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Short communications

Polygonum hydropiper

Persicaria *Polygonum hydropiper*
Polygonum hydropiper L. subsp. *Polygonum hydropiper* L. subsp. *hydropiper*
K.H. Rechinger & H. Schiman-Czeika 1968,) *microcarpum* Danser
(In: Flora Iranica, No. 56
"TARI" "IRAN"

(ochrea)

microcarpum
"IRAN" *Polygonum hydropiper* L. subsp. *hydropiper*

(B A)

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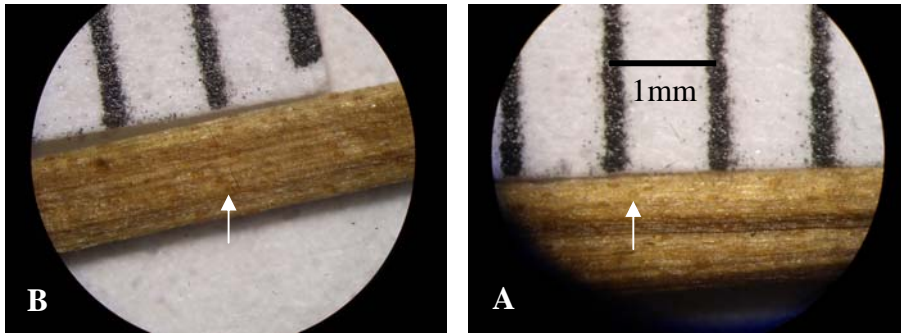
33575-IRAN

(B A)

() 6225-E

microcarpum

hydropiper

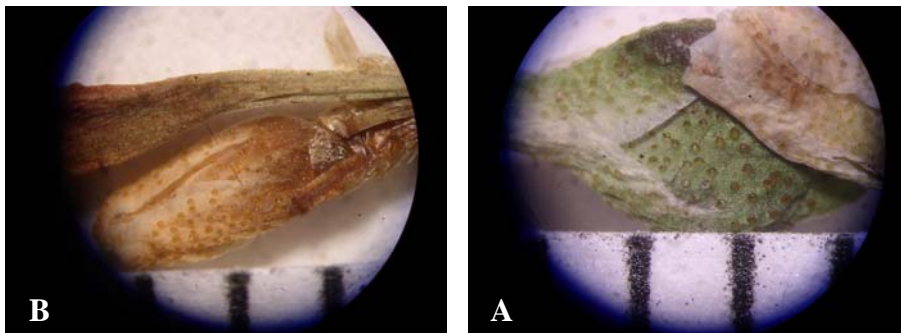


.B *Polygonum hydropiper* subsp. *microcarpum* .A

P. hydropiper subsp. *hydropiper*

P. hydropiper

Fig. 1. A. *Polygonum hydropiper* subsp. *microcarpum*, B. *P. hydropiper* subsp. *hydropiper*. Arrows indicate punctate glands on stem in subsp. of *P. hydropiper*.



Polygonum hydropiper

.B *P. hydropiper* subsp. *microcarpum* .A

P. hydropiper subsp. *hydropiper*

Fig. 2. The same density of punctate glands on perianth in subspecies of *Polygonum hydropiper*. A. *P. hydropiper* subsp. *microcarpum*, B. *Polygonum hydropiper* subsp. *hydropiper*.

microcarpum

(IRAN-41588 IRAN-41589)

microcarpum

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Polygonum Persicaria

Persicaria

Persicaria hydropiper Miller

Polygonum hydropiper L.

subsp. *microcarpum* Danser

microcarpum hydropiper

Polygonum hydropiper

P. hydropiper

subsp. *hydropiper*

subsp. *microcarpum*

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Terfezia boudieri

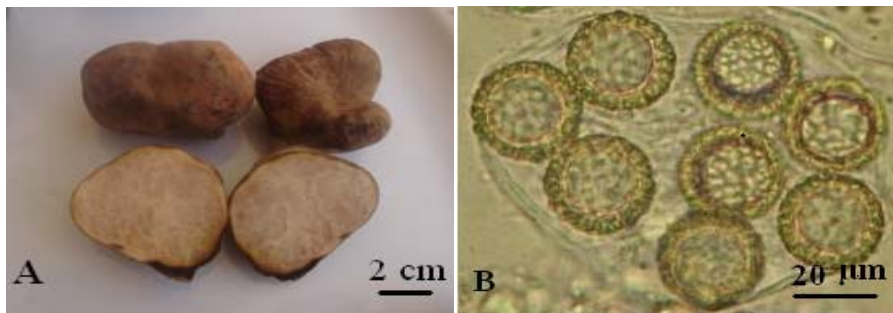
(A)

(B)

(Chatin, A. 1892, La Truffe. Paris)

Terfezia boudieri Chatin

(Ershad, D. 1995. Fungi of Iran)



(B)

(A) *Terfezia boudieri*

Fig. 3. *Terfezia boudieri* (A) and its ascus & ascospores (B).

Euphorbia prostrata

Euphorbia

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A.R. Smith & T.G. Tutin 1968. *Euphorbia*. In: Tutin,)
T.G; Heywood, V.H; Burges, N.A; Moore, D.M; Valentine, D.H; Walters, S.M. &
(Webb, D.A. Flora Europaea. Vol. 2: 211-226.
(P.H. Davis. Flora of Turkey. Vol. 7. 1982. Edinburgh at the University Press)

Euphorbia prostrata Aiton.

E. granulata *E. chamaesyce*

Chamaesyce

Chamaesyce

Euphorbia

Euphorbia
prostrata

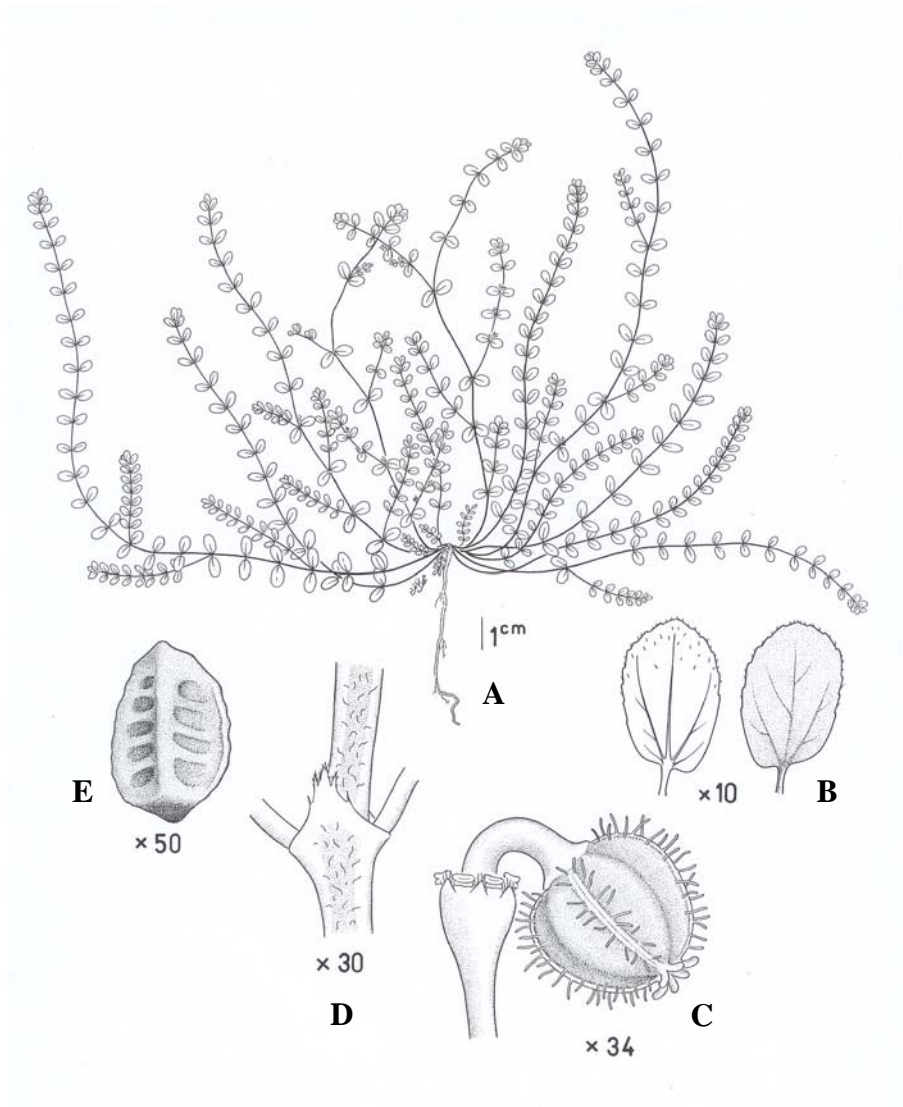
E. chamaesyce

E. granulata

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(C) (B) (A) :*Euphorbia prostrata*
(E) (D)

Fig. 4. *Euphorbia prostrata*: A. Habit, B. Leaf, C. Capsule and Cyathium, D. Stem and stipule, E. Seed.

Polyporales

Spongipellis pachyodon

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Ryvarden, L. 1976. The polyporaceae of North Europe
Spongipellis pachyodon (Pers.) Kotl. & Pouzar (Polyporales, Hapalopilaceae)

/

(A)

(teeth)

(hydroid)

(B, C)

(monomitic)

(clamp connection)

(D)

(oil drop)

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(IRAN 2036 F)

(IRAN 5288 F)

Spongipellis

Spongipellis pachyodon

Irpex lacteus Fr.

Spongipellis pachyodon

Irpex

(encrusted cystidia)

Irpex

Spongipellis pachyodon

(heart rot)

(irpex canker)

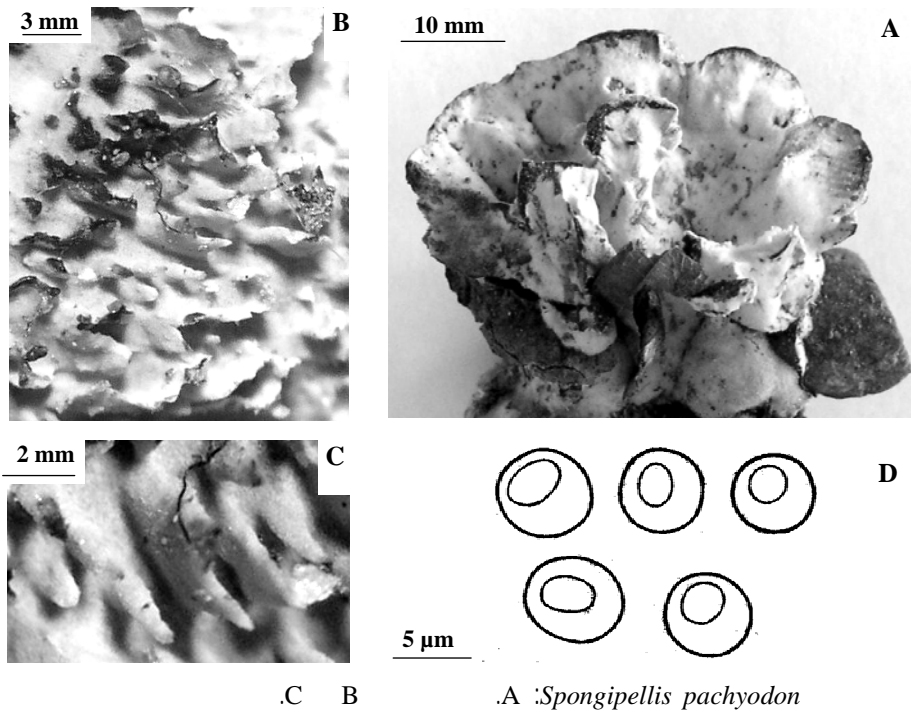


Fig. 5. *Spongipellis pachyodon*: A. Fruit body, B & C. Hydroid hymenophore, D. Spores.

Blysmus compressus

Blysmus

("IRAN")

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["TARI"]

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(C) (B) (A) :*Blymus compressus* subsp. *brevifolius*
Fig. 6. *Blymus compressus* subsp. *brevifolius*: Plant (A), Glume (B), Nut (C).

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Kukkonen, 1998. Cyperaceae. *In*: Rechinger, K.H.]

Blysmus compressus (L.) Panzer ex

[(ed.). Flora Iranica. No. 173

Link subsp. *brevifolius* (Decne.) Kukkonen

: *compressus*

compressus

:(IRAN-50686)

Pythium ultimum var. *sporangiferum*

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PDA :

CMA

PDA

CMA

CMA

*

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Pythium ultimum Trow var.

Van der Plaats-Niterink, A.J. 1981)

sporangiiferum Drechsler

(Monograph of the genus *Pythium*. Studies in Mycology, No. 21

P. ultimum var. *ultimum*

IRAN 27C

Glaucium oxylobum* subsp. *rechingeri

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Glaucium oxylobum Boiss. & Buhse subsp. *oxylobum*

() : *G. oxylobum* subsp. *rechingeri* Mory

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Glaucium oxylobum Boiss. & Buhse subsp. *rechingeri* Mory

: [Mory 1979. Feddes Repertorium 89 (9-10): 499-595]

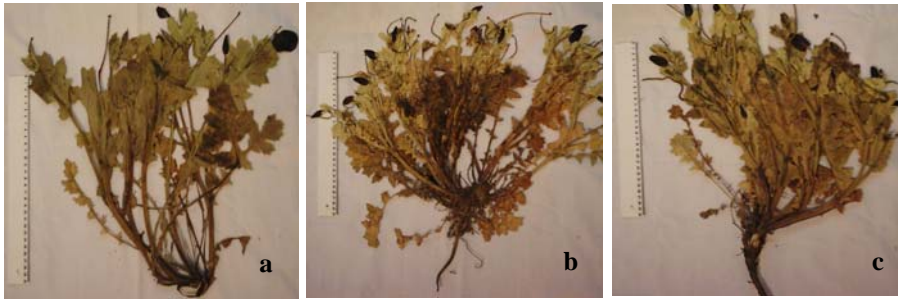
G. oxylobum subsp. *rechingeri*

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("IRAN")
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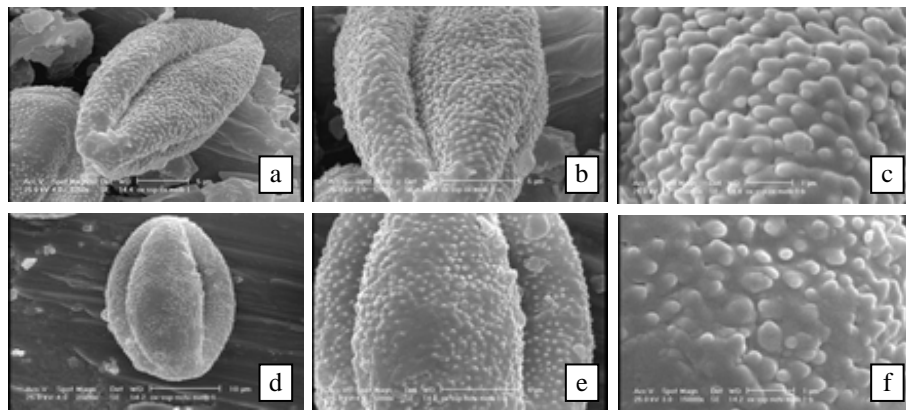


Glaucium oxylobum
Fig. 7. *Glaucium oxylobum*: fruits, a. Straight, b. Twisted, c. Straight and twisted.

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(AMF)



Glaucium oxylobum

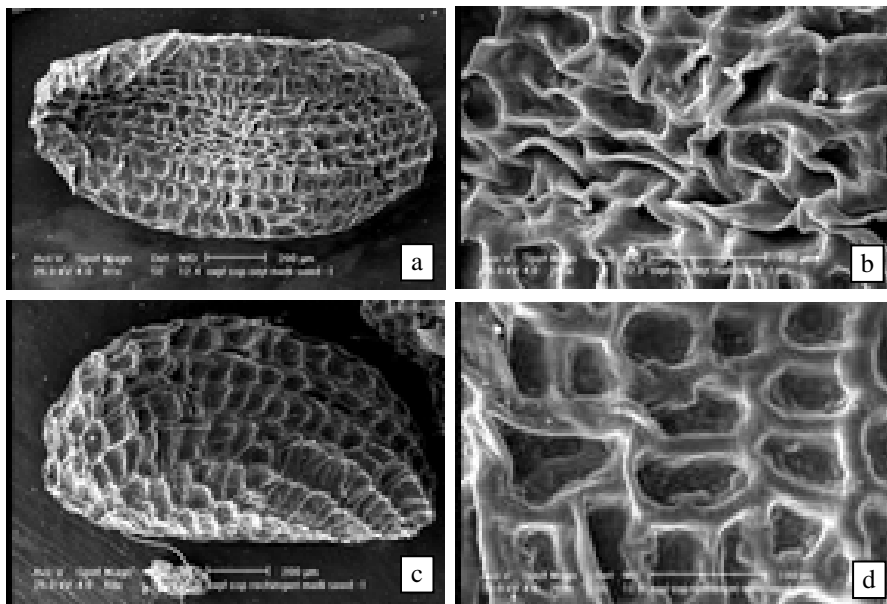
(S.E.M)

x .e x .d

x .c x .b x .a

x .f

Fig. 8. S.E.M photograph & surface ornamental of pollen grain in *Glaucium oxylobum* in straight fruit, a. x3250, b. x5000, c. x15000 and twisted fruit, d. x2026, e. x5000, f. x15000.



Glaucium oxylobum

(S.E.M)

x .d x .c

x .b x .a

Fig. 9. S.E.M photograph & surface ornamental of seed in *Glaucium oxylobum* in straight fruit, a. x 61, b. x 250 and twisted fruit, c. x 63, d. x 250.

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Entrophospora colombiana Spain et Schenck.

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(L) : (L, L, L)
(L) (/) / (/)

(/) / (/) (L) .
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(gw1 gw1)
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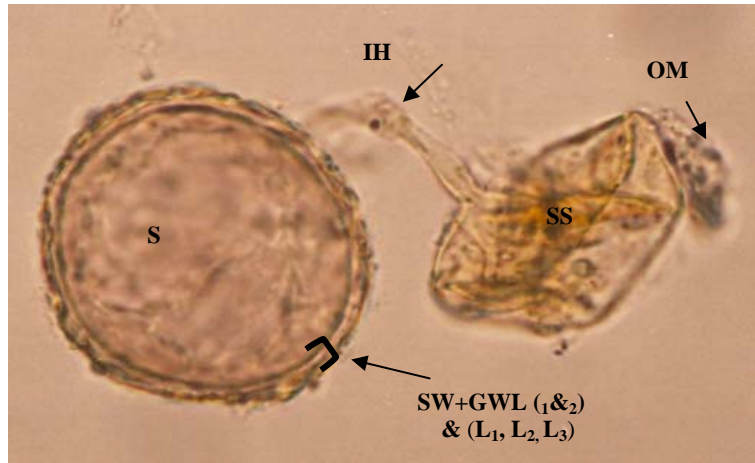
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[Spain & Scenck 1984. Mycologia 76(4)]

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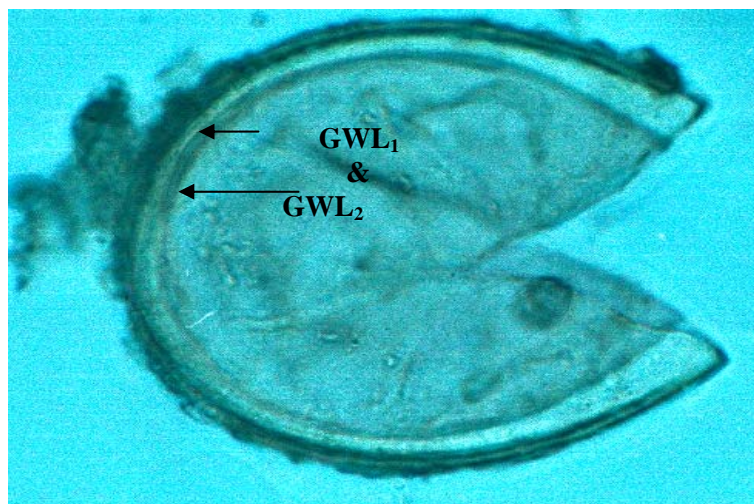
Glomus manihotis (= *G. clarum*), *G. coronatum*, *G. geosporum*, *G. mosseae*,
G. etunicatum, *G. intraradices*, *G. lamellosum*, *G. eburneum*, *G. aggregatum*,
G. caledonium, *G. ambisporum*, *Paraglomus occultum* *Pacispora scintillans*



Entrophospora colombiana

(IH) (SS) (S)
 (×) (OM) (GWL)

Fig. 10. *Entrophospora colombiana*: An intact spore, sporiferous saccule with their structural details. Spore (S); Sporiferous saccule (SS); Interconnecting hypha (IH); Composite spore wall layer and germinal walls (GWL); Accumulation of organic materials on sporiferous saccule (OM), (242X).

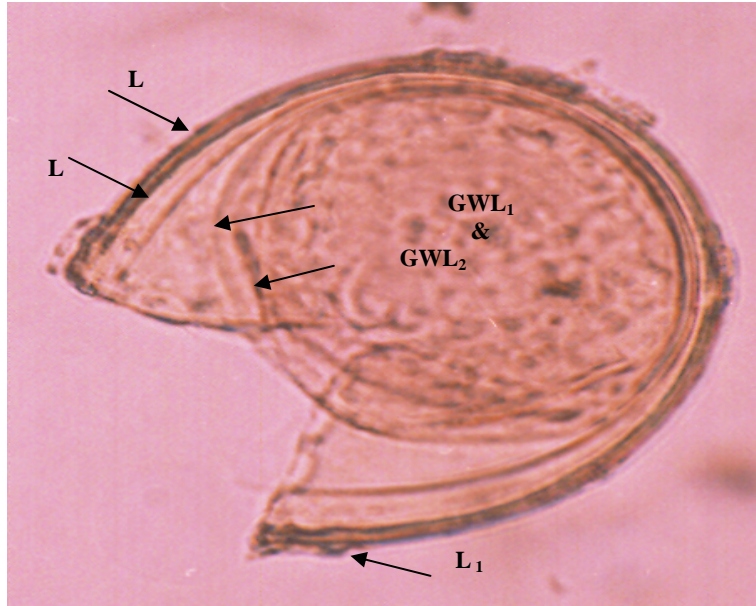


Entrophospora colombiana

(×)

Fig. 11. *Entrophospora colombiana*: First and second germinal walls on a broken spore (600X).

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(L₁, L₂ & L₃) :*Entrophospora colombiana*
 (×) (GWL₁ GWL₂)

Fig. 12. *Entrophospora colombiana*: Spore and germinal wall characteristics. Three spore wall layers (L₁, L₂, & L₃) and two inner germinal walls (GWL₁ & GWL₂) on a broken spore (600×).

Foveostroma drupacearum

(*Prunus avium* L.)

Coelomycetes

eustromatic

/ / / /

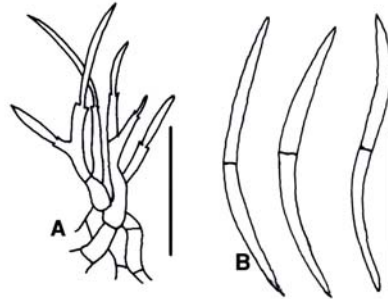
×

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The Coelomycetes: Fungi imperfecti .()

with Pycnidia, Acervuli and Stromata (Sutton 1980)

Foveostroma drupacearum (Lév.) di Cosmo



(A) :*Foveostroma drupacearum*

Fig. 13. *Foveostroma drupacearum*: (A) Conidiophores and (B) Conidia (Scale 25 μ m).

Anthemideae

Spathipappus

Tanacetum L.

T. kotschy (Boiss.) Grierson

(“IRAN”)

(IRAN)

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Flora Iranica (Podlech 1986)

Spathipappus porphyrostephanus (Rech. f.) Tzvel.

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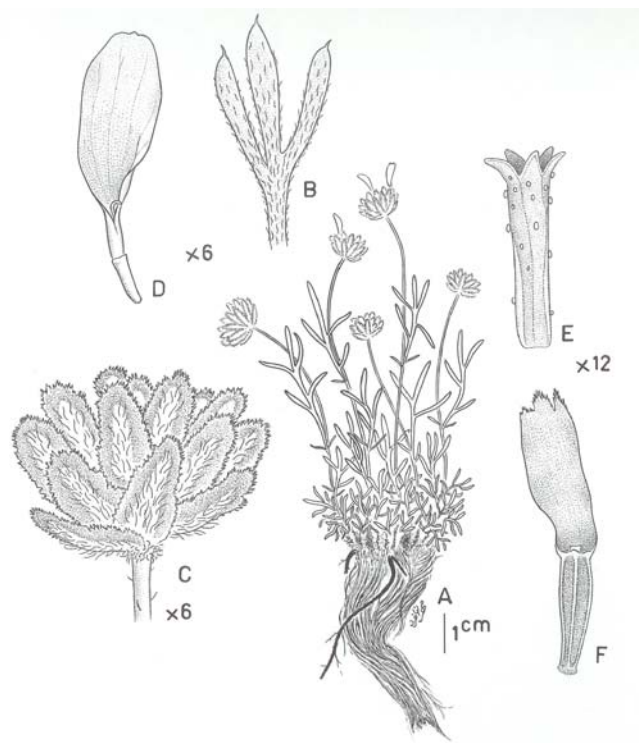
Tanacetum L.

Spathipappus Tzvel.

S. porphyrostephanus (Rech. f.) Tzvel

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.C .B .A *Spathipappus porphyrostephanus* .F .E .D

Fig. 14. *Spathipappus porphyrostephanus*: A. Habit, B. A part of leaf, C. Involucre, D. Ligulate floret, E. Corolla of tubular florat, F. Achene with spath-shaped pappus.

C. triangularis *Campanula tridentata* var. *velutina*

Campanula

("TEH")

(K.H. Rechinger & H. Schiman-Czeika 1965)

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***Campanula tridentata* Schreb. var. *velutina* Parsa, Kew. Bull. 1948: 209, 1948**

() (Parsa)

"TEH" Parsa 102

(K.H. Rechinger & H. Schiman-Czeika 1965) *C. aucheri* DC.

C. tridentata Schreb. var. *velutina* Parsa

C. aucheri . *C. aucheri* DC.

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***Campanula triangularis* Parsa, Kew Bull. 1948: 209, 1948**

(Parsa)

"TEH" Parsa 875

Campanula

Symphyandra armena (Steven) DC.

Symphyandra

(K.H. Rechinger & H. Schiman-Czeika 1965)

Symphyandra armena (Steven) DC.

C. triangularis Parsa

()

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Campanula tridentata var. *velutina* (= *C. aucheri*)

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Fig. 15. *Campanula tridentata* var. *velutina* (= *C. aucheri*) from "TEH" herbarium (Photo: M. Eskandari).



Campanula triangularis (= *Symphyandra armena*)

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Fig. 16. *Campanula triangularis* (= *Symphyandra armena*) from "TEH" herbarium (Photo: M. Eskandari).

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Tranzschelia arasbaranica

Prunus mahaleb L.

Tranzschelia

* /

T. arasbaranica M. Abbasi & M. Scholler

[Abbasi & Scholler 2005, Sydowia 57(2): 150]

P. mahaleb *T. pruni-spinosae* *T. discolor*

(Abbasi & Sholler 2005)

T. pruni-spinosae f. sp. *discolor* (M-100192)

(=*T. discolor*)

P. mahaleb

T. arasbaranica

P. mahaleb

Prunus mahaleb :

/ / N 41° 38.827'; E 44° 44.134'

II+III (IRAN 5777 F)

(II)+III (M-100192) / /

SHORT COMMUNICATIONS

Synonymy of two subspecies of *Polygonum hydropiper*. N. AMIRI and F. SHARIFNIA. Faculty of Science, Islamic Azad University, N. Tehran Branch, Tehran, Iran

Two subspecies of *Polygonum hydropiper* L. from section Persicaria have been recorded in Flora Iranica: Type subspecies and *P. hydropiper* L. *microcarpum* Danser (K.H. RECHINGER & H. SCHIMAN-CZEIKA 1968, *In*: Flora Iranica, No. 56). They were originally separated by characters mentioned in Table 1.

In reviewing of herbarium specimens ("IRAN", "TARI" and other research stations herbaria), and also referring to Flora Iranica, proper localities for collecting the samples of *P. hydropiper* were obtained. Fresh samples were gathered from Khouzastan, Golestan, Mazandaran, Gilan, Ardebil, W. and E. Azarbaijan Provinces.

During this research, some important points were appeared as follows:

1. Problems in diagnosis characters- Morphological study shows that diagnosis characters for separating these two subsp. are so inefficient, for instance, some of them like completeness of ochreae, length of stem and cilia of ochreae are not fixed. Besides, there is no mentioned size in Flora Iranica for them. Presence of hair on beneath midribs and also presence of punctuate glands on upper bracts and perianths are another characters correlated with description of both subspecies. Subspecies *microcarpum* is separated from type subspecies by density of punctuate glands on perianth and presence of punctuate glands on stem. But all the specimens of *P. hydropiper* subsp. *hydropiper* in "IRAN" herbarium, which are collected by Rechinger and identified by Rechinger & Schiman-Czeika, have absolute dense

punctuate glands on perianth (Fig. 1, A & B) and stem (Fig. 2, A & B) (specimen No. 33575-IRAN, numbered 6225-E in Flora Iranica). Flora Iranica mentioned that bracts in subsp. *microcarpum* are not ciliate but did not mention anything about cilia on *hydropiper* bracts.

2. Common distribution- There is no reported place for the subsp. *microcarpum* in Iran, but it has been collected from some places such as: Kelardasht and the road of Ispili to Siahkal, where the samples of type subsp. is present, too. The specimens present in "IRAN" herbarium are under the following Nos: 41588-IRAN, 41589-IRAN. Geographical distance is the main and certain factor to separate these subsp.

3. Locality for the type specimen subsp. *microcarpum* is not indicated in flora Iranica.

4. There is no report about any subsp. in all available floras, such as the followings: Flora of Pakistan Vol. 205, Flora of Palestine Vol. 1, Flora of USSR. Vol. 5, Flora of Turkey Vol. 2, Flora of Europe Vol. 1, Flora of China Vol. 5, Flore de l'Iran Vol. 2, Flora of India Vol. 7, Flora Orientalis Vol. 4 and Rostanihayeh Iran Vol. 2.

Table 1. Diagnosis characters for separating two subsp. *hydropiper* & *microcarpum* based on Flora Iranica

| Characters | <i>Polygonum hydropiper</i> subsp. <i>hydropiper</i> | <i>P. hydropiper</i> subsp. <i>microcarpum</i> |
|---|---|---|
| Stem length | Long | Short |
| Presence of glands on Stem | Without punctuate glands | With punctuate glands |
| Completeness of ochreae | Not given | Complete |
| Cilia length of ochreae | Short | Long in upper ochreae |
| Presence of cilia on upper bracts margin | Without cilia | Not given |
| Presence of glands on upper bracts | With punctuate glands | With dense punctuate glands |
| Presence of hair on midrib | Glabrus or with hair | Always with hair |
| Glands density on perianth | Lax punctuate glands | Dense punctuate glands |

All species of the sect. *Persicaria* from genus *Polygonum* have been introduced as genus *Persicaria* in flora of Pakistan, and there is no identified subsp. for *Persicaria hydropiper* Miller.

According to above-mentioned points, synonymy of these two subsp. is, therefore, suggested.

The first report of *Terfezia boudieri* from Iran. A. AMMARELLOU, H. SAREMI and J. TRAPPE. University of Zanjan, Iran and University of Oregon, USA

During 2001-2006, various characteristics of the Iranian desert truffles were recorded. The species of truffle that found in deserts of Tarom (Zanjan Province), grows solitary in the soil, is about the size of a large potato, forms 8-10 cm below the soil surface, has a firm texture, and is yellowish inside (Fig. 3, A). This species has the best flavour among all truffles that are identified so far. When mature, produces telltale cracks in the soil surface that are recognized by experienced collectors. Cytological examination showed that, each ascus contains eight ascospores. The diameter of ascus is about 70 μm and ascospores about 20 μm (Fig. 3, B). According to morphological and cytological characteristics, the species was identified as *Terfezia boudieri* Chatin (CHATIN, A. 1892, La Truffe. Paris). This is a new record to Iranian mycoflora (ERSHAD, D. 1995. Fungi of Iran).

***Euphorbia prostrata*, a noteworthy new record from the flora of Iran.** A.H. PAHLEVANI. Department of Botany, Iranian Research Institute of Plant Protection, Tehran, Iran

Among the collected specimens from Karaj, Kalak (Tehran Province), one specimen belonging to the genus *Euphorbia* found with the following characteristics:

Procumbent annual, usually with branches 10-20 cm. Stems usually glabrous below, crisp-hairy above. Leaves 4-7 x 2-4 mm, opposite, obovate to obovate-oblong, obtuse, asymmetrical at the base, serrulate to subentire, sparsely pubescent to glabrescent on both surfaces; petiole one mm. Stipules membranous, one mm, triangular-subulate, upper free, the lower often connate. Glands transversely ovate to oblong, purplish, with small, pink appendages. Capsule 2 x 2 mm, 3-sulcate, patulous-bristly along keels only, usually purplish but another portion is glabrous,

yellowish-green. Seeds 1-1.5 mm, ovoid-quadrangular, deeply transversely furrowed grayish, ecarunculate (Fig. 4).

Based on the above characteristics and referring to the Flora Europaea (A.R. SMITH and T.G. TUTIN 1968. *Euphorbia*. In: TUTIN, T.G; HEYWOOD, V.H; BURGESS, N.A; MOORE, D.M; VALENTINE, D.H; WALTERS, S.M. and WEBB, D.A. Flora Europaea Vol. 2: 211-226.) and Flora of Turkey (P.H. DAVIS. Vol. 7. 1982. Edinburgh at the University Press), the specimen was identified as *Euphorbia prostrata* Aiton. Comparison between three species of *Euphorbia* subgenus *Chamaesyce* is given in Table 1.

Table 1. Comparison between three species of *Euphorbia* subgenus *Chamaesyce*

| Species | Fruit | Gland | Leaf |
|----------------------------|-----------------------------------|---|-------------------------------------|
| <i>Euphorbia prostrata</i> | Patulous-bristly along keels only | Purplish, with small and pinkish appendage | A few asymmetrical at the base |
| <i>E. chamaesyce</i> | Hairs on capsule patent | Yellow to reddish-brown, with large and white appendage | Completely asymmetrical at the base |
| <i>E. granulata</i> | Hairs on capsule complete | Red to brown, with approximately large and white to red appendage | Completely asymmetrical at the base |

Native of the N. America, now becoming widely established as an adventive in temperate, tropical and subtropical regions: e.g. Europe (Portugal, Spain, Italy and Greece), Palestine, Egypt, Canary island and Turkey. Naturalized as a weed and ruderal in lawn, roadsides and ornamental gardens.

***Spongipellis pachyodon*, a new polypore for Iran.** M.R. ASEF. Department of Botany, Research Institute of Plant Protection, Tehran, Iran

In the framework of project "Collecting and identifying of fungi of Iran", two specimens of wood fungi were collected from Golestan Province (N. Iran) in 2005. The characteristic features of these specimens are as follows:

Fruit body semicircular to broadly attached, up to 5 cm across. Surface is finely tomentose, white, cream to pale brown colored (Fig. 5, A); lower surface with tooth-like projections up to 4 mm long, white to cream colored (Fig. 5 B, C). Hyphal

system monomitic with clamped generative hyphae. Spores globose, smooth, hyaline, 5-7 μm , non amyloid, with a large oil drop (Fig. 5, D).

This specimens identified as *Spongipellis pachyodon* (Pers.) Kotl. & Pouzar (Polyporales, Hapalopilaceae) (RYVARDEN, L. 1976. The polyporaceae of North Europe) which is a new record for Iran.

Materials examined: On woods, Golestan Province, Golestan National Park, 5.5.2005, Asef (IRAN 2036 F); on woods, Golestan Province, Ranko forest, 5.6.2005, Asef (IRAN 5288 F).

Spongipellis pachyodon is one of the causes of irpex canker and heart rot of oak, beech and maple woods.

The globose spores and monomitic clamped hyphal system make the species quite characteristic and confusion may only occur with *Irpex lacteus* which, however, has simple septate generative hyphae and large encrusted cystidia.

Report of a new subspecies of *Blysmus compressus* from Iran. M. AMINI RAD.
Department of Botany, Iranian Research Institute of Plant Protection, Tehran, Iran

The *Blysmus* genus belongs to Cyperaceae family which has reported one species and one subspecies from Iran up to now. In review of *Blysmus* specimens (IRAN and TARI herbaria specimens and new collected specimens), a newly collected specimen from Semnan Province was seen with following descriptions:

Plant perennial, 25-30 cm. Rhizome with stolon. Stem 0.5-0.7 mm diameter, trigonous and often scabrous above. Leaves caulis, shorter than stem, smooth to rather flexuous; blade 1/3-2/3 mm wide, flat, with smooth and involute margins. Inflorescence 2-3/5 x 0.5-0.8 mm, with 4-6 spikelets; lowest spikelet remote; lowest bract shorter to longer than inflorescence, leaf like. Spikelets 6-7 x 2-3 mm; glume 5-6 mm, scarious, acute, with midrib reaching apex; perianth bristles 4-5, to 4 mm, with base much twisted; style to 3 mm. Nut 2-2.5 x 1 mm (Fig. 6).

Based on the above characteristics and referring to Flora Iranica No. 173 (KUKKONEN 1998), the specimen was identified as *Blysmus compressus* (L.) Panzer ex Link subsp. *brevifolius* (Decne.) Kukkonen.

Determination characters between the subsp. *brevifolius* and subsp. *compressus* are: glumes with midrib reaching apex and perianth bristles with base much twisted in subsp. *brevifolius*, while glumes with short midrib and perianth bristles with base about straight are seen in subsp. *compressus*.

Semnan Province: 30 km from Firouzkuh to Semnan, Goursefid village, 2300-2350 m, Amini Rad & Eskandari (IRAN-50686).

General distribution: Dzhungaro-Alatau to Pamir, E. Afghanistan, Pakistan, China, Mongolia, S. Central Siberia and Iran.

***Pythium ultimum* var. *sporangiiferum*, a new taxon to Iran.** D. ERSHAD and H. TAHERI. Iranian Reseach Institute of Plant Protection, Tehran and Iranian Citrus Reseach Institute, Ramsar, Iran

A species of *Pythium* was isolated from roted roots of kiwi fruit (*Actinidia chinensis* Planch.) in Mazandaran Province (Salman shahar), Iran. The characteristics of the fungus were: Colony on PDA with cottony aerial mycelium, in reverse without pattern and light yellow, on CMA with few aerial mycelium, in reverse radiate patern. Hyphae hyaline, non-septate, variable in wide, 3-10 μm . On agar media (PDA & CAM) no sexual and asexual organs were observed. Putting sterilized hemp seeds on colony for five days and transferring colonized ones into distilled water, first asexual, then sexual organs readily and abundantly formed at laboratory conditions. Hyphal swellings very rare, irregular, and intercalary. Sporangia globose and subglobose, terminal and intercalary, 24-32 μm in diamder, with one, sometimes 2 discharge tubes. Oogonia globose, smooth, usually terminal sometimes intercalary, 18-26 μm in diameter. Antheridia pouch-like curved, mostly sessile and monoclinous, measuring 9-17 x 7-10 μm . Oospores single, spherical, aplerotic, 14-21 μm in diameter, with a wall often 2 μm thick. Cardinal temperatures, minnum 2.5° C, optimum 30° C and maximum 35° C.

Based on foregoing characteristics, the fungus was identified as *Pythium ultimum* Trow var. *sporangiiferum* Drechsler (VAN DER PLAATS-NITERINK, A.J. 1981. Monograph of the genus *Pythium*, Studies in Mycology, No. 21). *P. ultimum* var. *sporangiiferum* mainly differs from var. *ultimum* by its capacity to

produce sporangia and to release zoospores at laboratory temperature. Description is based on isolate of IRAN 27C.

Synonymy of *Glaucium oxylobum* subsp. *rechingeri* with the type subspecies.

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The Illustrated Flora of Golestan National Park, Iran (AKHANI 2004), mentioned the following diagnosis characters to separate *Glaucium oxylobum* Boiss. & Buhse subsp. *oxylobum* and *G. oxylobum* subsp. *rechingeri* Mory: Pedicle length 2-6(-8) cm and fruit & pedicle more or less straight for *Glaucium oxylobum* subsp. *oxylobum* and pedicel length 1-2.5(-4) cm and fruit & pedicel twisted for *G. oxylobum* subsp. *rechingeri*. There are some problems in mentioned book and also in the article, which describes *G. oxylobum* subsp. *rechingeri* Mory for the first time [MORY 1979. Feddes Repertorium 89(9-10): 499-59]:

1. In diagnostic characters table of two subspecies in the article, height, blossom length, pedicle length and fruit length overlap. It makes the identification impossible. This numerical overlap in pedicle length presents in the mentioned book, too.
2. Both mentioned sources describe straight pedicle and fruit for type subspecies and twisted pedicle and fruit for *G. oxylobum* subsp. *rechingeri*.
3. These two subspecies present in special places in northern provinces of Iran. During spring of 2006, lot of samples were gathered from following localities, obtained from distribution map (Golestan National Park in Golestan Province, Sorkh Abad, Orim, Veresk, Hezar Jarib, Kiasar in Mazandaran Province and also Gaduk in Tehran Province). In the populations from above places, straight and twisted fruits occur together. Both shapes of the fruit present in one individual, too. Therefore, separating of the subspecies is not possible (examined specimens are preserved in "IRAN" herbarium).
4. According to distribution map, samples with straight fruits must be present in Golestan National Park in the east of map (type specimen), but both straight and twisted shape fruit have been observed (Fig. 7).

5. In description part of the subspecies in the article, a single place for both subspecies is mentioned (Mazandaran Province: Gaduk to Abbas-Abad, 1600 m). It shows presence of both subspecies in a single locality.

In the present research, morphological study and also micro-morphological study of pollen grains (Fig. 8) and seeds (Fig. 9) were carried out, but no difference was observed.

According to above reasons and referring to all available floras, synonymy of these two subspecies is, therefore, offered.

Introducing one species of arbuscular mycorrhizal fungus from Khuzestan sugarcane fields new to Iran. N. ROKNI, E. MOHAMMADI GOLTAPEH and A. ALIZADEH. Department of Plant Pathology, Faculty of Agriculture, Tarbiat Modarres University, Tehran, Iran

In order to isolation and identification of arbuscular mycorrhizal fungi (AMF), 54 soil samples were collected from sugarcane fields, coinciding with the end of the growing season. Fourteen species of AMF were obtained from the soil samples. *Entrophospora colombiana* Spain *et* Schenck. is new to Iran and is described below:

Spores produced singly in soil or roots, developed from inside the neck of the sporiferous saccule. Spores are globose (57.8- 75.1 (-91) μm in diameter, hyaline to pale purple with granular or reticulate contents. Spore wall consists of following three layers (L_1 , L_2 , L_3): First layer (L_1): a hyaline, evanescent layer which is continuous with the wall of the sporiferous saccule neck, (1.1-) 1.2 (-2.1) μm thick, attached to second layer. This layer is only seen on young spores. Second layer (L_2): a light yellow laminated layer (1.6-) 1.4 (-2.1) μm thick. Third layer (L_3): a hyaline layer, <1.1-1.1 μm thick, separating from second layer on broken spores (Fig. 12).

Germinal walls consist of two inner layers (gwl_1 & gwl_2), purple in color, composite walls thickness, 1.1-<1.5 μm (Figs 10 & 11).

Sporiferous saccule white to hyaline, 47-65 μm in diameter, at first globose, shrinking after discharging its content into spore, tending to detach from spore, accumulating of organic materials frequently is seen on its wall. Sporiferous saccule

wall consists of one layer, 1.1-3.2 μm thick. Interconnecting hypha between spore and sporiferous saccule, 31.5-42 μm long, 3.2-5.3 μm wide at the point of attachment to sporiferous saccule and 5.3 μm wide at the point of attachment to spore. Produced opposite to interconnecting hypha, subtending hypha 4.2-5.3 μm wide (Fig. 10).

Shape, colour, dimensions and spore wall structure and characteristic of sporiferous saccule are comparable with protologue, however, the most and the least range of spore and sporiferous saccule dimensions are approximately a little less than it. Also colour of spores is a little lighter than protologue [SPAIN & SCENCK 1984. *Mycologia* 76(4)].

In addition, 13 other species including, *Glomus manihotis* (= *G. clarum*) *G. coronatum*, *G. mosseae*, *G. geosporum*, *G. etunicatum*, *G. intraradices*, *G. lamellosum*, *G. eburneum*, *G. aggregatum*, *G. caledonium*, *G. ambisporum*, *Paraglomus occultum* and *Pacispora scintillans*, were also identified.

***Foveostroma drupacearum*, a new species for Iranian mycoflora from dead cherry twigs.** S.A. HASHEMI BABAHEIDARI and S.A. KHODAPARAST. Department of Plant Protection, College of Agriculture, Gilan University, Rasht, Iran

On April 2006, a Coelomycetes species was collected on dead cherry twigs around Talesh (Gilan Province, Iran). According to our examination, the fungus was characterized as follows: Mycelium immersed, conidiomata eustromatic, separate, pulvinate, 0.57-0.92 mm width and 0.30-0.57 mm high; conidiophores hyaline, filiform, septate, up to 27 μm long and 3 μm width; conidiogenous cells enteroblastic, phialidic, hyaline and collarete; conidia hyaline, medianly one septate, thin-walled, falcate or sigmoid, tapered toward the apex and the base (fusiform), sometimes guttulate, measuring $43\text{-}50 \times 3 \mu\text{m}$ (Fig. 13). According to above characteristics, the fungus was identified as *Foveostroma drupacearum* (Lév.) di Cosmo (SUTTON 1980, The Coelomycetes: Fungi imperfecti with Pycnidia, Acervuli and Stromata). This is the first report of the fungus for Iranian mycoflora.

Material examined: On *Prunus avium* L., April 2006, coll. S.A. Hashemi Babaheidari, (Gilan University, Agricultural College, Mycological Herbarium No. 361).

***Spathipappus* Tzvel., a new genus of the Asteraceae - Anthemideae for the flora of Iran.** S.B. DJAVADI and M. IRANSHAHR. Department of Botany, Iranian Research Institute of Plant Protection, Tehran, Iran

In reviewing of herbarium materials of the genus *Tanacetum* L. available in "IRAN" herbarium, a specimen that already identified as *T. kotschyi* (Boiss.) Grierson was studied more in detail. The specimen which has been collected from Khorasan Province: Mashhad to Neyshabour, Piveh-Jan mountains, 2200-2400 m, 28.7.1986, Termeh, Mousavi & Tehrani (IRAN 12199), has the morphological characters as follows:

Plant suffruticose, slightly white-villose, caudex ligneous, vertical, up to 10 mm thick, strongly branched at apice, caudicles short or long, sterile innovation shoots (surculose) numerose, emitted from flowering stems. Stem ascending or rather upright, up to 10 cm high. Lower and middle cauline leaves as well as surculose leaves 8-16 mm long, with short or long petioles, lamina oblong, pinnatisect, chief segments 3-4(-5), 3-5 mm long on both sides, anterior segment with 3 clefts or irregularly few-toothed or entire, cartilaginous-mucronulate, 0.5-1 mm wide, \pm revolute at margin, median nerve prominent at lower surface. Upper leaves linear, entire. Heads solitary, at ending of each branches, unfoliated 1-3 cm long beneath the head. Involucre broadly hemispherical or napiform, 8-10 mm wide, 4-6 mm high; involucre bracts imbricate, arranged in 2-3 rows, densely white-tomentose outside, outers triangulare-acutely lanceolate, hardly scariosa at margin, medians and inners longer than outers, narrowly oblong, rather obtuse, with widely scariosa hyaline or purple-brownish margins and apices, \pm lacerate. Marginal florets ligulate, pink or purple, female but sterile, ligule oblong, minutely glandulose-punctate, c. 5 mm long, hardly 3-toothed at apex, tube 1.5-2 mm long, flattened. Disc florets numerous, hermaphrodite, tubular, tube narrow, c. 2 mm long, slightly widened into apice, 5-toothed, teeth short, mostly

glandulose-punctate. Achenes narrow, rather terete, 1.5-2 mm long, with five prominent longitudinally percurrent striates, pappus of entire, one-sided corona, 0.5-1 mm long.

Based on morphological characteristics and referring to Flora Iranica, No. 158 (PODLECH 1986), the specimen was identified as *Spathipappus porphyrostephanus* (Rech. f.) Tzvel. (Fig. 14). The genus *Spathipappus* Tzvel. Shows the closest affinity with the genus *Tanacetum* L., but rather differ well by the peculiar structure of the pappus of the achenes and by its sterile ligulate florets, the corolla of which remains adnate with the ovary deprived or almost deprived of the pappus. This is noticeable that, *S. porphyrostephanus* (Rech. f.) Tzvel. is strikingly different from two other species of the genus by the color of ligulate flower, plenty of sterile young branches (sucker) and low height of plant.

General distribution: Afghanistan and Iran

Revision of *Campanula tridentata* var. *velutina* and *C. triangularis*.

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The *Campanula* species were revised in "TEH" herbarium located at Tehran University, School of Medicine. Two following taxa were observed which RECHINGER & SCHIMAN-CZEIKA (1965) have mentioned them as doubtful taxa in Flora Iranica (Vol. 13):

***Campanula tridentata* Schreb. var. *velutina* Parsa, Kew. Bull. 1984: 209, 1948**

Parsa collected this taxon from northern part of Alborz mountains (Dish-Gaduk) and recorded it as a new variety in 1948.

The specimen of the taxon exists in "TEH" herbarium under No. PARSA 102. With 10-15 cm altitude, basal leaves crowded in dense rosettes, oblong, crenate-dentate apex, calyx triangulare-lanceolate with appendix, corolla broadly campanulate, about 30 mm, pubescence outside and style included. Comparing these features with those of *C. aucheri* DC. (K.H. RECHINGER & H. SCHIMAN-CZEIKA 1965), revealed that, both are similar. Accordingly, it is necessary to be

regarded with *C. tridentata* Schreb. var. *velutina* Parsa as synonym of *C. aucheri* DC. (Fig. 15).

***Campanula triangularis* Parsa, Kew Bull. 1948: 209, 1948**

Parsa collected this species from Hasanbeiglou in E. Azerbaijan Province and recorded as a new species in 1948.

This specimen exists in "TEH" herbarium under No. PARSA 875. With basal and lower leaves cordate, long petiolate, anthers connate into tube and free filaments. These features don't belong to *Campanula* but is related to *Symphandra armena* (Steven) DC. (K.H. RECHINGER & H. SCHIMAN-CZEIKA 1965). Based on this data, it is necessary to be regarded *C. triangularis* Parsa as synonym of *Symphandra armena* (Steven) DC. (Fig. 16).

Notes on distribution of *Tranzschelia arasbaranica* in Europe. M. ABBASI and M. SCHOLLER. Department of Botany, Iranian Research Institute of Plant Protection, Tehran, Iran and Natural History Museum of Karlsruhe, Karlsruhe, Germany

Study on two rust infected specimens of *Prunus mahaleb* collected from Europe revealed that, both specimens have been infected by species of *Tranzschelia*. Uredinial and telial stages of rust were present on both specimens. Distinguishing characteristics included urediniospores clavate to fusiform, up to 47 μm long, thickened up to 7 μm above; teliospores in fascicles, obovoid or clavate, 42-60 x 22.5-32 μm , with two morphologically different cells, deeply constricted at septum, wall chestnut brown, densely and coarsely echinulate, 2.5-4 μm thick at the sides, apex walls up to 6.5 μm thick, germ pore of upper cell apical or subapical, of lower cell near the septum. Morphology of both studied specimens fit the description for *T. arasbaranica* M. Abbasi & M. Scholler [ABBASI & SCHOLLER 2005, Sydowia 57(2): 150]. This rust has been recently described from Arasbaran region located in N.W. of Iran. To our knowledge two species of *Tranzschelia* viz. *T. discolor* and *T. pruni-spinosae* have been previously reported on *P. mahaleb* in Europe (see pages 151 and 152 of the above-mentioned reference). One of the studied specimens, viz. M-100192 was under the name *T. pruni-spinosae* f. sp.

discolor (= *T. discolor*). It means previous records on *P. mahaleb* in Europe are somewhat obscure and need to be revised. *Tranzschelia arasbaranica* is a new member for European rust flora.

Materials examined: On *Prunus mahaleb*, Georgia, Tbilisi environs, Teleti range, N 41° 38.827'; E 44° 44.134', alt. 1055 m, 20.9.2002, leg. K. Iashagashvili & N. Lachashvili (IRAN 57777 F)- Greece, Thessalia region, Khaliki, Pindos montane range, 14.9.1906, leg. R. Maire.
