłym. Ponadto puszki u tego gatunki są krótko-cylindryczne lub elipsoidalne a zarodniki silnie brodawkowane i znacznie większe o średnicy 18–32 μm.