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Tortula israelis (Pottiaceae, Musci) found in Sicily

Abstract

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Tortula israelis is reported for the first time in Sicily from the Agrigento town. This finding is the second in Italy. The species, whose distribution is scattered in the Mediterranean, is known from Spain, Italy, Israel, Turkey and Cyprus.

Introduction

In the framework of investigations carried out on urban bryophytes in Sicily, *Tortula israelis* Bizot & F. Bilewsky was found in the Agrigento town (S. Sicily).

This taxon, has variously been treated from the taxonomical point of view. Described from Israel with a specific rank by Bizot & Bilewsky (cfr. Bilewsky & Nachmony 1955), it was later included within *T. muralis* Hedw., either as var. *israelis* and var. *baetica* by Bizot (1956) and by Casas & Oliva (1982), respectively. More recently, (Cano & al. 1996a) placed *Tortula baetica* (Casas & Oliva) J. Guerra & Ros within *T. israelis*.

As far as its relationship with *T. muralis* are concerned, *T. israelis* is mainly distinguished by different type of foliar papillae; in fact, it presents very high cylindroconical, single or seldom bifurcate, papillae or mamillae, 1-3(4) per cell, instead *T. muralis* shows 4-5(6) bi-trifurcate low papillae or mamillae per cell. Other helpful distinctive characters regard the smaller size of upper leaf cells, the different transverse section of nerve and some differences about the configuration of the sporoderm, as it is in detail reported by Guerra & al. (1992).

Description of the Sicilian specimens

Tortula israelis Bizot & F. Bilewsky, cfr. Bilewsky & Nachmony, Bull. Res. Council Israel, sect. D, Botany: 51. 1955

= *T. baetica* (Casas & Oliva) J. Guerra & Ros; = *T. muralis* Hedw. var. *baetica* Casas & Oliva; = *T. muralis* Hedw. var. *israelis* (Bizot & F. Bilewsky) Bizot.

Loc.: Sicily, Agrigento, Piazzale Aldo Moro, 230 m a. s. l., Dec. 20th 1999, Dia & Ruggiano (PAL).

Autoecious. Plants ca. 3 mm high, olive green, reddish brown below; leaves brownish green lingulate-spathulate, with emarginate apex, 1.2-1.6 mm long, flexuose to irregularly curled when dry, patent when moist, margin recurved to revolute almost from base to apex, hair-point hyaline and smooth, \bar{n} -1 length of lamina in upper leaves, shorter and with brownish base in lower ones; nerve with 1(-2) conical mamillae per cell on ventral side and seldom at back in apex, 50 μm wide in upper part, 90 μm in lower half of leaves, in section semicircular on dorsal side and with several rows of stereid cells; cells in the lower part of leaves hyaline or brown, rectangular, smooth and lax, 15-21 μm \times 33-45(-60) μm , above green \pm quadrate-rounded, 9-12 μm wide, bearing 1-3(-4) cylindro-conical papillae or mamillae, sometimes branched, to 9 μm high on ventral side, 1-2 papillae or mamillae to 6 μm high on dorsal side, 3-4 marginal rows of cells less papillose, more translucent and yellowish, forming a band (more evident in section); perichaetial and perigonial leaves light olive green, erecto-patent, lingulate with apex obtuse to acuminate, not emarginate, inner ones very small and spathulate, margin plane to recurved, nerve thinner than other leaves, papillose on the back in upper third of leaf, excurrent in a yellowish green point, smooth or sinuose, 100-300 μm long; seta straight, brown, darker and reddish below, twisted when dry; capsule cylindrical, brown; annulus persistent; peristome short, teeth papillose, once spirally twisted (Fig. 1).

Ecological remarks

Tortula israelis is a nitrophilous species that grows on walls, rocks, stones and rarely on salty soils.

In Sicily it has been collected on a concrete wall inside the public garden of the Agrigento town, where it grows mixed with *T. muralis* as it has frequently been found in Spain (Guerra & al. 1992).

According to the Bagnouls & Gaussen (1957) classification, Agrigento has a thermo-Mediterranean climate. The mean annual temperature is 18°C and the mean annual precipitation is 603 mm. The dry period extends from May to September.

Distribution

The up to date distribution of *Tortula israelis* includes the Mediterranean area and N. Spain.

In Europe it was previously recorded only from one locality of Italian peninsula (Oliva, 1999) besides from Spain (Casas & Oliva 1982; Guerra & al. 1992; Fuertes & al. 1994; Cano & García-Zamora 1995; Cano & al. 1996b; Fuertes & al. 1998; García-Zamora & al. 1998). It also occurs in Israel (Bilewsky & Nachmony 1955), Cyprus (Bilewsky 1965; Koppe 1976) and Turkey (Henderson & Prentice 1969) (Fig. 2).

The detailed distribution of *Tortula israelis* is presently to be ascertained as it is indicated by occurrence scattered throughout the Mediterranean. It has frequently been collected with the very similar species *T. muralis*, so it is often hardly detected. On the other hand, recent findings in Spain and Italy let suppose that *T. israelis* is, in all probability, more frequent than acknowledged. Since the Italian records are both from urban areas - Rome and Agrigento - further surveys could be carried out in these environments.

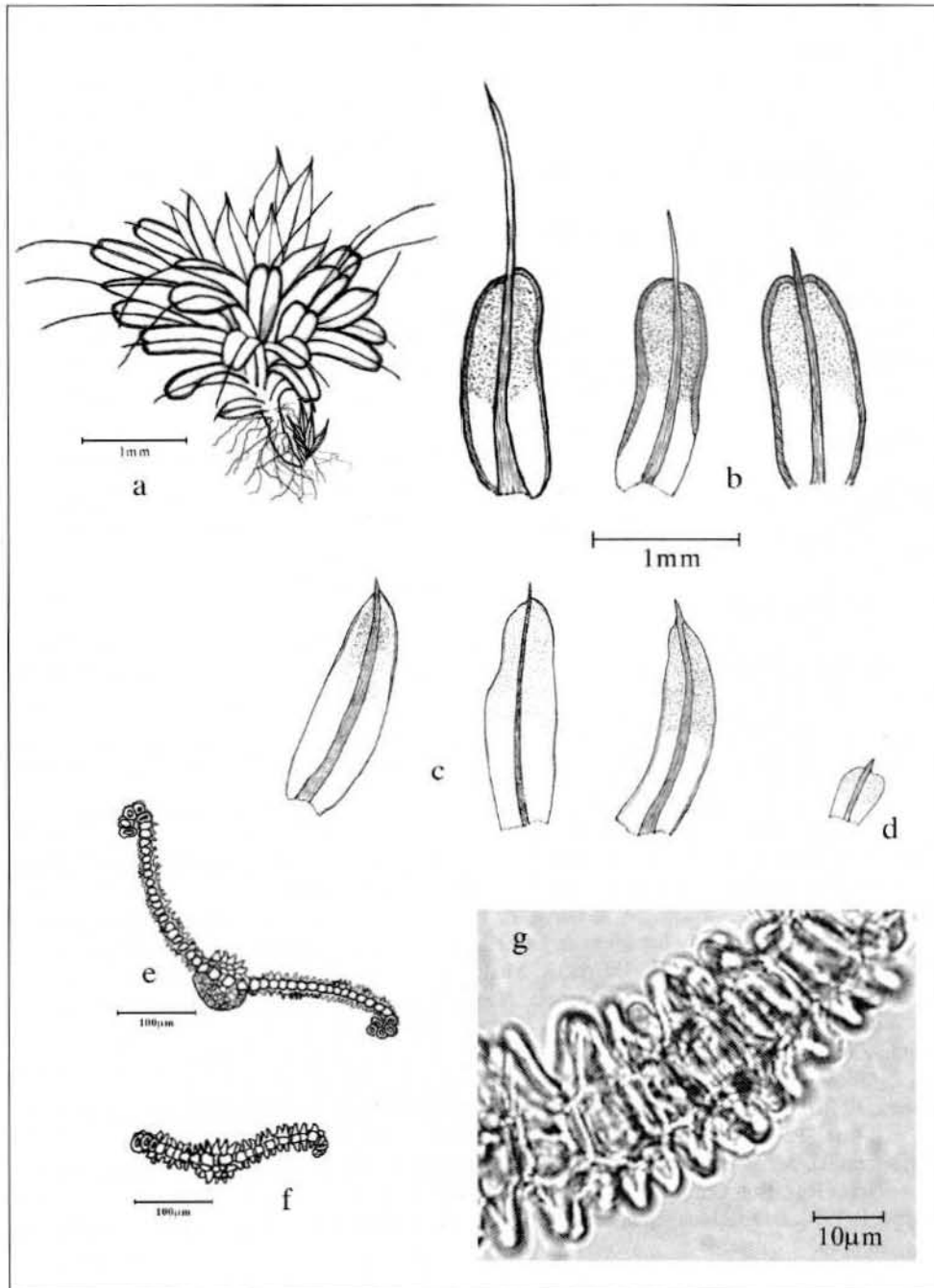


Fig. 1 - *Tortula israelis* from Sicilian specimen: **a**, plant; **b**, leaves; **c**, perichaetial leaves; **d**, inner perichaetial leaf; **e**, transverse section of leaf, middle part; **f**, transverse section of perichaetial leaf, upper part; **g**, particular of transverse section of leaf showing characteristic papillae.

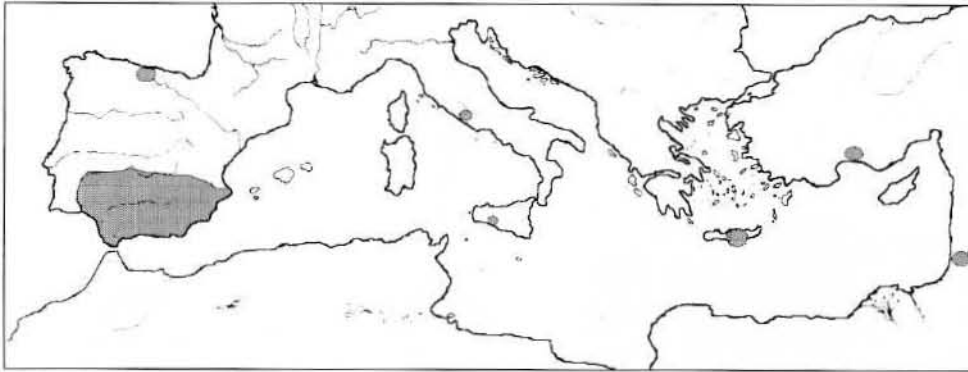


Fig. 2 — Distribution of *Tortula israelis*.

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