

## *Tanacetum tarighii* (Asteraceae), a new species from Iran

Marzie Kazemi<sup>1</sup>, Ali Sonboli<sup>2,\*</sup>, Hassan Zare Maivan<sup>1</sup>,  
Shahrokh Kazempour Osaloo<sup>1</sup> & Valiollah Mozaffarian<sup>3</sup>

<sup>1</sup> Department of Plant Biology, Faculty of Biological Sciences, Tarbiat Modares Univ., IR-14115-175 Tehran, Iran

<sup>2</sup> Department of Biology, Medicinal Plants and Drugs Research Institute, Shahid Beheshti University, G.C., Tehran, Iran (\*corresponding author email: a-sonboli@sbu.ac.ir)

<sup>3</sup> Department of Botany, Research Inst. of Forests and Rangelands, IR-13185-116 Tehran, Iran

Received 30 Jan. 2014, final version received 1 Oct. 2014, accepted 4 Oct. 2014

Kazemi, M., Sonboli, A., Zare Maivan, H., Kazempour Osaloo, Sh. & Mozaffarian, V. 2014: *Tanacetum tarighii* (Asteraceae), a new species from Iran. — *Ann. Bot. Fennici* 51: 419–422.

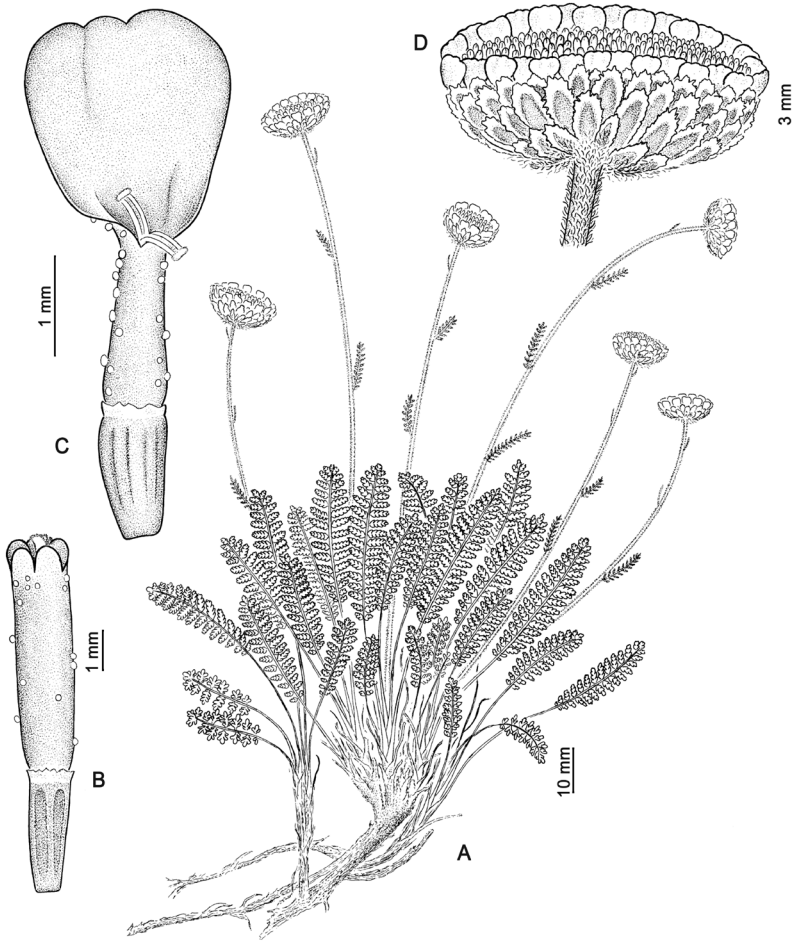
*Tanacetum tarighii* Sonboli *sp. nova* (Asteraceae, Anthemideae) is described and illustrated from West Azerbaijan Province (northwestern Iran), and placed in *Tanacetum* sect. *Xanthoglossa*. It resembles *T. chiliophyllum*, and is characterized by a canescent indumentum, a patellate capitulum, a long corolla of tubular florets (5 mm) and by distinctly smaller basal leaves; the plant height is up to 18 cm.

*Tanacetum*, as the third largest genus of the tribe Anthemideae in Asteraceae, includes about 160 species distributed in Asia, Europe, northern Africa and North America (Oberprieler *et al.* 2007, 2009). In the *Flora Iranica* area, the genus is represented by 18 sections and 54 species, and in Iran by 25 species and altogether 34 taxa (Podlech 1986).

*Tanacetum* sect. *Xanthoglossa* is a section that includes plants with yellow-rayed, disciform or radiate capitula (Podlech 1986, Tzvelev 1995). *Tanacetum* has been revised for the *Flora of Iran* as comprising 31 species and altogether 36 taxa (Mozaffarian 2005, 2008). After Mozaffarian's (2008) treatment, three new records, i.e. *T. punctatum* from East Azerbaijan (Djavadi 2008), *T. zahlbruckneri* from West Azerbaijan (Sonboli *et al.* 2010b) and *T. fisherae* from Kerman Province (Sonboli *et al.* 2011a) were added to the Iranian flora. Subsequently, *T. joharchii* was described from Khorasan Province in northeast Iran (Son-

boli *et al.* 2010a). According to cytological, micromorphological and molecular evidence, *T. paradoxum* and *T. fruticosum* were excluded from *Tanacetum* (Sonboli 2009). *Tanacetum paradoxum* was transferred to *Artemisia* (Sonboli *et al.* 2011b). The specimens previously identified as *T. fruticosum* were found to belong to the genus *Ajania*, and accordingly *A. semnanensis* was described as a new species from the northeast of Iran (Sonboli *et al.* 2013).

The above additions plus the species described here brings the total number of *Tanacetum* species in Iran to 34, of which 16 are endemic. During the study of specimens in the herbarium of the Research Institute of Forests and Rangelands in Tehran (TARI) and our field excursions to northwest Iran (specimens deposited in MPH, Shahid Behershti University, Tehran), it was concluded that the specimen TARI-87437 represented a hitherto undescribed species with morphological affinity to *T. chiliophyllum*.



**Fig. 1.** *Tanacetum tarighii* (from the holotype). — **A:** Habit. — **B:** Disk floret. — **C:** Ray floret. — **D:** Capitulum.

***Tanacetum tarighii* Sonboli, sp. nova (Fig. 1)**

TYPE: Iran. West Azerbaijan, Urmia, Silvana, Khalil-Kuh, 37°23'N, 44°47'E, 2500 m a.s.l., 6 June 2008 *Sonboli 1335* (holotype MPH). — PARATYPE: Iran. West Azerbaijan, Urmia, Khalil-Kuh, 37°23'N, 44°48'E, 2490–3150 m a.s.l., 8 July 2005 *Mozaffarian 87437* (TARI!).

ETYMOLOGY: The species is named in memory of Mr. Hassan Tarighi, who was a central figure in teaching the principles of plant morphology in the Urmia University of Iran.

Perennial, 12–18 cm high, with a ligneous and thin creeping rhizome, 3–11-stemmed, basally branched, erect. Leaves densely covered by whitish-silvery nonglandular hairs and sparse glands, basal leaves 3–4 cm long and 0.4–0.7 mm wide; petiole 0.9–1.6 cm long, with a very thin sheath at base, bipinnatisect, lamina elliptic to oblong, densely covered with appressed short

whitish-silvery hairs, with obovate to oblanceolate segments; primary segments 9–15 paired, 3–4 cm long, 2–3 cm wide, secondary segments 3-paired, 1–1.5 mm long, 0.5–1 mm wide and obtuse or acute at apex, terminal lobes obovate, 1 mm wide, obtuse. Cauline leaves narrowly ovate, sessile, middle ones larger than upper. Capitula solitary, 6–7 mm high, 9–13 mm diameter, on a 2–5.5 cm long peduncle; peduncle densely covered with whitish-silvery hairs. Receptacle flat. Involucre patellate, 5 mm high, 6.6–8.6 mm in diameter, densely hairy; involucral bracts in 7–8 rows, herbaceous, covered with medium to long white hairs; outer bracts triangular to ovate, obtuse, 2.5–3 mm long and 1 mm wide, inner ones elliptic to oblong, obtuse, 3.5 mm long, 1 mm wide, margin membranous. Ray florets pistillate, ligulate, lemon-

**Table 1.** Diagnostic characters of *Tanacetum tarighii* and morphologically closely-similar taxa.

Characters	<i>T. tarighii</i>	<i>T. chiliophyllum</i> var. <i>chiliophyllum</i>	<i>T. chiliophyllum</i> var. <i>oligocephalum</i>
Plant height (cm)	12–18	27–47	35–50
Indumentum	grayish	grayish-green, tomentose	grayish-green, pubescent
Basal leaves			
shape	elliptic to oblong	oblong to oblanceolate	oblong to oblanceolate
dimensions (cm)	3–4 × 0.4–0.7	11–16 × 2–4	13–14 × 2–2.2
Cauline leaf shape	narrowly ovate	oblong	oblong
Inflorescence			
type	solitary	dense corymb	lax corymb
number of capitula	1	5–10	1–3
Involucre			
number of rows	7–8	3–4	5–6
shape	patellate	obconical	hemispheric
diameter (mm)	9–13	7–8.7	7–15.5
outer bract	triangular-ovate	ovate	ovate-lanceolate
Peduncle length (cm)	2–5	5–11	4–13
Receptacle shape	flat	convex	convex
Ray florets			
number	29	9	19–20
limb length (mm)	2	2.5–4	4–5
Tubular floret length (mm)	5	3.5	3.5
Achenes			
size (mm)	1.2	1.5–2	1.5–2.5
corona	denticulate	irregularly toothed	crenulate

yellow, corolla tube 1.5 mm long; limb 2 mm long, 3-lobed; lobes rounded, obtuse,  $\leq 0.5$  mm long, glandulose; achenes of ray florets 1.5 mm long, 0.5 mm wide, with 4–6 longitudinal ribs; corona ca. 0.2 mm long, minutely dentate, not glandulose. Disk florets tubular, hermaphrodite, dingy yellow, corolla tube 5 mm long, 5-dentate, rarely glandulose; achenes of tubular florets 1.2 mm long, 0.5 mm wide, with 6 longitudinal ribs, corona ca. 0.2 mm long, denticulate, not glandulose. Flowering and fruiting from June to August.

**DISTRIBUTION AND HABITAT:** *Tanacetum tarighii* is an Irano-Turanian taxon and endemic to West Azerbaijan Province of Iran. It thrives in high altitude pastures on rubbly limestone soils, between 2500 and 3200 m a.s.l.

*Tanacetum tarighii* belongs to the section *Xanthoglossa* and resembles *T. chiliophyllum*. Grierson (1975) in his treatment for *Flora of Turkey* recognized four varieties in *T. chiliophyllum*: var. *heimerlei*, var. *oligocephalum*, var. *chiliophyllum* and var. *monocephalum*. Podlech (1986) in *Flora Iranica* accepted the first three

varieties and relegated var. *monocephalum* to a synonym of var. *oligocephalum*, which *T. tarighii* morphologically resembles, yet differs (Table 1). *Tanacetum tarighii* is clearly different from *T. chiliophyllum* var. *heimerlei* by its solitary capitulum (in var. *heimerlei* they number 10–50 in a dense compound corymb) and by its leaf morphology. *Tanacetum tarighii* may also be confused with *T. uniflorum*, which however is a taller, more robust plant with fewer and more distant primary segments of the leaves, and larger capitula (ca. 1 cm broad) with longer ligules (0.75–1 cm).

## Acknowledgements

We thank Mr. Mehrdad Mehranfard for the drawing.

## References

- Djavadi S.B. 2008: Three new records of *Tanacetum* for the flora of Iran. — *Rostaniha* 9: 23–32.  
 Grierson A.J.C. 1975: *Tanacetum*. — In: Davis P.H. (ed.),

- Flora of Turkey and the East Aegean Islands*, vol. 5: 256–292, Edinburgh University Press, Edinburgh.
- Mozaffarian V. 2005: Notes on the tribe Anthemideae (Compositae), new species, new records and new combinations for Iran. — *Iranian Journal of Botany* 11: 115–127.
- Mozaffarian M. 2008: *Tanacetum* L. — In: Assadi M., Mas-soumi, A.A. & Mozaffarian M. (eds.), *Flora of Iran*, vol. 59: *Compositae: Anthemideae and Echinopeae*: 134–198. Research Institute of Forests and Rangelands Press, Tehran.
- Oberprieler C., Himmelreich S. & Vogt R. 2007: A new subtribal classification of the tribe Anthemideae (Compositae). — *Willdenowia* 37: 89–114.
- Oberprieler C., Himmelreich S., Källersjö M., Valles J. & Vogt R. 2009: Anthemideae. — In: Funk V., Susanna A., Steussy T.F. & Bayer R. (eds.), *Systematics, evolution and biogeography of the Compositae*: 631–666. International Association of Plant Taxonomists, Vienna.
- Podlech D. 1986: *Tanacetum*. — In: Rechinger K.H. (ed.), *Flora Iranica*, Vol. 158: 88–148. Gruck- u. Verlagsanstalt, Graz.
- Sonboli A. 2009: *Phylogeny of Tanacetum s. l. (Asteraceae–Anthemideae) based on molecular (nrDNA ITS) and morphological data*. — Ph.D. thesis, Shahid Beheshti University, Tehran.
- Sonboli A., Kazempour Osaloo S., Mozaffarian V. & Larti M. 2010b: *Tanacetum zahlbruckneri* (Nab.) Grierson (Compositae–Anthemideae): an enigmatic record from Iran and its phylogenetic position. — *Rostaniha* 11: 175–181.
- Sonboli A., Kazempour Osaloo S., Riahi H. & Mozaffarian V. 2010a: *Tanacetum joharchii* sp. nov. (Asteraceae–Anthemideae) from Iran, and its phylogenetic status based on molecular data. — *Nordic Journal of Botany* 28: 74–78.
- Sonboli A., Kazempour Osaloo S., Valles J. & Oberprieler C. 2011b: Systematic status and phylogenetic relationships of the enigmatic *Tanacetum paradoxum* Bornm. (Asteraceae, Anthemideae): evidences from nrDNA ITS, micromorphological, and cytological data. — *Plant Systematics and Evolution* 292: 85–93.
- Sonboli A., Olanj N., Gholipour A. & Mozaffarian V. 2013: *Ajania semnanensis* sp. nov. (Asteraceae–Anthemideae), from northeast Iran: insights from karyological and micromorphological data. — *Nordic Journal of Botany* 31: 590–594.
- Sonboli A., Olanj N. & Pourmirzaei A. 2011a: Biosystematics and phylogeny of *Tanacetum fisherae*, a new record from Iran. — *Rostaniha* 12: 165–175.
- Tzvelev N.N. 1995: *Tanacetum*. — In: Shishkin B.K. & Bobrov E.G. (eds.), *Flora of the USSR*, vol. 26: 367–418. Koeltz Scientific Books, Königstein.