

## *Tulostoma lesliei*, a new record from Italy

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**Abstract:** A European record of *Tulostoma lesliei* is published from the vicinity of Ravenna, Italy. This species was known from South Africa, Madagascar, and possibly from Spain to date. Moreover, an additional record of *Tulostoma squamosum* is reported from the same region in Italy.

**Zusammenfassung:** Ein europäischer Fund von *Tulostoma lesliei* aus der Gegend von Ravenna, Italien, wird mitgeteilt. Diese Art war bisher nur bekannt aus Südafrika, Madagaskar, und möglicherweise von Spanien. Zugleich wird ein weiterer Fund von *Tulostoma squamosum* aus dem gleichen Gebiet mitgeteilt.

Early November 2007, a mycological group from Ravenna, Emilia-Romagna (Italy), invited several mycologists to study the mycobiota in the vicinity of this city, in which the first author participated. One of the field excursions led to coastal dunes called Lido di Dante. Except for open sand, these dunes are partly covered with mosses and sparse *Pinus* trees. An interesting *Tulostoma* species, macroscopically similar to *T. brumale* PERS.: PERS. was found here. However, the basidiocarps had a peculiar "side-wall" under the peridium. Therefore, the first author sent this specimen to the second one as a specialist in gasteromycetous fungi. He identified the collection as *Tulostoma lesliei* VAN DER BYL.

Authors of fungal names are cited according to KIRK & ANSELL (1992). Colour abbreviations correspond to KORNERUP & WANSCHER (1983), and herbarium abbreviations follow HOLMGREN & HOLMGREN (1998).

*Tulostoma lesliei* VAN DER BYL 1921, Trans. Roy. Soc. South Africa 9: 185-186, pl. XI (Figs. 1, 2)

### **Description of collected basidiocarps:**

Peridium (spore sack): subglobose, slightly compressed, up to 10 mm wide, up to 7 mm high, covered with sand when young, with a slightly conical or shortly tubular

peristome (similar to that of *T. brumale*) without delimitation, concolorous or slightly darker than peridium. On the lower part of the peridium, close to the stipe, a woolly whitish velum structure ("side-wall", socket membrane, collarete, anellino-collarino), especially distinct in younger basidiocarps, later remaining as an annular zone, present. Exoperidium membranaceous, grey-brown (6C-D5), easily separable, near base finely areolate, asperate, partly covered with sand. Endoperidium persistent, whitish to ochraceous after peeling of exoperidium.

Stipe: 9-25 × 1.5-3 mm, cylindrical, bulbous at base, straight or slightly curved, cream-white to ochraceous, when fresh with longitudinal furrows and dark grey-brown appressed fibrils, not squamose.

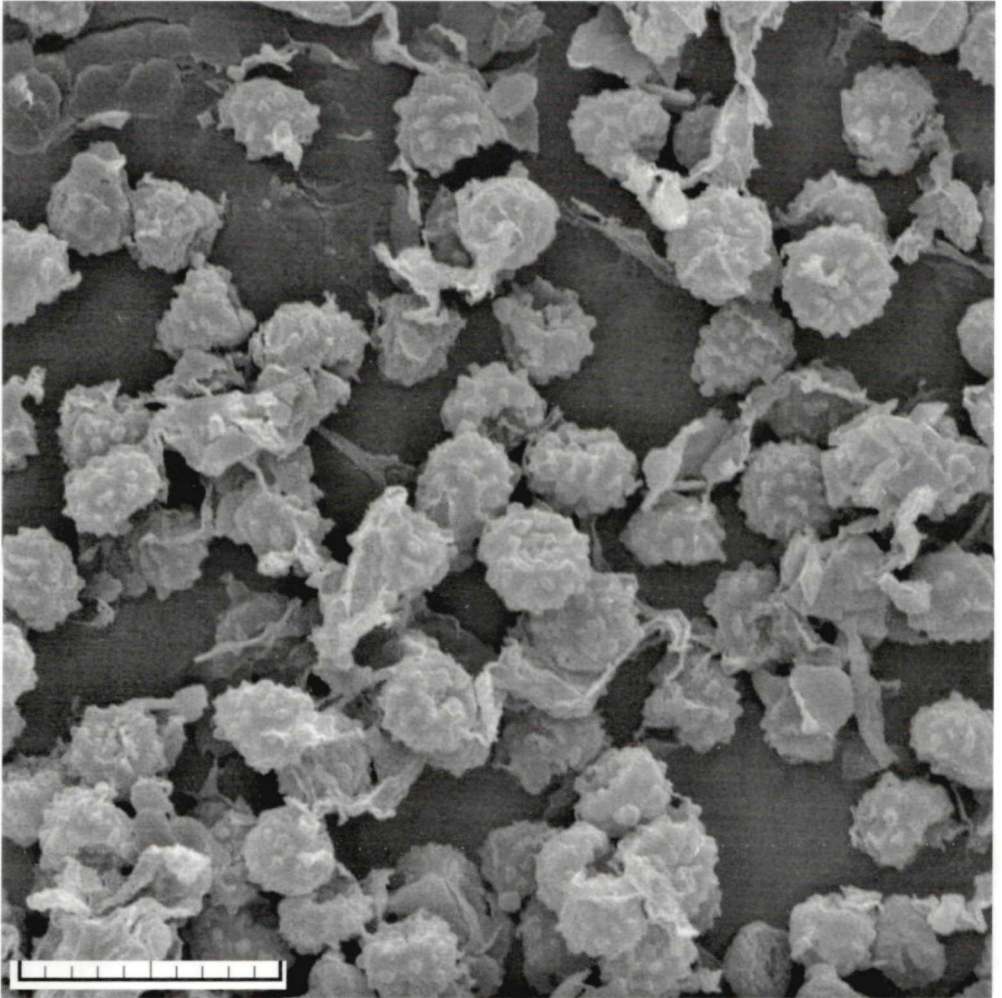


Fig. 1. *Tulostoma lesliei*. SEM microphoto of basidiospores. Bar: 10  $\mu$ m. – Phot. V. PROCHÁZKA.



Fig. 2. *Tulostoma lesiei*, fruitbodies from Ravenna, Italy. – Phot. V. ANTONÍN.



Fig. 3. *Tulostoma squamosum*, fruitbodies from Ravenna, Italy. – Phot. A. HAUSKNECHT.

**Spores:** 4.0-5.2  $\mu\text{m}$  (including ornamentation 5.0-5.5  $\mu\text{m}$ ) in diam., subglobose with irregular verrucose-nodulose ornamentation with some isolated spines, apedicellate, clear ochraceous in light microscope.

**Capillitium:** hyaline, thin-walled, scabrous, septate (not pigmented at septa), partly somewhat swollen near septa, dichotomously ramified, slightly spiralled (twisted), 3.5-5.3  $\mu\text{m}$  in diam.

**Habitat:** On sand and in moss in coastal dunes (a very old fire place?).

**Locality and voucher data:** **Italy:** Emilia-Romagna, Ravenna, Lido di Dante, 5. 11. 2007, leg. V. ANTONÍN 07.416, det. H. KREISEL (herbaria BRNM 709793 and KREISEL, Greifswald).

## Discussion

*Tulostoma lesliei* was originally described from a locality with sandy soil near Durban, province Kwazulu-Natal, and in province Eastern Cape, South Africa (BOTTOMLEY 1948: 610, and WRIGHT 1987: 140-142). One further record is from Madagascar (WRIGHT 1987). No useful illustration of the fruitbodies was available until now. The material as described above is the first confirmed record of this species from Europe, but it seems probable that *T. xerophilum* LONG 1946 as described by CALONGE (1998) from north-eastern Spain, provinces Lérida (Lleida) and Tarragona, belongs to the same species. SARASINI (2005) does not mention either of the taxa discussed here from Italy.

*Tulostoma xerophilum* LONG, known from the United States (Arizona: holotype, California, Texas) and Mexico, is a very similar American species, distinguished by characters of the exoperidium, e.g., the inconspicuous socket in *T. xerophilum*, and by the more pronounced spore ornamentation in *T. lesliei* (WRIGHT 1987: pl. XXV). The usefulness of these characters was discussed and doubted already by WRIGHT (1987) and by CALONGE (1998). In any case, the name *T. lesliei* has nomenclatural priority over *T. xerophilum*.

*Tulostoma brumale* is different from *T. lesliei* and *T. xerophilum* by the fulvous to brown halo around the peristome, the scaly stipe, and by pigmented (fulvous) septa of the capillitium hyphae.

## *Tulostoma squamosum* J. F. GMEL. 1791: PERS. 1801 (Fig. 3)

It was collected nearly at the same time in the coastal region of Ravenna.

**Habitat:** Gregarious in saline meadow on sandy soil.

**Locality:** **Italy:** Emilia-Romagna, Ravenna, Pineta San Vitale, Bardello, 4. 11. 2007 leg. A. HAUSKNECHT & al., det. H. KREISEL (herbaria WU 28380 and KREISEL).

## Comments

This striking tall species with a stipe covered with deep reddish brown scales cannot be confused with *T. lesliei*. From Italy it is known and well documented (e.g., SARASINI 2005), and its distribution comprises southern, central, and eastern Europe, Canary Islands (Tenerife), North Africa (Morocco) and South Africa, Middle East, Central Asia, and United States of America (WRIGHT 1987, KREISEL 2001). It is not recorded from the British Isles (PEGLER & al. 1995).

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