

## Some interesting *Orthotrichum* records from Venezuela.

Francisco Lara<sup>1</sup>, Vicente Mazimpaka<sup>1</sup> and Ricardo Garilleti<sup>2</sup>

<sup>1</sup> Departamento de Biología (Botánica), Facultad de Ciencias, Universidad Autónoma de Madrid, E-28049 Madrid, Spain.

<sup>2</sup> Departamento de Medio ambiente, Facultad de Ciencias, Universidad Europea de Madrid, E-28670 Villaviciosa de Odón, Madrid, Spain.

**Abstract:** *Orthotrichum subulatum* Mitt. and *Orthotrichum diaphanum* Brid. var. *diaphanum* are reported from the Mérida Páramo, representing the first records of these two species in Venezuela. Additionally, new records of the recently described *O. tenuicaule* Lewinsky and *O. spanotrichum* Lewinsky are reported.

During a trip to the Venezuelan Andes (Mérida State) in Christmas of 1995, the first author collected several epiphytic *Orthotrichum* gatherings in the páramos of Santo Domingo, Mucuchies-Gavidia and La Culata, and in neighbouring areas. This paper presents the main results of the study of these gatherings.

In most cases, identified specimens corresponded to common taxa, among which prevailed *Orthotrichum pycnophyllum* Schimp. var. *pycnophyllum* and var. *verrucosum* (C. Müll.) Lewinsky, *O. elongatum* Tayl., and *O. pariatum* Mitt. However, some specimens corresponded to two taxa new to Venezuela (*O. subulatum* Mitt.

and *O. diaphanum* Brid. var. *diaphanum*) and to new records of two recently described species (*O. tenuicaule* Lewinsky and *O. spanotrichum* Lewinsky) of which little is known due to record scarcity. The number of *Orthotrichum* taxa known from Venezuela is therefore now raised to twelve.

### ***Orthotrichum subulatum* Mitt.**

**Mérida**, Páramo de Santo Domingo, ca. 3200 m, on branchlets of *Diplostephium* sp., 28-12-

1995, *F. Lara*. Universidad Autónoma de Madrid herbarium.

This beautiful species was only previously known from Ecuador and Colombia (Lewinsky 1987). Collected material was scarce, and contained a single, almost mature capsule. The characteristic leaf apices of the studied specimen (fig. 1) recall those of *Orthotrichum mandonii* Hampe (with which this taxon has often been confused), but the sporophyte examination affords its safe attribution to *O. subulatum*, due to the following character combination: capsule immersed and clearly ribbed, with exothecial bands differentiated up to the middle of the theca, endostome with thin, neither paired nor appendiculate segments.

*Orthotrichum subulatum* was found coexisting with *O. tenuicaule*, *O. spanotrichum* and *O. elongatum*. Like in the Colombian Andes (Churchill & Linares, 1995), this moss seems to be very rare in the Venezuelan Andes.

***Orthotrichum diaphanum* Brid. var. *diaphanum***

**Mérida**, Escagüei, Hacienda de la Cañada, 2300 m, tree fork in a secondary wood, surrounding an alder gallery, 28-XII-1995, *F. Lara & M. Vergara*. Universidad Autónoma de Madrid herbarium.

Venezuelan specimens do not differ morphologically from those of the Northern Hemisphere and are easily distinguished from the South American *O. diaphanum* var. *podocarpum* (C. Müll.) Lewinsky by their longer, hyaline leaf-apices. In South America, this otherwise widely distributed taxon was only known from Ecuador (Lewinsky, 1984) and Colombia (Churchill & Linares, 1995). The fact that it is known from a single locality in each of the countries where it has been found, suggests that it is a rare taxon in this subcontinent. *Orthotrichum pycnophyllum* var. *verrucosum* was

the only other *Orthotrichum* species found in this locality.

***Orthotrichum tenuicaule* Lewinsky**

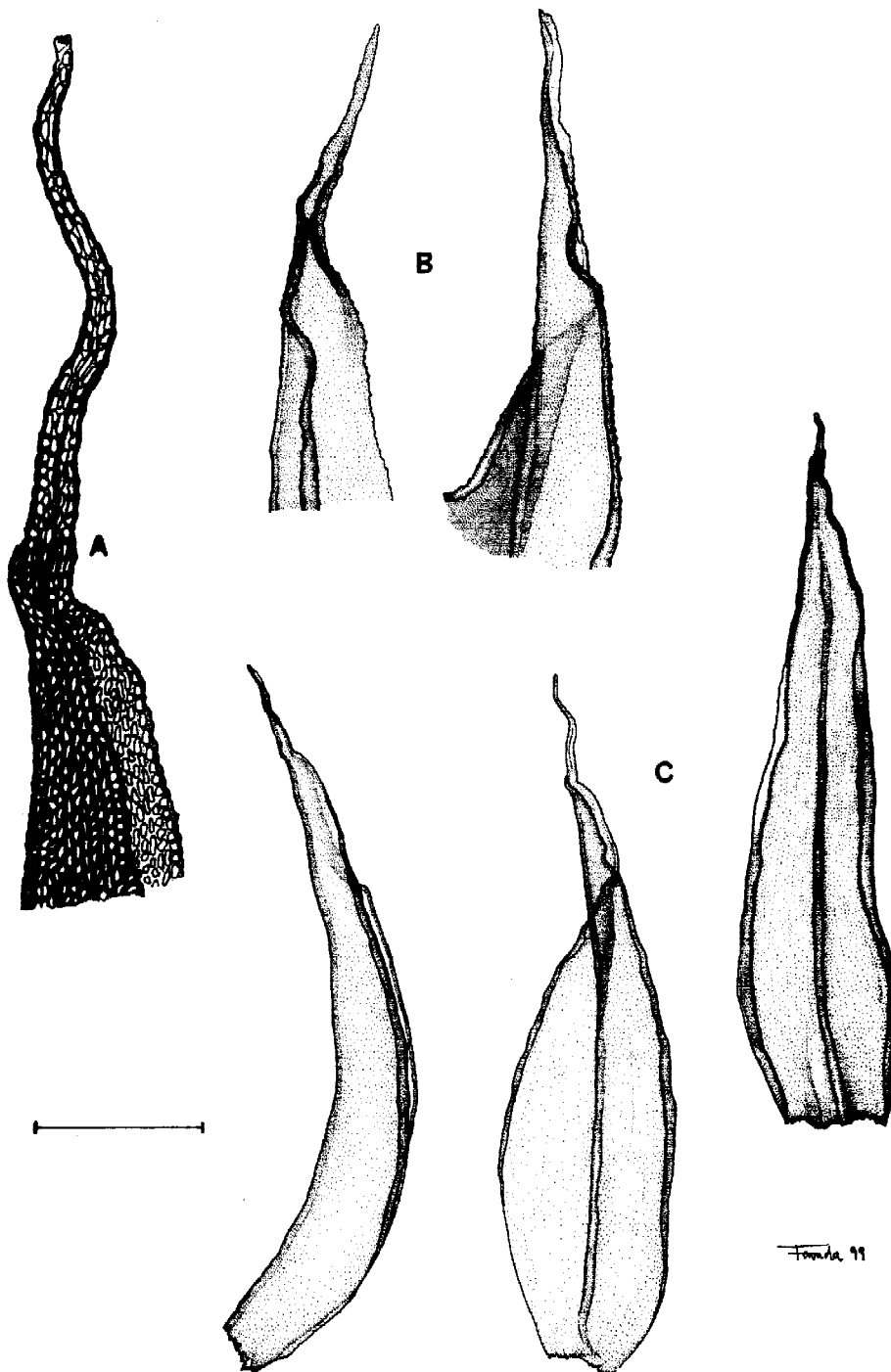
**Mérida**, Páramo de Santo Domingo, ca. 3200 m, on branchlets of *Diplostephium* sp., 28-XII-1995, *F. Lara*. Near the Laguna Negra, 3400 m, on branches of *Berberis* sp., 29-XII-1995, *F. Lara*. *Ibidem*, 3300 m, on branches of *Hesperomeles glabrata* H. B. K., 29-XII-1995, *F. Lara*. Universidad Autónoma de Madrid herbarium.

This species was recently described (Lewinsky, 1994) upon materials collected by Schäfer-Verwimp & Verwimp in the Santo Domingo páramo (Mérida, Venezuela), at altitudes of 3000-3200 m. We found it in the same area, but at a slightly higher range of altitudes. This moss is relatively frequent in the Santo Domingo area, although it is rarely abundant there. It has not been found in other páramos of Mérida region.

***Orthotrichum spanotrichum* Lewinsky**

**Mérida**, Páramo de Santo Domingo, ca. 3200 m, on branchlets of *Diplostephium* sp. 28-XII-1995, *F. Lara*. Near the Laguna Negra, 3300 m, on branches of *Hesperomeles glabrata* H. B. K., 29-XII-1995, *F. Lara*. Universidad Autónoma de Madrid herbarium.

This species has also been recently described (Lewinsky 1993) upon materials from the Venezuelan Andes. *Orthotrichum spanotrichum* was frequently found growing together with *O. tenuicaule*, from which it is easily discriminated in the field by its peculiarly hairy calyptra. However, in the absence of this character, confusion between the two species can be avoided by analysing the peristome, since *O. spanotrichum* has 16 exostome teeth and a peculiar



**Fig. 1.** Details of leaf-apices (A-B) and leaf-shape (C) in *Orthotrichum subulatum* Mitt. from Venezuela. **Drawing scales:** A: 210  $\mu$ ; B: 0.4 mm; C: 1.0 mm

endostome formed by 8 stout segments that alternate with 8 minor ones.

In the Santo Domingo páramo, *O. spanotrichum* is less frequent and abundant than *O. tenuicaule*, but like this latter species, *O. spanotrichum* has only been found in areas close to the original locality and is absent from neighbouring paramos.

#### **Acknowledgements**

We are grateful to David Foronda for the drawings of figure 1.

#### **Literature cited**

- Churchill, S.P. & E.L. Linares. 1995.** Prodrromus Bryologiae Novo-Granatensis. Intro-ducción a la flora de musgos de Colombia, parte 2. Universidad Nacional de Colombia, Santafé de Bogotá.
- Lewinsky, J. 1984.** *Orthotrichum* Hedw. in South America 1. Introduction and taxonomic revision of taxa with immersed stomata. *Lindbergia* 10: 65-94.
- Lewinsky, J. 1987.** *Orthotrichum* (Orthotrichaceae) in South America 2. Taxonomic revision of taxa with superficial stomata. *Memoirs of the New York Botanical Garden* 45: 326-370.
- Lewinsky, J. 1993.** *Orthotrichum spanotrichum* Lewinsky, sp. nov. from Venezuela. *Lindbergia* 18: 116-120.
- Lewinsky, J. 1994.** Miscellaneous notes on *Orthotrichum* (Bryophyta) 1-3. *Journal of the Hattori Botanical Laboratory* 75: 45-49.