

NOTES ON THE TRIBE ANTHEMIDEAE (COMPOSITAE), NEW SPECIES, NEW RECORDS AND NEW COMBINATIONS FOR IRAN

V. Mozaffarian

Mozaffarian, V. 2005 07 01: Notes on the tribe *Anthemideae* (*Compositae*), new species, new records and new combinations for Iran. *-Iran. Journ. Bot. (11) 1: 115-127*. Tehran.

Three new species of the genus *Tanacetum* are described as follows: *Tanacetum elbursense*, *T. bachtiaricum* and *T. sonbolii*. *T. tabrisianum* (Boiss.) Sosn. & Takht. resurrected as an independent species from *T. canescens* DC., *Tanacetum parthenifolium* (Willd.) Shultz Bip. and *Tanacetum persicum* (Boiss.) Mozaff. comb. nov. resurrected as independent species from *Tanacetum parthenium* (L.) Shultz Bip. Description of *Tanacetum dumosum* is corrected and *Artemisia campestris*, *Artemisia marschalliana*, *Leucanthemum vulgare* and *Tripleurospermum monticolum* introduced as new records for the flora of Iran.

Valiollah Mozaffarian, *Research Institute of Forests and Rangelands, P. O. Box 13185-116, Tehran, Iran.*

Key words. *Tanacetum*, New species, New combination, *Artemisia*, *Leucanthemum*, *Tripleurospermum*, new records, Iran.

اطلاعاتی تازه درباره جنس *Tanacetum* در ایران و معرفی گونه‌های جدید و

ترکیب‌های تازه و گونه‌هایی جدید برای فلور ایران از قبیله *Anthemideae*

ولی اله مظفریان

در میان جنس‌های قبیله *Anthemideae* جنس *Tanacetum* یکی از بزرگترین جنس‌های این قبیله می‌باشد. در جریان نگارش فلور ایرن بزبان فارسی قبیله *Anthemideae* براساس مقایسه با آخرین نتایج عنوان شده در فلور ایرانیکا، فلور ترکیه، فلور شوروی و دیگر کشورها ی مجاور ایران تغییرات و گونه‌های جدیدی پیدا شده که معرفی می‌گردد.

این مقاله حاوی سه گونه جدید از جنس *Tanacetum* به نامهای *T. elbursense* Mozaff. *T. sonbolii* Mozaff. و *T. bachtiaricum* Mozaff. و بیان استقلال *T. tabrisianum* Boiss. از *T. canescens* DC. و هم چنین استقلال گونه‌های *T. persicum* (Boiss.) *T. parthenium* (L.) از *T. parthenifolium* (Willd.) Shultz Bip. و *T. dumosum* Boiss. می‌باشد. با مطالعه دقیق نمونه‌های *T. dumosum* Boiss. اثبات گردید که این گونه دارای کپه جور جنس و با گل‌های لوله‌ای می‌باشد که در منابع اخیر اشتبهاً با کپه ناجور جنس بیان شده بود. در ارتباط با زیر گونه‌های *T. polycephalum* Shultz Bip. معرفی شده در فلور ایرانیکا براساس شواهد پراکنش جغرافیائی و نبود صفات بارز برای تفکیک آنها، این زیر گونه‌ها به ۳ زیر گونه تقلیل یافته و یکی از زیر گونه‌های معرفی شده جدید بنام *T. polycephalum* Shultz Bip. subsp. *azerbaijanicum* Podl. با مطالعه نمونه‌های معرفی شده در فلور ایرانیکا هم نام *T. canescens* DC. قرار داده شد. بعلاوه گونه‌هایی از جنس *Artemisia* یک گونه از جنس *Leucanthemum* و گونه‌ای نیز از جنس *Tripleurospermum* برای اولین بار از ایران گزارش می‌شوند.

INTRODUCTION

During my research which was carried out in order to introduce and determine plant species in the Tribe *Anthemideae*. In the first step I conducted an examination of the rich herbarium materials and intensive field studies in Iran. All the genera and species which were introduced in Flora Iranica (Podlech 1986) were carefully studied.

At the same time, all the floras of neighbouring countries [Boissier (1875), Davis (1975), Tzvelev (1995), Takhtajan (1995) and Takhtajan and Fedorov (1946)] were studied. Many materials have been collected from the type localities of the species.

In order to achieve all genera and species that were determined from Iran, all collected materials in Central Herbarium of Iran (TARI) were studied and in various excursions, many of the uncollected species were collected. As a result almost most of the plant species described from Iran was determined and some changes needed to be done.

RESULTS AND DISCUSSION

Description of new *Tanacetum* species

***Tanacetum bachtiaricum* Mozaff., sp. nov.** (Fig. 1).

Planta perennis, suffruticosa-caespitosa, multicaulis, 25-30 cm alta. Indumento e pilis furcatis et simplicibus consistente. Caudex lignosus, ad 0.5-1 cm crassus. Caules tenues, erecti, angulato-striati, moncephali, brevissime tomentosi usque glabri, ad basi foliati, superne nudi. Folia basalia usque ad 4 cm longa; petiolus usque ad 2 cm longus; lamina oblonga, 1-2 pinnatisecta; segmentis primariis 3-8, oblongo-lanceolatis obtusis, ± cartilaginosis, irregulariter dentatis, brevissime tomentosus; folia caulina inferiora pinnatisecta, sessilia; folia superiora deficientia. Capitula heterogama, in apice caulem solitaria, 8-14 mm lata, 6-8 mm alta. Involucrum obconicum; phylla imbricata, 3-4 seriata, stramineo-

brunnea; exteriora minuta, herbacea, ± crispule villosa; interiora late scarioso-marginata. Flores marginales femineae, flavi, glanduloso-punctati, ligulati; ligula triangulari-oblonga, 3 dentata, 3-4 mm longa, flores disci superans; flores disci hermaphroditi tubulosi, apicem versus non dilatati, 5 dentati, flavi ± glanduloso-punctati. Achenia immatura 3 mm longa, costata, glanduloso-punctata, corolla tubi breviora, pappo coroniforme brevissimo 0.1-0.2 mm longo crenulato provisa.

Typus. Chahmahale-Bakhtiari: S. slope of Kuh-e Jahan-bin from Ghaleh Tak, 2350-2950 m, 6.8.1986 Mozaffarian 57497 (holotypus. TARI); Chaharmahale-Bakhtiari, Sabzkuh, 2400-3100 m, 30.6.1986, Mozaffarian 57249 (TARI); Brujen to Dorahan, after Godar-e Kabk, Kuh-e Doudelu, 2300-2700 m, 29.6.1986, Mozaffarian 57243 (TARI).

Perennial, suffruticose-caespitose, covered by bifurcate and simple hairs, many-stemmed, up to 25-30 cm high, leafy in lower part, ± shortly tomentose to glabrous, with woody rootstock. Basal leaves up to 4 cm long, petiolate; petioles up to 2 cm long; leaf blades oblong, 1-2 pinnatisect; primary segments 3-8, oblong-lanceolate, obtuse, ± cartilaginous at margins, irregularly dentate, very shortly tomentose; lower cauline leaves pinnatisect and sessile; upper cauline leaves lacking. Capitula solitary on ± naked peduncles, heterogamous. Involucre 8-14 mm broad and 6-8 mm high, obconical; phyllaries imbricate, 3-4 series, straw yellow to brown; outer ones small, herbaceous, ± crisped-villose, interior ones broadly scariosae at margins. Ray flowers feminine, yellow, glandulose-punctate, ligulate; ligules triangular-oblong, 3 dentate, 3-4 mm long, longer than disc flowers; disc flowers hermaphrodite, tubular, ± cylindric, 5 dentate, yellow, ± glandulose-punctate. Achenes (immature) 3 mm long, costate-striate, glandulose-punctate, shorter than corolla tube.

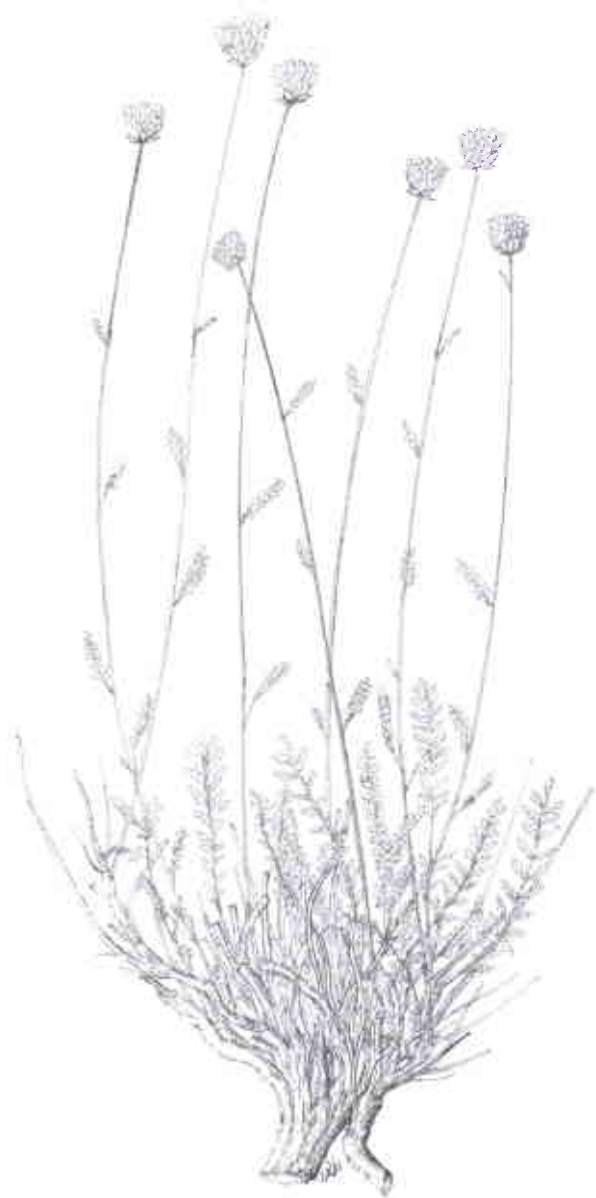


Fig. 1. *Tanacetum bachtiaricum* ($\times 0.7$).

Corona very short, up to 0.1-0.2 mm long, crenate.

Affinities. The new species is close to *Tanacetum dumosum* Boiss. which has homogamous capitula (not heterogamous).

It is noticeable that some species which referred in Flora Iranica (Podlech 1986) well examined and have homogamous capitula (not heterogamous) as mentioned in the description.

***Tanacetum elbursense* Mozaff., sp. nov.** (Fig. 2).

Planta perennis, suffruticosa, multicaulis, 30-35 cm alta, indumento e pilis furcatis et simplicibus consistente. Caudex lignosus, ad 1-2 cm crassus. Caules tenues, erecti, angulato-striati, monocephali, brevissimè tomentosi, vel ± glabri, ad basi foliati, superne nudi. Folia basalia ad 8-14 cm longa, ad 1-2 cm lata, longe petiolata; lamina oblonga, 1-2 pinnatisecta, segmentis primariis 5-15, oblongo-lanceolatis, pinnatipartitis, segmentis ultimis triangulo-acutis, brevissimè tomentosis; folia caulina inferiora basalia similia sed sessilia; folia superiora deficientia. Capitula heterogama, in apice caulem solitaria, 12-18 mm lata, 10-12 mm alta. Involucrum hemisphaericum; phylla imbricata, 3 seriata, straminea, late scarioso-marginata; exteriora ± dense breviter crispule villosa; interiora ± glabra, late scarioso-marginata. Flores marginales femineae, tubulosi, cylindraceuti, 3-4 mm longi, flavi, glabri; flores discoidei hermaphroditi, tubulosi; tubo ad supra dilatato, 3-4 mm longo, flavo, glabro. Achenia glabra, distincte 5-6 costata, ± tuberculata, pappo coroniformi, fere integro, ad 0.5-1 mm longo.

Typus. Tehran: Lavasanat, Glanduak, Kurdian, 1950 m, 14.6.2002, V. Mozaffarian, 81105 (holotypus. TARI).

Perennial, suffruticose, many stemmed, up to 30-35 cm high, covered by bifurcate and simple hairs. Rootstock woody, up to 1-2 cm thick. Stems thin, erect, angular-striate, usually

with one capitulum, shortly adpressed-tomentose, leafy at base, in the upper part naked. Basal leaves up to 8-14 cm long, and 1-2 cm broad, longly petiolate; leaf blades oblong, 1-2 pinnatisect; primary segments, 5-15 oblong-lanceolate, pinnatipartite; ultimate segments triangular, acute, shortly tomentose; lower cauline leaves similar to basal ones, but without petiole; upper cauline leaves lacking. Capitula heterogamous, solitary, 12-18 mm broad and 10-12 mm high. Phyllaries imbricate, 3 series, straw-yellow, with broad scarioso margins; outer ones ± densely short crisped villose; inner ones ± glabrous, broadly scarioso at margin. Marginal flowers feminine, tubular, cylindric, 3-4 mm long, yellow, glabrous; disc flowers hermaphrodite, tubular, broadened in upper part, 3-4 mm long, yellow. Achenes glabrous, distinctly 5-6 ribbed, ± tuberculate; corona ± entire, up to 0.5-1 mm long.

Affinities. The new species differs from *T. tabrisianum* Boiss. by having solitary large (12-18 mm) heterogamous capitula with female plus minus tubular marginal flowers, not small heterogamous (7-12 mm) capitula with female 3-4 lobed marginal flowers. From *Tanacetum canescens* DC. by having solitary large terminal capitula, not 3-8 capitula in plus minus dense terminal corymb.

***Tanacetum sonbolii* Mozaff., sp. nov.** (Fig. 3).

Planta caespitosa, dense appresse canescenti villosa. Caudex multiceps. Caules 10-30 cm alti, in parte inferiore dense foliati, ± sulcati, in parte superiore foliati vel subnudi, monocephali. Folia basalia dense canescenti villosa, petiolata, manifeste vaginata, 2-8 cm longa, breviter petiolata; lamina lanceolata vel anguste oblonga, bipinnatisecta; segmentis primariis utrinque 7-9, 2-5 cm longis, lobulis ultimis lanceolato-ovatis, acutis; folia caulina inferiora 1-pinnatisecta; caulina superiora linearia, integra, vel deficientia. Capitula

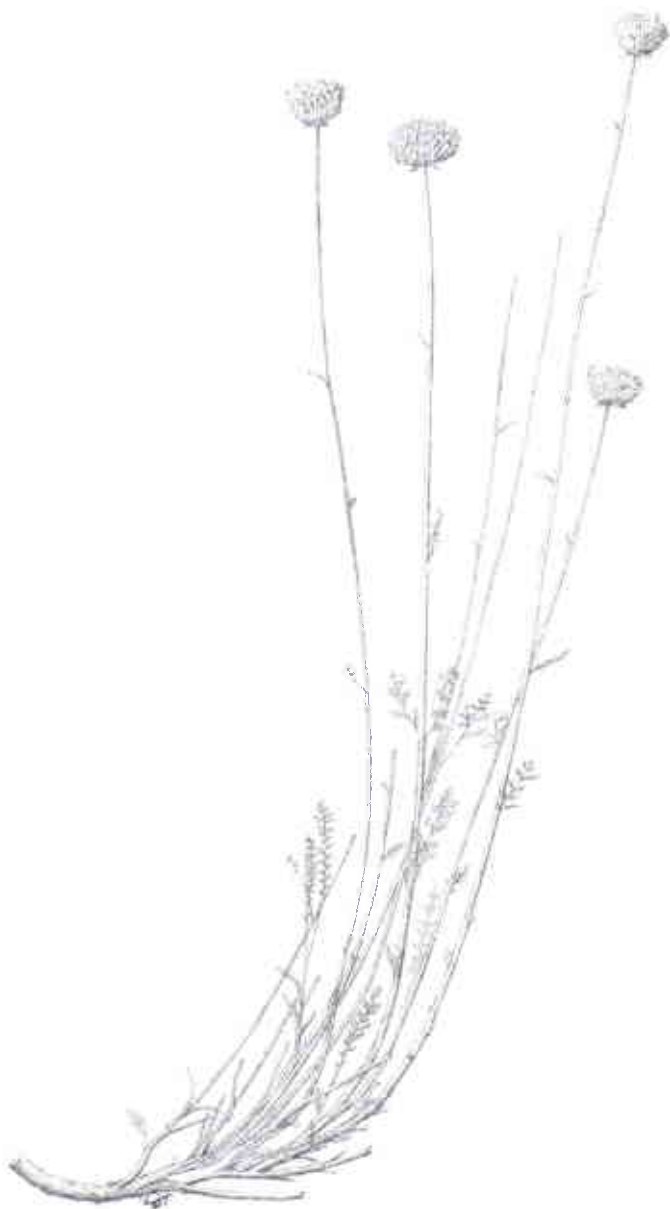


Fig. 2. *Tanacetum elbursense* ($\times 0.5$).

solitaria. Involucrum late turbinatum, 10-15 mm latum et 8-10 mm altum; phylla arcte appressa, 3-4 seriata, dense canescenti-villosa; exteriora lanceolato-triangularia, margine vix scariosa; interiora oblonga vel oblongo-lanceolata, apice breviter hyalino-scariosa, raro margine angustissime scariosa. Flores marginales feminei pauci, inconspicui, apice 3-5 lobati; flores centrales tubulosi, tubo ca. 3 mm longo, supra medio distincte dilatato, 5 dentato. Achaenia anguste cylindracea, 4 mm longa, straminea, tenuiter 8-10 costata; corona c. 0.2 mm longa, minute lobata vel dentata.

Typus. Iran, Azerbaijan, Takab, Takab to Chahrtaq, Badrlu village, around Talabe Chamli, 2418 m, Ali Sonbli 83812 (holotypus TARI).

Caespitose, densely appressed greyish villose. Rootstock thick, many-stemmed. Stems 10-30 cm high, in lower part densely leafy, \pm sulcate-striate, in upper part leafy or \pm naked, one-headed. Basal leaves densely greyish villose, petiolate, conspicuously vaginate, 2-8 cm long, shortly petiolate; petiole shorter than blade; blade bipinnatisect, with 7-9 segments at each side of the axis, 2-5 cm long, ultimate lobes lanceolate-ovate, acute; lower cauline leaves 1-pinnatisect; upper cauline leaves linear, undivided or lacking. Capitula solitary. Involucre broadly turbinate, 10-15 mm wide and 8-10 mm high; phyllaries densely appressed, 3-4 series, densely greyish-villose; outer ones lanceolate-triangular, barely with scarios margin; inner ones oblong-lanceolate, hyaline-scariose at the apex, rarely very narrowly scarios at the margins. Feminine marginal flowers few, inconspicuous; 3-5 lobed; central hermaphrodite flowers tubular, with ca. 3 mm long tube, above the middle broadened, 5-dentate. Achene narrowly cylindrical, 4 mm long, straw-yellow, with 8-10 thin ribs, corona ca. 2 mm long, minutely lobate or dentate.

Affinities. The new species differs from *Tanacetum tabrisianum* Boiss. by having densely greyish villose leaves and plus minus short vaginate petioles (not adpressed-pubescent leaves with long and not vaginate petioles). From *Tanacetum canescens* DC. by having solitary terminal capitula (not 3-8 capitula in plus minus dense terminal corymb).

TAXONOMIC PROBLEMS OF TANACETUM SPECIES

Tanacetum tabrisianum (Boiss.) Sosn. & Takht. In Takhtajan & Fedorov, Atlas Fl. Erevana 310 (1946).

This species was known as a synonymy of *Tanacetum canescens* by Podlech (1986), but according to my studies on the specimens was collected from overlapping distributional localities of *Tanacetum canescens* DC. constant distinguishing characters were found: the most important morphological differences between the two species are shown in table 1.

Specimens examined. Hamadan: Hamadan to Ghahavand, Biukabad to Shahbodagh Mnts; W. of Agh-dash, 1800-2350 m, V. Mozaffarian 64446 (TARI); Hamadan, Kabutar Ahang, ca. 10 km to Alisadr cave, 1700 m, V. Mozaffarian. 64571 (TARI); 41 km NE. of Mianeh, 1400 m, Pabot 3786 (TARI). -Tehran: Damavand road from Chenar to Daryache Tar, 2700-2750 m, V. Mozaffarian 78018 (TARI).

Tanacetum canescens DC.

Syn.: *Tanacetum polycephalum* Schultz Bip. subsp. *azerbaijanicum* Podl., **syn. nov.**

I have seen many specimens from Azerbaijan and determined them *Tanacetum canescens* DC. Also the specimen Wendelbo et al. 11865 (TARI) has been collected from Azerbaijan, pointed out in Flora Iranica and determined as *T. polycephalum* subsp. *azerbaijanicum* has no differences with *T. canescens* DC.

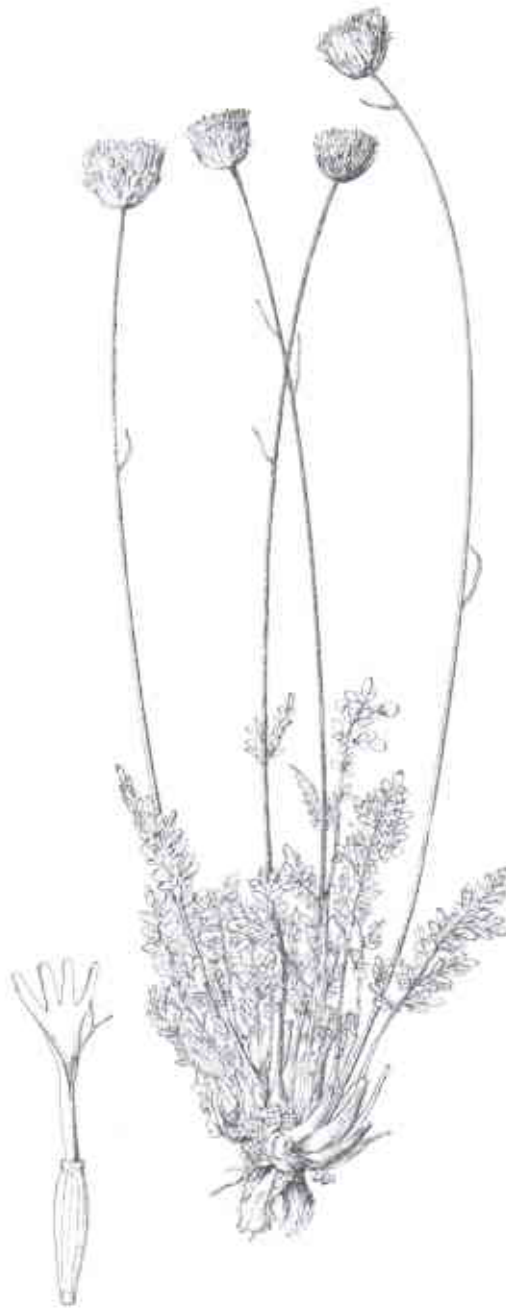


Fig. 3. *Tanacetum sonbolii* (x 0.55); fruit (x9).

Table 1. Comparison of *Tanacetum canescens* and *T. tabrisianum*.

Inflorescence	<i>T. canescens</i>	<i>T. tabrisianum</i>
No. of capitula	3-10, corymb	single
Size of capitula	6-7 mm broad	8-12 mm broad
Involucre	densely pubescent	sparsely pubescent
Phyllaries	without scariose margins	broadly scariose margins

Selected specimens. Azerbaijan, 15 km from Zanzan on the road to Bijar, 1900 m, Wendelbo et al. 11865 (specimen determined as *Tanacetum polycephalum* subsp. *azerbaijanicum* Podl.); 60 km from Namin to Khage boulagh, above Khage boulagh, Agh boulagh, 1950 m, Mozaffarian and Nowrozi 34657; Tabriz to Sperkhan to Sahand, 1450-2000 m, Mozaffarian 72738; Rezaiyeh lake, Ghoyon Daghi, 1350 m, Wendelbo and al. 12101. -Tehran: Saveh, Nubaran to Tafresh, between Kahlu and Fark, 1800 m, Mozaffarian 72082; Sorkhe-hesar, Haraz road, 1530 m, Foroughi & al. 12466; ca. 5 km from Jajrud to Tehran, 1500 m-1600 m, Mozaffarian 78001.

Tanacetum polycephalum Schultz Bip.

T. polycephalum is a widespread and very polymorphic species in Iran. The distribution pattern of this species is along two large mountain ranges; Zagros and Alborz and further to Khorassan and Kopetdagh mountains in NE. of Iran.

The author has studied over 300 specimens collected from the whole range of this species. Based on present rich collection because of many overlapping characters *Tanacetum polycephalum* by having variable leaf division, inflorescence structure, capitula form and indumentum is a widespread species in Iran. Podlech (1986) in Flora Iranica introduced seven subspecies of *Tanacetum polycephalum*, but non of the characters for separation is definitely constant. The author has examined many material in herbarium of TARI, and according to descriptions written by different

authors for these subspecies and their synonyms and regarding to overlapping characters decided to merge this subspecies into 3 according to their geographical distribution.

1- Basal leaves small, up to 15×2-3 cm. Involucre up to 3-4 mm broad

T. polycephalum Schultz Bip subsp. **argyrophyllum** (C. Koch) Podl.

-Basal leaves larger, up to 20-28×3-5 cm. Involucre up to 4-10 mm broad 2

2- Upper cauline leaves different with the basal ones, with broadened axis decurrent between lobes and primary segments. Involucre up to 4-8 mm broad; phyllaries densely to loosely hairy with broad scariose margins, rarely brownish

T. polycephalus Schultz Bip subsp. **polycephalum**

- Upper cauline leaves similar to basal ones, the axis not broadened, not decurrent between segments. Involucre variable in size, up to 4-8 mm or more, with broadly scariose margins and ± conspicuously brownish

T. polycephalum Schultz Bip subsp. **dudreanum** (Boiss.) Podl.

T. polycephalum Schultz Bip subsp. **polycephalum**

Syn.: *Tanacetum polycephalum* Schultz Bip subsp. *heterophyllum* (Boiss.) Podl., Fl. Iran. 158: 117 (1986), **syn. nov.**; *Tanacetum polycephalum* Schultz Bip. subsp. *farsicum* Podl., Fl. Iran. 158: 118 (1986), **syn. nov.**

Selected specimens. Kurdistan: 32 km from Marivan to Pave (Tangh Dezli), 1330-1400

m, Runemark and Mozaffarian 29371; Marivan to Pave, Gardane Tate, between Dezli and Hanigarmale, 1800-2600 m, Mozaffarian 74688. –Kermanshah: Pave, mountains above the village Shamshir base of Kuh-e Shahu (PD1) 1700-1900 m, Assadi 60757. –Hamadan: ca. 20 km S. of Nahavand, Kuh-e Garrin, above Cheshme-Gamasiab (TT3), 2600 m, Assadi & Mozaffarian 36974; Hamadan to Assadabad, Gondehin, Kuh-e Almogholagh, 2200-2800 m, Mozaffarian 64971; Kuh-e Alvand, 2700 m, Assadi & Mozaffarian 36824; near Ganjnameh (TU3) 2100 m, Assadi & Mozaffarian 36781; 45 km SW. Hamadan, 2150 m, H. Pabot 1561. –Lorestan: Dorud, neck mountain, between Saravand and Gahar lake (USI) 2300-3500 m, Mozaffarian & Sardabi 42498, 42378; Oshtorankuh, S. slope opposite to Gahar lake (SUI), 2380-3200 m, Mozaffarian and Sardabi 42282. –Esfahan: Natanz, Kuh-e Karkas, 3000-3300 m, Foroughi & Assadi 18097; ca. 5 km from Natanz to Kashan (WT4) 1750 m, Assadi & Bazgosha 56592; Semirum Kuh-e Aineh Ghabri, 3000-3700 m, Assadi & Mozaffarian 31640; 48 km, S. of Damaneh, 2100 m, Pabot 2140; Khansar, Golestan kuh, 2300-2600 m, Mozaffarian & Maassoumi 77949. –Yazd: Shirkuh from Dehbala and Sheikh Alishah and Lagerdu valleys, V. Mozaffarian 77646; S. of Dehbala, Sarkuh mountain, 3150 m, Foroughi & Assadi 18010. –Fars: Shiraz, Darengun, Kuh-e Delu, 1850-2200 m, V. Mozaffarian 83637; Kharama, between Jahanabad and Runiz, Gardane Bezan, Tange Naghare khane, 1900 m, V. Mozaffarian 83617.

T. polycephalum Schultz Bip. subsp. **argyrophyllum** (C. Koch) Podl., Fl. Iran. 158: 117 (1986).

Selected specimens. Azerbaijan: 14 km from Khalkhal to Kivi, Anavis village, 1680 m, Mozaffarian & Nowrozi 34144; on the road from Marand to Makou, between Kosksarai

and Erelan, 1300-1500 m, Assadi 70798; Urumieh, hill by the lake, just north of Golman Khaneh, 1400 m, Wendelbo et al. 11983; Kuh-e Sabalan, 2640 m, Rajamand 6788; Kuh-e Sahand, between Lighvan and Isperkhan, 2200-2600 m, Assadi & Mozaffarian 30882; Zanzan, 34 km from Gilvan to Zanzan, N. slope of Alborz range (AUI), Assadi & Shah-Mohamadi 60319; Between Maku and Khoy, Hramlu, 1850-1950 m, Assadi & Mozaffarian 30377; between Mianeh and Ghaflankuh, 1100 m, Assadi & Sardabi 24456.

This subsepecies distributes in northern Zagros and Azerbaijan

T. polycephalum Schultz Bip. subsp. **dudermanum** (Boiss.) Podl., Fl. Iran. 158: 120 (1986).

Syn.: *T. polycephalum* Schultz Bip. subsp. *junesarensis* (Bornm.) Podl., Fl. Iran. 158: 119 (1986), **syn. nov.**

Selected specimens. Gorgan, Park Golestan, Alme, 1900 m, Wendelbo & Foroughi 12625. –Mazandaran: 6 km SW. of Javaherdeh (SW. of Ramsar) N. exposed slope, 2500-2750 m, Runemark and Maassoumi 29897; Kelardasht, Rudbark, Pitsara, 2750 m, Foroughi 6709; Kandavan, Chalus valley, 2970 m, Foroughi 21440; Haraz road, Abgarm, 2250 m, Assadi & Mozaffarian 31146; Lar valley, 2450-2550 m, Wendelbo & Assadi 13334. –Khorassan: Esferayen, Shahjahan mountains, Rocky region of mountain Tourkan, from deep gorge close to Noushirvan village, 1400-2500 m, V. Mozaffarian 48596; Shirvan, Lujelli, 1350 m, Mozaffarian 83674. –Semnan: Shahrud, Kuh-e Abr, 2000 m, Riazi 4105; Shahrud, Kuh-e Ghatry, 2340 m, Foroughi 8976; ca. 50 km N. of Semnan, mountains above Hikuh, (YV1) 2400-2700 m, Assadi & Mozaffarian 40734. –Tehran: S. slope of Kuh-e Tupal, 2900-3650 m, Mozaffarian 78295; mountains NW. of Tehran, Suleghun valley, 1900 m, Assadi, Mozaffarian & Jamzad 33604; Karaj, Kuh-e

Dashteh, 2000-2500 m, Assadi & Mozaffarian 32797; Chalus road, Karaj dam, Kushke-Bala, 1800-2100 m, V. Mozaffarian 63492; Shahrestanak, Tuchal, 3300 m, Riazi 4062; Damavand, Rineh, 2260 m, Foroughi 2614; Karaj valley, Dezin, 3400 m, Wendelbo & Cobhan 14007; Damavand, Rocky mountain N. of Veliran village, 1850 m, V. Mozaffarian 32296; 13 km from Firuzkuh to Semnan (XV3), 2000 m, Assadi & Mozaffarian 35341; Firuzkuh, Lazour, Kariz, 2500 m, V. Mozaffarian 54185; Fasham, Gardane Garmabdar, Kuh-e Junezar, 3300-3570 m, Mozaffarian 81201.

Tanacetum dumosum Boiss., Diagn. Pl. Or. Nov. ser. 1. 6: 89 (1846).

Boissier (l. c.) described *Tanacetum dumosum* from Kuh-e Dena based on specimen collected by Kotschy, the capitula was described correctly in the protologue as homogamous, but it was wrongly grouped in Flora Orientalis (Boissier 1875) and Podlech (1986) in heterogamous group. According to recent collections from the type locality it was revealed that all flowers are indeed homogamous as in the original description.

Tanacetum parthenium (L.) Schultz Bip.

This species was considered in Flora Iranica (Poldech 1986) in a wide sense including *T. parthenifolium* (Willd.) Schultz Bip. and *Pyrethrum persicum* Boiss.

Based on the study of enormous material in the (Herbarium of Research Institute of Forests and Rangelans (TARI), I concluded that three species can be distinguished, which are separated according to following key.

1- Leaves bipinnatisect, with very narrow ultimate segments, glabrous above, glandulose-punctate below. Stems glabrous. Capitula usually with long peduncle and loose inflorescence. Phyllaries glabrous. Achene glandulose along ribs

T. persicum (Boiss.) Mozaff.

- Leaves and stems hairy or glabrous, bipinnatipartite or bipinnatifid. Capitula large. Peduncle long or short, with dense to loose corymbose inflorescence. Phyllaries hairy or glabrous. Achenes glabrous to glandulose 2

2- Stems hairy. Leaves hairy above and below, bipinnatifid, with large elliptic-oblong ultimate segments. Peduncles short, with dense corymbose inflorescence

T. parthenium (L.) Schultz Bip.

- Stems hairy, often prostrate. Leaves hairy below, glabrous above, bipinnatipartite, with oblong ultimate segments. Peduncles long and inflorescence loosely corymbose

T. parthenifolium (Willd.) Schultz Bip.

T. parthenifolium (Willd.) Schultz Bip.

Selected specimens. Gilan: 43 km on the road from Khalkhal to Asalem 1450 m, Jamzad et al. 70616 (TARI). -Azerbaijan: Sabalan, 2720m, H. Froughi 6733 (TARI); Shahbil, Kuh-e Sabalan, 2800 m, Froughi and Assadi 13847 (TARI); Kuh-e Sahand, between Lighvan and Ispershan, 2200-2600 Assadi & Mozaffarian 30584 (TARI); Meshginshahr, Salavat, Golidaragh village, Golidaragh mountain, 1500-1850 m, Mozaffarian & Nowrazi 34988 (TARI). -Hamadan: Asadabad, Khondab and Ghasemabad, WE. slope of Kuh-e Gharavol Khane 2100-2500 m, V. Mozaffarian 64566 (TARI); Kuh-e Alvand, 2700 m, Assadi and Mozaffarian 36301 (TARI). -Khorassan: Mashhad, N. slope of Binalud Mountains, above Zoshk village, Rudkhane Abdollah 2100-3000 m, V. Mozaffarian 48842 (TARI). -Tehran: Lar valley from margin of Alarm river 2550-2700 m, V. Mozaffarian 81181.

This species usually growing in shady and wet places in the forests and mostly on rocky parts.

T. parthenium (L.) Schultz Bip.

Selected specimens. Gilan: Manjil, 12 km from Rostamabad to Dogahe, 160 m, Mozaffarian & Nowrozi 33968 (TARI). -Mazandaran: Janat Rudbar, Pelam Chal toward neck mount. of Pish-chak and Tomol 2600-3100 m, Maassoumi 78469 (TARI). -Azerbaijan: Arasbaran protected area, Toopkhane, 1800-2000 m, Hamzehee and Asri 81372 (TARI); ca. 20 km W. of Marand, NW. of the village Erlan, 2000 m, Assadi & Shahsavari 65487 (TARI); Arasbaran, Saigram-Dagh mountain, 2300 m, Assadi & Sardabi 24278 (TARI). -Hamadan: Nahavand, Firuzabad, Kangavar-e Kuhne, Kutah darre, Siahdarre (Kuh-e Garrin), 1950-2300 m, V. Mozaffarian 65088 (TARI). -Lorestan: 21 km on road from Shoulabad to Aligodarz, 2000m, Runemark & Lazari 26418 (TARI). -Chaharmahal-e Bakhtiary: Darre-Bazoft, Mavarz, margin of Mavarz river, 1450 m, V. Mozaffarian 74553 (TARI). -Kuhgilouyeh and Boirahmad: Patave to Ludab, Maregun, 2200 m, V. Mozaffarian 71263 (TARI). -Fars: Shiraz, Beiza, Kamfiruz, Tange Bostanak, 1750 m, V. Mozaffarian 71328 (TARI). -Semnan: ca. 50 km N. of Semnan, Tang-e Parvar, 2100 m, Assadi & Mozaffarian 40488 (TARI). -Tehran: Damavand, Akhorbadin, 1650-1800 m, V. Mozaffarian 53844 (TARI); Damavand, E. side of River, below the Mountain close to Veliran, 1900 m, V. Mozaffarian 32389.

This species usually grows along ditch, stream and river beds in wet and ± shady places.

Tanacetum persicum (Boiss.) Mozaffarian, **comb. nov.**

Syn.: *Pyrethrum persicum* Boiss., *Diagnosis Plantarum Orientalum Novarum* ser. 1 (6): 89 (1846).

Selected specimens. Chahrmahal-e Bakhtiari: Lordegan, between Monj and Chahar Tagh, Tang-e Zendan, 1850 m, V. Mozaffarian

59920, 77905 (TARI). -Kuhgilouyeh and Boirahmad: Patave to Ludab, Maregun 71251 (TARI). -Fars: 20 km from Estehbanat to Niriz, S. of Daryach-e Bakhtegan, 1750 m, V. Mozaffarian 47106 (TARI); Eghlid, Dasht-e Namdan, road from Daryache Kaftar to Sirbanu, Kuh-e Baraftab, 2350-2900 m, Mozaffarian 71549 (TARI); S. of Shiraz, Emamzadeh Sabzehpushan, 1650 m, Wendelbo & Foroughi 17799 (TARI); 10 km from Ardakan to Komehr, 2600-3300 m, Assadi & Abouhamzeh 46331 (TARI). -Tehran: Arak, Haftad-Gholleh, Chek-Ab, 2100-2500 m, Mozaffarian & Maassoumi 47842 (TARI).

This species usually grows on unexposed rocky part and mostly in slit of rocks.

NEW RECORDS**Artemisia campestris** L.

Azerbaijan: 22 km to Germe from Ardabil road, 1450 m, Mozaffarian 64256, 64255 (TARI); 10 km from Kaleybar to Khodaafarin 1350-1850 m, Mozaffarian & Mohammadi 37623 (TARI); 6 km from Germe to Ani, Esmar village, 1000-1380 m, Mozaffarian & Mohammadi 37735 (TARI).

This species has not been previously recorded from Iran (Podlech 1986). Its general distribution is in most of Europe, Turkey, NW. Africa and Iran.

Artemisia marschalliana Sprengel

Azerbaijan: 5 km E. of Kaleybar, 1200-1500 m, Mozaffarian 64278 (TARI); 22 km to Germe from Ardabil road, 1450 m, Mozaffarian 64256 (TARI); ca. 20 km from Ardabil to Khalkhal, Hir to Shebli to Gheshlagh, 2400 m, Mozaffarian 70131 (TARI); 4 km from Ahar to Kaleybar, 1650 m, Mozaffarian 71677 (TARI); 20 km W. of Kaleybar to Ghaleh Babak, 1450 m, Mozaffarian 64297 (TARI).

This species has not been previously recorded from Iran (Podlech 1986). Its general distribution is Europe, Turkey, Caucasia and Iran.

Leucanthemum vulgare Lam., Fl. Fr. 2: 137 (1778).

Azarbaijan: Tabriz, Kandavan to Sahand high lands, 2180 m, Sarkarat and Olfat 161 (TARI); Ardebil, Fanduglo, 1400 m, A. Javanshir 1953, 2325 Tabriz University Herb. (dupl. TARI).

This species has not been previously recorded from Iran (Podlech 1986). Its general distribution is in temperate Eurasia, from W. Europe to China and N. Turkey

Tripleurospermum monticolum (Boiss. & Huet) Bronn.

Azerbaijan: Khoy, Razi, Amini 7904 (TARI).

This species has not been previously recorded from Iran (Podlech 1986). Its general distribution was in Turkey.

REFERENCES

- Boissier, E. 1875: Flora Orientalis, vol. 3. – Basileae and Genevae.
Boissier, E. 1846: Diagn. Pl. Or. Nov. ser. 1. 6: 89. -Graz, Austria
Davis P. H. 1975: Flora of Turkey, vol. 5; Edinburgh at the University Press.
Podlech. D. 1986; Tanacetum in K. H. Rechinger, Flora Iranica no. 158. Akademische Druk, Verlagsanstalt, Graz.
Tzvelev. N. N. 1961: Tanacetum in V. L. Komarov, Flora of the U. S. S. R. vol. 26: 317-359. –Moskva & Leningrad.
Takhtajan, A. L. 1995: Flora Armenica, vol. 9. -Koeltz Scientific Books.
Takhtajan, A. and Fedorov, An. A. 1972: Flora Erevana. –Leningrad.