

SYNTRICHIA SINENSIS (MÜLL. HAL.) OCHYRA (POTTIACEAE), A NEW MOSS FOR IRANIAN BRYOFLORA

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Based on investigations of mosses in Iran, a new species of *Syntrichia*, namely, *S. sinensis* (Müll. Hal.) Ochyra belonging to the family Pottiaceae is found growing in W. Azarbaijan province (NW Iran) which is considered as a new report for the Iranian bryoflora. Pottiaceae is a world-widely distributed family consisting of 77 genera and nearly 1450 species showing characteristic of harsh habitats. Illustrations, characteristics, geographical distribution, exact localities and habitat of the species are explained herewith.

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Key words: Bryophytes; Pottiaceae; *Syntrichia sinensis*; new species; Iran

گونه *Syntrichia sinensis* (Müll. Hal.) Ochyra، گزارش جدیدی از تیره Pottiaceae برای فلور خزه‌ای ایران

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براساس اجرای طرح کلی جمع‌آوری و شناسایی خزه‌ها در ایران، اخیراً یک گونه از جنس *Syntrichia* به نام *S. sinensis* (Müll. Hal.) Ochyra متعلق به تیره Pottiaceae در استان آذربایجان غربی یافت شد که گزارش جدید برای فلور خزه‌ای کشور محسوب می‌شود. تیره مذکور با گسترش جهانی شامل ۷۷ جنس و نزدیک به ۱۴۵۰ گونه است که صفت مشخصه زیستگاه‌های سخت محسوب می‌شود. تصاویر، شرح مورفولوژیکی، پراکنش جغرافیایی، محل دقیق جمع‌آوری و رویشگاه گونه مذکور توضیح داده می‌شود.

INTRODUCTION

Pottiaceae, a world-widely distributed family, consists of 77 genera and nearly 1450 species, shows characteristic of harsh habitats. Based on the number of genera, this is the largest family of the mosses. Its taxonomy is commonly considered difficult because of the obscure areolation, small size of the plants, and apparent phenotypic variation (Zander 1993).

Syntrichia Brid. as a member of Pottiaceae, is world-widely distributed with about 90 species (Smith 2004). According to the latest checklist of the Iranian bryoflora, ten species of this genus reported from Iran (Akhani & Kürschner 2004). Fereidounfar *et al.* (2011) found a new record of *Syntichia*, namely *S. norvegica*

F. Web. from Alvand mountains in Hamedan province (Iran) which in total, this genus now embraces 11 species in Iran.

In the present study, one new species of *Syntrichia*, namely, *S. sinensis* (Müll. Hal.) Ochyra is introduced as a new report for the bryoflora of Iran.

MATERIALS AND METHODS

During moss samples collection from W. Azarbaijan province (NW Iran) in 2011–12, an interesting species belonging to the family Pottiaceae was found. Identification was made by the help of Smith (2004), Gallego (2005), and Kürschner & Frey (2011).

The voucher specimen is preserved in the herbarium

of the Ministry of Jihad-e-Agriculture ("IRAN") at the Iranian Research Institute of Plant Protection (Tehran, Iran).

RESULTS

Syntrichia sinensis (Müll. Hal.) Ochyra (Fig. 1)

Plants 0.4–1.5 cm high; Stems erect, branched, 4–15 mm. Leaves longitudinally folded and spirally twisted around the stem but little crisped when dry, wide-spreading when moist, oblong-lingulate to spatulate; margins revolute in the proximal 1/2, entire; apices acute; costa excurrent into a smooth to slightly toothed, hyaline awn, brown or reddish, smooth; basal cells abruptly differentiated, narrower toward the margins; distal cells polygonal, or quadrate, 12–20 µm, with 8–10 papillae per cell; marginal cells not differentiated. Setae red, 15–25 µm. Capsule red, 3–3.8 mm, straight or slightly curved, with a distinct neck; operculum 1.2–1.5 mm, red; peristome 0.8–1.1 mm, red, the basal membrane pale, about 1/4 the total length. Spores 12–18 µm, papillose.

Syntrichia sinensis is a saxicolous species growing on exposed or protected rocks, terricolous on acidic or basic substrate, and grows between 1100 to 1500 m (Gallego 2005).

Kürschner & Frey (2011) reported this species from Afghanistan, Iraq, and Turkey in Southwest Asia.

Specimen examined. W. Azarbaijan province, Orumieh, Movana, Jermi, near Turkey border, on soil, 44° 43' 37" 25', 1860 m, 20.06.2012, M. Eskandari (IRAN 0471 B).

Distribution. North America, Europe, Asia, and North Africa

DISCUSSION

Generally, some of gametophytic characters of *Syntrichia sinensis* which separate this taxon from others are: leaves with short hair-point, smooth or weakly spinulose; margins slightly revolute at base, plane above; costa in cross-section with 3–5 dorsal stereid rows and hydroids, and leaves constricted near mid-leaf (Gallego 2005, Mishler 2006). According to Gallego (*l.c.*), the most distinctive character of this species is that, its sporophyte shows some lesser

number of rows of cells in the basal membrane of peristome [3–6 rows of cells, 0.09–0.16 (0.2) mm high] where he discussed the distinctiveness of *S. laevipila* Brid. and *S. sinensis* in detail (both the species differ in leaf size, sexuality, leaf curvature, margin and structure of costa). According to him, although it is easily distinguishable by the shorter hair-point and basal membrane of the peristome, the greater number of papillae per cell in the lamina and the absence of bordered leaves and vegetative diaspores in *S. sinensis*, these two species could sometimes be confused if proper examination is not taken between the two. Moreover, both the species are mainly different ecologically as the former is an epiphytic taxon, whereas the latter is terricolous or saxicolous.

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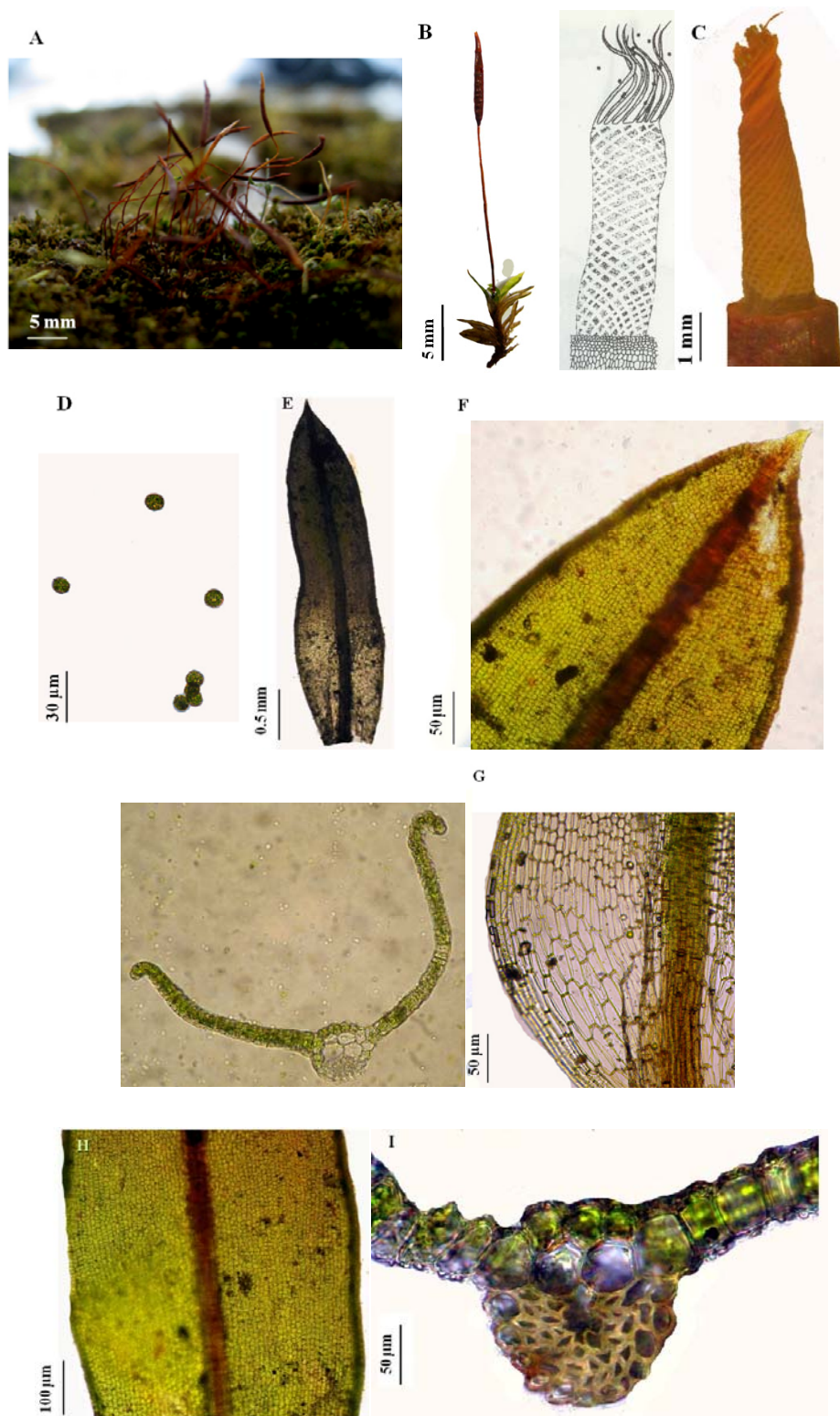


Fig. 1. *Syntrichia sinensis*: A. dry habit, B. moist habit of a fertile plant, C. twisted peristome and a hand-drawn sketch showing basal membrane with 3–6 rows of cells, D. spores, E. leaf, F. leaf cells at apex, G. basal cells of leaf and a cross section showing slightly revolute margins, H. middle laminal cells, I. cross section of costa.