New and interesting records of Brazilian bryophytes

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Abstract: This paper presents data on morphology, ecology and distribution of 16 species of bryophytes collected in Pernambuco, Brazil, that are interesting floristic records. *Notothylas orbicularis* (Schwein.) Sull. is new to Brazil, 11 species are new to the Northeast region of Brazil and 4 species are new to Pernambuco.

Resumo: Dados morfológicos, ecológicos e de distribuição geográfica são apresentados para 16 espécies de briófitas coletadas no Estado de Pernambuco, Brasil. *Notothylas orbicularis* (Schwein.) Sull. é registrada pela primeira vez para o Brasil, 11 espécies são novas para a região Nordeste e 4 para o Estado de Pernambuco.

The bryophyte flora of Pernambuco, Brazil, includes ca. 250 species (Yano 1981, 1984, 1989, 1995). During a post-graduate course taught by Prof. Dr. S. R. Gradstein in August 1998, at the Federal University of Pernambuco, Recife, several excursions were made to gather bryophytes. Collections were mainly made in remnants of lowland and submontane rain forests. In all, 135 species of bryophytes were identified, including several that constitute new records or otherwise interesting range extensions. The study sites are the following:

Municipality of Recife; Lat. 8°00′00″-8°07′00″S, Long. 34°52′30″W, sea level, Campus of the Federal University of Pernambuco.
Municipality of Bonito; Lat. 8°30′08″S, Long. 36°43′31″W, 680-720 m, Municipal Reserve (ca. 50 ha), submontane rain forest; inselberg.
Municipality of Brejo da Madre de Deus; Lat. 8º09’00”S, 36º22’15”W, 800, 950 m, Forest of Bituri Grande (ca. 50 ha), submontane rain forest; inselberg.

Municipality of Caruaru; Lat. 8º18’36”S, Long. 36º00’00”W, 820-950 m, Ecological Reserve of Brejo dos Cavalos (ca. 350 ha), submontane rain forest.

Specimens examined: Brazil, Pernambuco, Municipality of Brejo da Madre de Deus, live trunk, 10/VIII/1998, O. Yano et al. 25527 (SP 322370).

Comments: Bryum roseulum is a neotropical species, easily recognised by the robust plants, with stems of 2-4 rosettes, the leaves denticulate-spiny, strong costa, border cells long-linear with thick walls. Ochi (1981) reported that this species is the most robust of the subgenus Rhodobryum in the neotropics.

This species was found growing in large and dense tufts at the base of a tree trunk on steep banks at the edge of the forest.

Description and illustration: Sharp et al. (1994).
Comments: Bryum roseum is easily recognized by the robust plants with subterranean stolons, and 8-9(-10) mm long, obovate leaves, crowded in apical rosettes, spreading when moist, wrinkled-flexuose when dry; dioecious.

This species grew in dense populations on moist soil.

Campylopus richardi Brid., Mant. Musc. 73. 1819.
Comments: Campylopus richardi is known from many localities throughout the Neotropics. This species ranges in altitude from 900 to 3,700 m. In Brazil it is found between 900-2,000 m in the northeastern, southeastern and southern parts of the country. This is the first record of Campylopus richardi from Pernambuco, and the lowest elevation thus far recorded for the species (700 m).

Campylopus richardi grows on seasonal wet rocks and cliffs and wet gravely soil, in environments with high rainfall and light intensities. All the previously collections are known from montane and upper montane areas, and collections below 900 m were unknown.

Campylopus richardi is a blackish plant, leaves with a sub-hyaline tip, upper laminal cells elongate-rectangular and pitted, basal lamina cells incrassate and colored, costa in transverse section with ventral stereids.

Description and illustration: Fulford (1976).
Distribution: Europe, North America, Central...

Comments: In Brazil this species has been recorded from Rio de Janeiro. It is the first report of this species in the Northeast of Brazil.

Cephaloziella divaricata is a very small and delicate plant, ca. 0.5 mm wide, with leaves hardly broader than the stem, bilobed to one-half the length and inserted transversely or slightly oblique; tiny underleaves are usually present; dioecious.

The species was found growing on a wet soil bank along the road, among other bryophytes.


Description and illustration: Jovet-Ast (1953).


Comments: This species is known from many localities throughout the Neotropics, ranging in altitude from 500-2,500 m. In Brazil it is found between 700-1,200 m in the southeast.

Colura tenuicornis grows on living leaves and tree trunks, frequently mixed with other hepatics, in humid forests. Almost all collections are known from submontane and montane areas. This is the first record of Colura tenuicornis from northeastern Brazil. It occurred in humid, submontane forest, with fog.


Description and illustration: Schuster (1980).

Specimens examined: Brazil, Pernambuco, Municipality of Bonito, moist soil bank, 6/VIII/1998, O. Yano et al. 25470 (SP 322323).


Comments: In Brazil this species has been recorded from São Paulo. This is the first report for the Northeast region.


Description and illustration: Reyes (1982).

Specimens examined: Brazil, Pernambuco, Municipality of Bonito, on living leaves, 6/VIII/1998, O. Yano et al. 25470 (SP 322323).


Comments: This species is closely allied to D. rudolphiana Steph., but the latter is autoecious, and usually presents the apical and proximal teeth well developed.

This species is distinguished by the flat, opaque and pale-green plants, ca. 1.4 mm wide, with imbricate leaves, broadly ovate or suborbicular lobes; lobule inflated, apical tooth 3-5 cells long, 2-3 cells wide at the base, proximal tooth inconspicuous; underleaves distant and subimbricate, with lobes obtuse, sometimes subacute or, rarely, acute; dioecious.

The species was found growing as epiphyllous in loose patches, closely appressed to the substrate.


Specimens examined: Brazil, Pernambuco,

**Distribution:** South and Central America, southeastern USA. Brazil - São Paulo. New to Pernambuco.

**Comments:** *Fossombronia brasiliensis* is a widespread neotropical species which was known in Brazil from São Paulo. This is the first report for the Northeast region. This species is relatively robust, sparsely dichotomous branched with deep purple or magenta rhizoids, with subquadrate, imbricate to contiguous, succubous leaves and with brown spores, 40-45(-50) mm in diameter, with distinct, irregular reticulations.

This species was found growing on humid loamy soil, along road, together with *Cylindrocolea rhizantha*, *Cephaloziella divaricata* and *Philonotis uncinata* (Schwaegr.) Brid.

A unique morphological feature of the plants are the numerous rounded, fleshy, green propagules with small leaves, produced in abundance on the dorsal side of the stems. Reports of leafy propagules in the genus *Fossombronia* are very rare; asexual reproduction is, and in general, by tubers (Paton 1974, Schuster 1992).


**Description and illustration:** Fulford (1976).


**Distribution:** Brazil - Rio Grande do Sul, Santa Catarina and São Paulo. New to Pernambuco.

**Comments:** *Lophocolea bidentula* is an interesting hepatic endemic to southern and southeastern Brazil; previously it was known from three localities: Brazil, without locality (type); São Paulo, Morroprando (Decker 803, 803a); São Paulo, Itapetininga, ca. 550 m (Schiffner 2149, type of *Lophocolea evansii* Schiffner); Santa Catarina, São Francisco, at sea level; Rio Grande do Sul, Gramado, ca. 800 m.

Most collections are from montane areas with high rainfall, at altitudes between 500-1000 m, only in Santa Catarina is the species is found at sea level. This is the first record from northeastern Brazil.

*Lophocolea bidentula* is a rather robust plant, the leaf margin has 1-2 short teeth, the apex is broad, emarginate, the leaf-cell cuticle is faintly verruculose. The plants grow as shade epiphytes on soil, shaded rock or decaying wood in environments with high rainfall. The species ranges in altitude from sea level to 950 m.

**Notothylas orbicularis** (Schwein.) Sull., Musci Alleghan. 69. 1846.

**Description and illustration:** Schuster (1992).


**Distribution:** Tropical Africa, Japan, eastern North America and western Europe. New to Brazil.

**Comments:** *Notothylas orbicularis* is a monoecious species, with thalli radiately expanded, lacunose, a small fusiform-ellipsoidal capsule, with plicate involucre, and weakly developed columella; spores delicately vermiculate, yellowish, 38-40 µm, pseudoelaters present, yellowish, with spiral thickenings.

This species was found growing gregarious or in isolated rosettes on damp basic, mineral soil in a coffee plantation.

*Notothylas vitalii* Udar & Singh, a very common species in the Northeast of Brazil (Bahia, Fernando de Noronha, Maranhão, Pernambuco), is easily distinguished from *N. orbicularis* by its larger size, the 5-8 mm long sporophytes and the lack of pseudoelaters.


**Description and illustration:** Lindenberg (1844).


**Comments**: This species is easily and immediately recognized by the strongly imbricate and crispate-undulate ventral leaf margins. The species is a member of *Plagiochila* sect. *Crispatae* Carl and is probably widespread in the Neotropics. The taxonomy of the species is very poorly known; it seems that the species has been described under many different names in the various regions of the Neotropics. For example, *P. crispata* Gott. and *P. fastigata* Linderb. from Mexico, *P. tortuosa* Gott. from Venezuela and Brazil, *P. ulophylla* Nees & Mont. from Brazil, and *P. undata* Sull. from the USA are all very similar to *P. corrugata* and may be synonyms. A careful revision of the taxonomy of this complex, including study of the types, is needed, to determine the status of all these names. At any rate, *P. corrugata* is the oldest name in this group and would thus have priority. Therefore, it is preferable to use this name for the time being for this plant.

*P. corrugata* has been reported previously from Pernambuco by Pôrto (1990) as *P. tortuosa*. The species is very common in relatively dry, on semi-deciduous submontane forests.


**Description and illustration**: Lindenberg (1844).


**Comments**: This species is characterized by the purely intercalate branching, narrowly elongate leaves with few, conspicuous teeth along the upper half of the ventral leaf margin, and particularly, the narrowly elongate perianth, terminal on a somewhat denuded stem portion, not surrounded by large bracts. The species is widespread in neotropical lowland to lower montane rain forests and has probably also been described under many different names, as is the case with *P. corrugata*. The plant grows generally in moister habitats than *P. corrugata*.

*P. gymnocalycina* is rather similar to *P. simplex* (Sw.) Linderb., differing mainly by the more conspicuous teeth on the leaf (Heinrichs et al. 1998). If the two species prove to be synonyms, then *P. simplex* is older and therefore correct name for the species. Further taxonomic study is needed.


**Illustration**: Kachroo & Schuster (1961).

**Specimens examined**: Brazil, Pernambuco, Municipality of Brejo da Madre de Deus, live trunk, 10/VIII/1998, O. Yano et al. 25505, 25511 (SP 322349; SP 322355); ibid., 10/VIII/1998, K. C. Pôrto et al. s.n. (UFP 22363).

**Distribution**: Neotropical. Brazil - Amazonas. New to Pernambuco.

**Comments**: This species is known from Amazonian region. This is the first record of this species for Northeastern Brazil.

*Pycnolejeunea macroloba* is characterized by the pale whitish green plant color; leaves rounded, with few and large ocelli; underleaves bifid, usually 2.5-3.0 times as wide as stem; sinus acute; lobule large, 4-5(6) times as long as broad, with a large sinus rather oblique in relation to the posterior margin of lobe, unidentate, the hyaline papilla proximal to the base of the tooth; ventral merophytes 2 cells wide; autoecious. This species was found growing on live tree trunk in semi-dry habitats.


**Specimens examined**: Brazil, Pernambuco State, Municipality of Recife, moist soil, 5/VIII/1998, D. P. Costa et al. s.n. (UFP 22379); ibid., 5/VIII/1998, K. C. Pôrto et al. s.n. (UFP 22380);
**ibid., 5/VIII/1998, O. Yano et al. 25419 (UFP 22381; SP 322274).**

**Distribution:** Brazil – Bahia. New to Pernambuco.

**Comments:** This species was found in a garden on the University Campus, growing on humid clay soil together with *Anthoceros* sp. and *Notothylas vitalii*. The species was previously known only by the type collection, growing on moist soil in caatinga vegetation (Jovet-Ast 1991).

*Riccia subdepilata* usually forms complete green rosettes, with sparse hyaline cilia at the apex of thallus margin; spores brown and large, 84-96(-100) μm in diameter, reticulate, with a flat triangular area at the level of the pores.

**Trematodon longicollis** Michx., Flora Bor. Am. 2: 289. 1803.

**Description and illustration:** Sharp et al. (1994).

**Specimens examined:** Brazil, Pernambuco, Municipality of Brejo da Madre de Deus, on soil near inselberg, 9/VIII/1998, K. C. Pôrto s.n. (UFP 20368).

**Distribution:** Very widespread.


**Comments:** The species is widely distributed in the world, however is extremely rare in Europe, occurring in the Mediterranean region; usually grows on soil at lowland and moderate elevations. This is the first record of this species from the Northeast of Brazil.

The species can be easily recognized by its small size, long-lanceolate leaves, long seta, cylindrical curved capsule with sulcae when dry and, especially, the long narrow neck of the same length as the capsule; differentiated peristome. The capsules are green when young, turning orange when mature and brown when dry.

*Trematodon vaginatus* C. Muell. also occurring in the Northeast of Brazil and can be distinguished from *T. longicollis* by its vaginate leaf bases, subulate and strongly tubulose apex; cylindrical and pale-fuscous or sometimes yellow capsule.

*Trematodon longicollis* was collected growing in short tufts on moist soil on steep banks.


**Description and illustration:** Buck (1998).

**Specimens examined:** Brazil, Pernambuco, Municipality of Caruaru, decaying trunk, 10/VIII/1998, D. P. Costa et al. s.n. (UFP 22369).


**Comments:** *Wijkia flagellifera* is a mainly neotropical species, common in the south and southeast of Brazil. This is the first record for the Northeast region.

This species is easily recognized by the medium-sized plants; stems creeping, subpinnately branched, with erect and ascending branches; stem and branch leaves differentiated, costa very short or absent, alar cells inflated and colored; asexual propagules are frequently borne on flagellate branches, arising from branch leaf axis; the leaves of the flagellate branches are appressed, lanceolate, serrulate, smaller than branch leaves.

*Wijkia flagellifera* is closely related to *W. costaricensis* (Bartram) Crum, but the latter species has broader and shorter-tipped, 0,5-1,0 x 0,4-0,8(-1,0) mm leaves.

This interesting species grows on branches and tree trunks, occasionally on old wood, usually in humid forests about 1000-1900 m. The specimens collected were growing on decaying trunk in submontane rain forest.

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