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# First record of *Juncorrhiza aschersoniana* (*Entorrhizaceae*) from South America

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**Abstract.** *Juncorrhiza aschersoniana,* known only from Europe, Central America (Costa Rica), and New Zealand, is reported for the first time from South America (from Bolivia).

**Key words:** Bolivia, *Entorrhiza aschersoniana, Juncaceae, Juncorrhiza aschersoniana, Juncus bufonius,* smut fungi, taxonomy

## Introduction

*Juncorrhiza* was recently erected to accommodate former *Entorrhiza* species producing galls in the roots of some *Juncus* species (Riess et al. 2019). Six species were transferred or described under *Juncorrhiza* (op. cit.).

*Entorrhiza aschersoniana* (Magnus) Lagerh. was reported on *Juncus bufonius* L., *J. minutulus* (Albert & Jahand.) Prain, and *J. ranarius* Songeon & E.P. Perrier (Vánky 2011). Based on molecular data, this smut fungus (as *Juncorrhiza aschersoniana*) was treated by Riess et al. (2019) as limited to *Juncus bufonius,* while for the fungus on *J. ranarius,* a distinct species, *Juncorrhiza maritima* Piątek & K. Riess, was proposed.

*Juncorrhiza aschersoniana* (as '*Entorrhiza aschersoniana*') on *Juncus bufonius* is recorded from Europe (UK, Norway, Sweden, Finland, Denmark, Netherlands, Germany, Switzerland, Austria, Czech Republic, Romania, Ukraine, Russia, and Italy), Central America (Costa Rica), and Australasia (New Zealand) (Lind 1913; Ciferri 1938; Liro 1938; Săvulescu 1957; Lindeberg 1959; Jørstad 1963; Fineran 1978; Mordue & Ainsworth 1984; Vánky 1985, 1994, 2011; Zogg 1986; Scholz & Scholz 1988, 2001, 2005, 2013; Azbukina

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& Karatygin 1995; McKenzie & Vánky 2001; Piepenbring 2003; Kokeš & Müller 2004; Zwetko & Blanz 2004; Ravera et al. 2017; Chater & Smith 2018). In this article, *J. aschersoniana* is reported for the first time from South America.

## Material and methods

A dried specimen from the herbarium of the Natural History Museum Vienna (W) was examined under a light microscope (LM) and scanning electron microscope (SEM). For LM observations and measurements, spores were mounted in lactoglycerol solution (w : la : gl = 1 : 1 : 2) on glass slides, gently heated to boiling point to rehydrate the spores, and then cooled. The measurements of spores are given in the form: min–max (extreme values) (mean ± 1 standard deviation). For SEM, spores were attached to specimen holders by double-sided adhesive tape and coated with platinum in an ion sputter. The surface structure of spores was observed and photographed at 10 kV accelerating voltage using a JEOL JSM 6610-LV scanning electron microscope. The description below is based entirely on the specimen examined. The shapes of spores are arranged in descending order of frequency.

## Taxonomy

***Juncorrhiza aschersoniana*** (Magnus) K. Riess & Piątek, in Riess et al., Org. Divers. Evol. 19: 23, 2019. ≡ *Schinzia aschersoniana* Magnus, Ber. Deutsch. Bot. Ges. 6: 103, 1888. ≡ *Entorrhiza aschersoniana* (Magnus) Lagerh., Hedwigia 27: 262, Sep–Oct 1888. ≡ *Entorrhiza aschersoniana* (Magnus) de Toni, in Saccardo, Syll. Fung. 7: 497A, 28 Oct 1888. ≡ *Melanotaenium aschersonianum* (Magnus) Thirum. & M.D. Whitehead, Amer. J. Bot. 55: 184, 1968. **Figs 1–5**

**Sori** in the roots forming elongated, 3–5 mm long galls, filled with semi-agglutinated, yellowish brown spore mass. **Spores** subglobose, globose, broadly ellipsoidal or ovoid, (14–)15–19.5(–21.5) × (13–)14–18(–20.5)(17.1 ± 1.2 × 15.9 ± 1.1) µm ($n/_1$ = 100), subhyaline to medium yellowish brown; spore wall two-layered, (2.5–)3–4.5(–5.3) µm thick (including the 0.5–0.8 µm thick inner layer and the 0.7–1.7(–2.2) µm high ornamentation), tuberculate. In SEM irregularly tuberculate, tubercules usually solitary, sometimes confluent, forming short rows, tubercules often connected by low, fine ribs.

*Specimen examined* – On ***Juncus bufonius*** L.: **BOLIVIA,** the Andes, La Paz Department, Larecaja Province, near Sorata, alt. 3100–3600 m, Sep 1858 – May 1859, leg. G. Mandon, G. Mandon, Plantae Andium Boliviensium, no. 1441 (W, s.n.).

**Distribution** – On *Juncaceae: Juncus bufonius*; Europe, Central America (Costa Rica), South America (Bolivia), and Australasia (New Zealand).

*Juncus bufonius* is a cosmopolitan species (Kirschner et al. 2002). Certainly, *Juncorrhiza aschersoniana* is more widespread but easily overlooked species.

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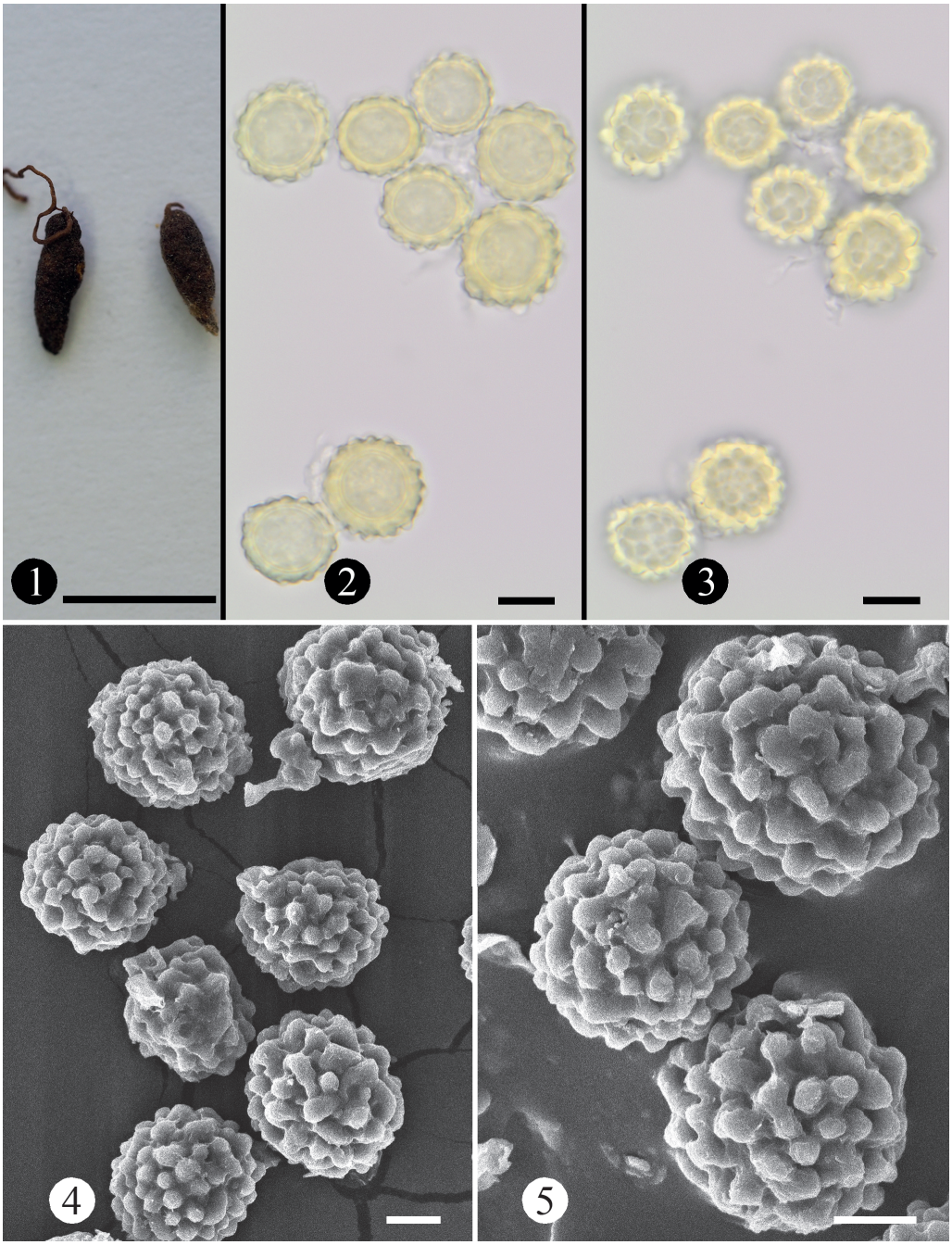


**Figs 1–5.** *Juncorrhiza aschersoniana* on *Juncus bufonius* (W, s.n.). **1.** Galls. **2, 3.** Spores in LM (in median and surface view, respectively). **4, 5.** Spores in SEM. Scale bars: 1 = 0.5 cm, 2, 3 = 10 µm, 4, 5 = 5 µm

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