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**Анализ рода *Inula* L. и *Pentanema* Cass. (Asteraceae) во флоре
Азербайджана**

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Аннотация. Рассматриваются изменения в таксономическом составе рода *Inula*, относящегося к трибе *Inuleae* семейства *Asteraceae*, и его современный статус. Род *Inula* во флоре Азербайджана был представлен 13-ю видами (*I. helenium*, *I. grandiflora*, *I. montbretiana*, *I. acaulis*, *I. orientalis*, *I. germanica*, *I. aspera*, *I. mariae*, *I. caspia*, *I. oculus-christi*, *I. britannica*, *I. auriculatum*, *I. vulgaris*). При исследовании использовались классический сравнительно-морфологический и систематический методы. В результате проведенных морфологических исследований, а также со ссылками на литературу и базы данных (“Taxon”; “Ukrainian Botanical Journal”; World Plants: Synonymic Checklists of the Vascular Plants of the World) установлено, что некоторые виды рода *Inula* переведены в новый для флоры Азербайджана род *Pentanema*. Род *Inula* традиционно является сильным полифилетиком, и было предложено включить в его состав тип рода *Inula helenium* и родственные виды. Другие же виды рода *Inula* рассматриваются в рамках рода *Pentanema*. Состав рода *Inula* дополнен видом *I. aucheriana* и в настоящее время во флоре Азербайджана представлен 5-ю видами (*I. helenium*, *I. grandiflora*, *I. montbretiana*, *I. acaulis*, *I. aucheriana*), а род *Pentanema* – 9-ю видами (*P. orientale*, *P. germanicum*, *P. asperum*, *P. mariae*, *P. caspicum*, *P. oculus-christi*, *P. britannica*, *P. auriculatum*, *P. squarrosum*). Приводятся новые ключи для определения родов и видов и их краткий обзор.

Ключевые слова: *Asteraceae*, род, *Inula*, *Pentanema*, ключ, обзор видов

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BOTANY

Original article

**Analysis of the genera *Inula* L. and *Pentanema* Cass. (Asteraceae)
in the flora of Azerbaijan**

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Abstract. The article discusses the changes in the taxonomic structure and the current situation of the genus *Inula*, which belongs to the tribe *Inuleae* of the family *Asteraceae*. Classical comparative-morphological and systematic methods were used during the research. Taxonomic and nomenclature changes in the *Inula* genus were investigated according to morphological analysis, literature data and databases (“Taxon” and “Ukrainian Botanical Journal”; World Plants: Synonymic Checklists of the Vascular Plants of the World) and it was determined that some species of the genus *Inula* were transferred to the genus *Pentanema* which is new to the flora of Azerbaijan. The genus *Inula* is traditionally a strong polyphyletic in large numbers. It has been suggested to relate them only type species *I. helenium* L. and species close to it. Other species belonging to the genus *Inula* are represented in the composition of the genus *Pentanema*. The genus *Inula* is supplemented by the species *I. aucheriana* and is currently represented in the flora of Azerbaijan by 5 species (*I. helenium*, *I. grandiflora*, *I. montbretiana*, *I. acaulis*, *I. aucheriana*), the genus *Pentanema* by 9 species (*P. orientale*, *P. germanicum*, *P. asperum*, *P. mariae*, *P. caspicum*, *P. oculus-christi*, *P. britannica*, *P. auriculatum*, *P. squarrosum*). A new key of the species and genera was compiled and a brief overview was given.

Keywords: *Asteraceae*, brief overview, genus, *Inula*, key, *Pentanema*

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Introduction

Genus *Inula* L. (Asteraceae Bercht. et J. Presl family, *Inuleae* Cass. tribe) is represented by 91 [WFOPL] species in the temperate and hot regions of Eurasia, North Africa and 19 species in the Caucasus

Description of 13 species (*Inula helenium* L., *I. grandiflora* Willd., *I. orientalis* Lam., *I. aspera* Poir., *I. germanica* L., *I. vulgaris* (Lam.) Trevisan, *I. mariae* Bordz., *I. caspia* Blum in Ledeb., *I. montbretiana* D.C., *I. auriculata* Boiss. et Bal. in Boiss., *I. oculus-christi* L., *I. britannica* L., *I. acaulis* Schott et Kotschy ex Boiss.) of *Inula* genus in the flora of Azerbaijan were given in the fundamental works “Flora of Azerbaijan” by A.Kh.Khalilov [Flora of Azerbaijan, 1961] and “Flora of the USSR” [Flora of SSSR, 1961] by S.G.Gorshkova. According to the “Abstract of the Caucasus Flora”, 10 species of the genus (*I. helenium*, *I. orientalis*, *I. germanica*, *I. conyza*, *I. mariae*, *I. caspia*, *I. montbretiana*, *I. oculus-christi*, *I. britannica*, *I. acaulis*) and 1 subspecies - *I. salicina* subsp. *aspera* (Poir.) Hayek - are distributed in our flora [Synopsis..., 2008]. According to the book “Plant life of Azerbaijan” by A.M. Askerov, 10 species of the genus *Inula* are widespread in Azerbaijan - *I. aspera*, *I. britannica*, *I. caspica*, *I. conyza* DC., *I. germanica*, *I. helenium*, *I. mariae*, *I. montbretiana*, *I. oculus-christi*, *I. orientalis* [Askerov, 2016]. In our country, *Inula* species are found from the lowlands to the alpine belt on grassy slopes, gardens, shrubs, forest openings, plantations, dry rocky slopes, mountain meadows [Flora of Azerbaijan, 1961]. They are mainly known as medicinal, essential oil, dye, ornamental plants.

The genus *Inula* is traditionally a strong polyphyletic in large numbers. According to the morphological, karyological and molecular phylogenetic data, it was suggested to relate them only type species *I. helenium* and species close to it. The remaining species were transferred to *Pentanema* Cass. and several other small genera in 2023 [Gutiérrez-Larruscain D. et al., 2018; WFOPL].

Thus, the purpose of the present work is to give a key and a brief overview of species of the genus *Inula* and *Pentanema* that has come to our flora.

Material and methods

The research was carried out in expedition, field routes, stationary, laboratory conditions in 2018-2021. Herbarium specimens in the Herbarium Fund (BAK) of the Institute of Botany of ANAS and herbariums of plants collected during the expedition were examined. Classical comparative-morphological and systematic methods were used during the research. Literature sources on the genus *Inula* of the tribe *Inuleae* of the family *Asteraceae* were summarized and analyzed. The fundamental works such as the “Flora of Azerbaijan” [1961] and “Flora of the USSR” [1961] were used in compiling the key. The Latin names of genera and species were written by comparing with databases [WFOPL] of recent years. Geographical types of species was given based on the N.N. Portenier’s division [Portenier, 2012].

Results and their discussion

According to our research, literature sources of recent years, morphological, karyological and molecular-phylogenetic research and databases, some species of the genus *Inula* were transferred to the genus *Pentanema* [WFOPL]. The genus *Inula* is supplemented by the species *I. aucheriana* and is currently represented in the flora of Azerbaijan by 5 species [Gasimova, 2024], the genus *Pentanema* by 9 species in our flora (table).

Species composition of the genera *Inula* L. and *Pentanema* Cass.

Class Magnoliopsida	
Order Asterales	
Family Asteraceae Bercht. et J. Presl	
Subfamily Carduoideae Kitam.	
Tribe Inuleae Cass.	
Subtribe Inulinae O. Hoffm.	
<i>Inula</i> genus	<i>Pentanema</i> genus
<i>I. helenium</i> L.	<i>P. orientale</i> (Lam.) D.Gut.Larr. Santos-Vicente, Anderb., E.Rico et M.M.Mart.Ort.
<i>I. grandiflora</i> Willd.	<i>P. germanicum</i> (L.) D.Gut.Larr. Santos-Vicente, Anderb., E.Rico et M.M.Mart.Ort.
<i>I. montbretiana</i> DC.	<i>P. asperum</i> (Poir.) G.V.Boiko et Korniy.
<i>I. acaulis</i> Schott et Kotschy ex Boiss.	<i>P. mariae</i> (Bordz.) D.Gut.Larr. Santos-Vicente, Anderb., E.Rico et M.M.Mart.Ort.
<i>I. aucheriana</i> DC.	<i>P. caspicum</i> (F.K.Blum ex Ledeb.) G.V.Boiko, Korniy. et Mosyakin
	<i>P. oculus-christi</i> (L.) D.Gut.Larr. Santos-Vicente, Anderb., E.Rico et M.M.Mart.Ort.
	<i>P. britannica</i> (L.) D.Gut.Larr. Santos-Vicente, Anderb., E.Rico et M.M.Mart.Ort.
	<i>P. auriculatum</i> (Boiss. et Balansa) D.Gut.Larr., Santos-Vicente, Anderb., E.Rico et M.M.Mart.Ort.
	<i>P. squarrosus</i> (L.) D.Gut.Larr. Santos-Vicente, Anderb., E.Rico et M.M.Mart.Ort.

Key of the genera *Inula* L. and *Pentanema* Cass.

1. Anthodes are not large, they are single or numerous at the ends of the branches. These are short subshrubs reaching a height of 30 cm.....2. *Pentanema*
- Anthodes are large, usually numerous and are collected in a complex cymose or capitated inflorescence. They are mainly perennial, sometimes biennial or annual herbaceous plants.....1. *Inula*

Genus 1. *Inula* L. 1753, Sp. Pl.: 881

Key of species

1. It is a tall plant, 80-150 cm high. The leaves are large, oblong-elliptic, green on top, almost bare, dense on the underside and softly hairy. Anthodes are large.....1. *I. helenium*
- They are not tall plants2
2. Achenes are bare.....3
- Achenes are hairy.....4
3. The leaves are elliptic-oblong, all sessile, the edges are small sparsely dentate. Anthode are large, spathe leaflets are narrow lanceolate, linear or linear-awl-shaped.2. *I. grandiflora*
- The leaves are fleshy, full, oblong-lanceolate, amplexicaulous, acuminate-tip. Anthodes are small, spathe leaflets are broadly lanceolate, ovate-lanceolate, oblong-ovate or ovate.....5. *I. aucheriana*
4. It is perennial dense sericate-pilose plant. All leaves are smooth-edged, dense silky-hairy, basal leaves are lanceolate, pointless, compressed into a long stem, upper leaves are sessile, semi-amplexicaul, linear.....3. *I. montbretiana*
- It is a perennial, soddy, dwarf plant. All leaves are basal, oblong-spatulate, pointless, narrowed into a stalk, bare and only the edges are sometimes stiff comb-shaped-ciliated4. *I. acaulis*

1. *I. helenium* L. 1753, Sp. Pl.: 881; Khalilov, 1961, Fl. Azerb. 8:223; Gorshkova, 1961, Fl. USSR, 25:440; Nikolayev, 2008, Conspect Fl. Cauc. 3(1):187. – Horseheal i.

It is described from Europe. Typus: “in Anglia, Belgio” (LINN).

They are found in the Samur-Davachi lowland, Guba massif, east and west of the Greater Caucasus, Bozgir plateau, north, center and south of the Lesser Caucasus, in Nakhchivan mountains from the lower mountain belt to the subalpine in meadows, bushes, on the banks of rivers and lakes, gardens and fields. It is a mesophyte.

Geographical type – Europe-Siberia.

2. *I. grandiflora* Willd. 1803, Sp. Pl.: 3: 2096; Khalilov, 1961, Fl. Azerb. 8:224; Gorshkova, 1959, Fl. USSR, 25:444.–*I. orientalis* Lam. subsp. *grandiflora* (Willd.) Zernov, 2004, in Novosti Sist. Vyssh. Rast. 36:227.–Sunflower i.

This is described from the Caucasus.

They are distributed in the eastern and western parts of the Greater Caucasus, in the high mountain meadows of the subalpine and alpine belts of the northern part of the Lesser Caucasus, and on edges of the upper borders of forests. It is a xeromesophyte.

Geographical type – Caucasus.

3. *I. montbretiana* DC. 1838, in Prodr. 7:284; Khalilov, 1961, Fl. Azerb. 8:229; Gorshkova, 1959, Fl. USSR, 25:457; Nikolayev, 2008, Conspect Fl. Cauc. 3(1):188. – Monbre i.

It is described from Asia Minor (Cappadocia). Typus: “in Cappadocia ad Euphratem, 3090 Aucher-Elay” (G).

It is found on rocky slopes in the subalpine zone of the mountainous area of Nakhchivan. It is a xerophyte.

Geographical type – Iran-Turan.

4. *I. acaulis* Schott et Kotschy ex Boiss. 1875, in Fl. Orient. 3:195; Khalilov, 1961, Fl. Azerb. 8:230; Gorshkova, 1959, Fl. USSR, 25:472; Nikolayev, 2008, Conspect Fl. Cauc. 3(1):189. – Stemless i.

This is described from Asia Minor. Typus: “in Lusatia, Bawaria, Scania” (LE).

It is found in rocky places in the upper mountain belt of Nakhchivan mountainous area. It is a xerophyte.

Geographical type – Iran-Turan.

5. *I. aucheriana* DC. 1838, in Prodr. 7:284; Nikolayev, 2008, Conspect Fl. Cauc. 3(1):189. – *I. seidlitzii* Boiss. 1875, Fl. Or. 3:189. – *I. armena* Bordz. 1915, in Zap. Kievsk. Obsc. Estestvoisp. 25: 118.–Osherri.

It was described from Turkey. Typus: “Cappadocia ad Euphratem, №3091, Aucher-Eloy” (G).

It is found on rocky slopes in the southern part of the Lesser Caucasus (Zangilan district). It is a xeromesophyte.

Geographical type – Caucasus.

Genus 2. *Pentanema* Cass. 1818, in Bull. Sci. Soc. Philom, 1818: 74

Key of species

1. Ligulate flowers are short, not longer than a spathe. Anthode is numerous, small.
They are perennial thin-pannose plants.....9. *P.squarrosus*
 - Ligulate flowers are longer than the spathe.....2
 2. Achenes are bare.....3
 - The entire surface of the achenes is hairy.....5
 3. Leaflets of spathe are numerous, linear, with long ciliated. Anthodes are single. Ligulate flowers
Are bright yellow.....1. *P.orientale*
 - Leaflets of spathe is wider, longer.....4
 4. Anthode is numerous, collected in dense corymb. The leaves are oblong or oblong-lanceolate,
sessile. They are soft curled hairy plants.....2. *P. germanicum*
 - Anthodes with 2-4 flowers are collected in non-dense corymb. The leaves are leather-like,
heart-shaped-based, the edges are acuminate rough. It is a bare plant.....3. *P.asperum*
 5. Anthodes are large. Spathe leaflets are ribbed and long curly hairy, yellowish, outer leaflets are ovoid-
lanceolate and lanceolate, inner linear.....4. *P. mariae*
 - Anthodes are a little big.....6
 6. Pedicel of anthodes and spathe are dense glandular rough or knobby-ciliate.....5. *P.caspium*
 - There are no glands and knobby trichomes in inflorescence.....7
 7. The basal and lower stem leaves dry out during flowering. Anthodes are in sparse corymbs. The plant is
less hairy.....7. *P. britannica*
 - The basal and lower stem leaves remain until flowering. Anthodes are in dense corymbs. Silky
plant.....8
 8. Upper leaves are sessile, amplexicaulous, round wide ear-shaped crested, ligulate flowers are, smooth
at the base, on the sides.....8. *P. auriculatum*
 - Upper leaves at the base are heart-shaped and not-eared. Ligulate flowers are ligulated, covered with
white hairs on the outside and small golden glands.....6. *P. oculus-christi*
1. *P. orientale* (Lam.) D. Gut. Larr. Santos-Vicente, Anderb., E.Rico et M.M.Mart.Ort. 2018, in Taxon 67(1):159. – *Inula orientalis* Lam. 1789, Encycl. 3:255; Khalilov, 1961, Fl.Azerb. 8:224; Gorshkova, 1959, Fl. USSR, 25:447; Nikolayev, 2008, Conspect Fl. Cauc. 3(1):187. – Oriental p.
- It is described from Georgia (from the top of Mount Kayshaur). Typus: “Dans de Levant, Tournefort” (P-LA, №16056).
- They are found in Guba massif, east and west of the Greater Caucasus, in north and center of the Lesser Caucasus, in subalpine and alpine meadows from the upper boundaries of forests to the alpine belt, in forest openings and edges. It is a xeromesophyte.
- Geographical type – Caucasus.
2. *P. germanicum* (L.) D.Gut. Larr. Santos-Vicente, Anderb., E.Rico et M.M.Mart.Ort. 2018, in Taxon 67(1): 159. – *Inula germanica* L. 1753, Sp. Pl. 3:189; Khalilov, 1961, Fl.Azerb. 8:227; Gorshkova, 1959, Fl. USSR, 25:451; Nikolayev, 2008, Conspect Fl. Cauc. 3(1):187. – Germany p.
- This is described from Germany. Typus: “in Misnia, Pannonia, Sibiria” (LİNN).
- They are found in bushes, fields and gardens in the Samur-Davachi lowland, Guba massif, east and west of the Greater Caucasus, Kura plain, center and south of the Lesser Caucasus, Nakhchivan mountains (Shahbuz district) and up to the middle mountain belt of the Lankaran plain. It is a xeromesophyte.
- Geographical type – Euro-Mediterranean.
3. *P. asperum* (Poir.) G.V.Boiko et Korniy. 2018, in Ukrayinsk. Bot. Zhurn. 75(5): 437. – *Inula aspera* Poir. 1813, in Lam. Encycl. Suppl. 3:154; Khalilov, 1961, Fl.Azerb. 8:226; Gorshkova, 1959, Fl. USSR, 25:452. – *I. salicina* L. subsp. *aspera* (Poir.) Hayek, 1931, Prodr. Fl. Penins. Balkan. 2:602; Nikolayev, 2008, Conspect Fl. Cauc. 3(1):188. – *Pentanema salicinum* subsp. *asperum* (Poir.) Mosyakin, 2018, in Ukrayinsk. Bot. Zhurn. 75(5): 438. – Rough p.
- It is described from plants planted in the Paris Botanical Garden, where the homeland is not mentioned.
- It is found in the Samur-Davachi lowland, Guba massif of the Greater Caucasus, Gobustan, Kura plain, north, south and center of the Lesser Caucasus, in the Nakhchivan and Lankaran mountains from the lowland to the middle belt in forest fields, roadsides, bushes, grassy slopes and gardens. It is a xeromesophyte.
- Geographical type – Pontic South - Siberia.
4. *P. mariae* (Bordz.) D.Gut.Larr. Santos-Vicente, Anderb., E.Rico et M.M.Mart.Ort. 2018, in Taxon, 617(1): 159. – *Inula mariae* Bordz. 1915, in Zap. Kievsk. Obsch. Estestvoisp. 25:115; Khalilov, 1961, Fl.Azerb. 8:228;

Gorshkova, 1959, Fl. USSR, 25:45; Nikolayev, 2008, Conspect Fl. Cauc. 3(1):188. – Maria p.

This is described from Georgia. Typus: “Georgia, distr. Akhalkalaki” (KW).

It is distributed in the mountain meadows of the subalpine zone of the Nakhchivan mountains. It is a xeromesophyte.

Geographical type – Caucasus.

5. *P. caspicum* (F.K.Blum ex Ledeb.) G.V.Boiko, Korniy. et Mosyakin, 2018, in Ukrayins'k. Bot. Zhurn., 75(5): 437. - *Inula caspia* F.K.Blum ex Ledeb. 1822, Index Sem. Horti Dorpat. 1822:10; Khalilov, 1961, Fl. Azerb. 8:228; Gorshkova, 1959, Fl. USSR, 25:466; Nikolayev, 2008, Conspect Fl. Cauc. 3(1):188. – Caspian p.

It is described from the shores of the Caspian Sea. Typus: “ad mare Caspium” (LE).

It is found in the sea sands of the Lankaran lowland (Sara Island). It is a xeromesophyte.

Geographical type – Europe-Siberia.

6. *P. oculus-christi* (L.) D.Gut.Larr. Santos-Vicente, Anderb., E.Rico et M.M.Mart.Ort. 2018, in Taxon, 67(1): 159 - *Inula oculus-christi* L. 1753, Sp.Pl.:881; Khalilov, 1961, Fl.Azerb. 8:229; Gorshkova, 1959, Fl. USSR, 25:461; Nikolayev, 2008, Conspect Fl. Cauc. 3(1):188. – Christ's-eye p.

This is described from Austria. Typus: “in Austria” (LINN).

It is found on dry rocky slopes, bushes, plantations, forest edges and fields in the Guba massif of the Greater Caucasus, the Bozgir plateau, the central and southern part of the Lesser Caucasus, the Kur-Araz lowland, the lower and middle mountain belts of the Nakhchivan and Lankaran mountains. It is a xeromesophyte.

Geographical type – Europe-Siberia.

7. *P. britannica* (L.) D.Gut.Larr. Santos-Vicente, Anderb., E.Rico et M.M.Mart.Ort. 2018, in Taxon, 67(1): 159.- *Inula britannica* L. 1753, Sp.Pl. 2:882; Khalilov, 1961, Fl.Azerb. 8:230; Gorshkova, 1959, Fl. USSR, 25:465; Nikolayev, 2008, Conspect Fl. Cauc. 3(1):188. – British p.

This is described from Europe. Typus: “in Lutetia, Bavaria, Scania” (LINN).

It occurs singly, often in small groups, in bushes, gardens, forests, roads, river banks, meadows throughout Azerbaijan, from lowland to mid-mountain range. It is a xeromesophyte.

Geographical type – Europe-Siberia.

8. *P. auriculatum* (Boiss. & Balansa) D.Gut.Larr., Santos-Vicente, Anderb., E.Rico et M.M.Mart.Ort. 2018, in Taxon, 67(1): 159. - *Inula auriculata* Boiss. et Balansa, 1856, in Boissier, Diagn. Pl. Orient., ser. 2,3:13; Khalilov, 1961, Fl.Azerb. 8:229; Gorshkova, 1959, Fl. USSR, 25:462. – *I. oculus-christi* subsp. *auriculata* (Boiss. et Balansa) Yildirim et Senol, 2011, in Ot Sist. Bot. Dergisi, 18 (1):17. – Auricula p.

It is described from Bozdag. Typus: “In pascuis montis tmoli lidiae ad Bozdagh, cl. Balansa” (G).

It is found in the mountain meadows of the middle and subalpine mountain belts of Nakhchivan mountains. This is described from Asia Minor. It is a xeromesophyte.

Geographical type – Iran-Turan.

9. *P. squarrosus* (L.) D.Gut.Larr. Santos-Vicente, Anderb., E.Rico et M.M.Mart.Ort. 2019, in Phytotaxa, 395: 18. – *Inula squarrosa* (L.) Bernh. ex DC. 1836, in Prodr. 5:464. - *Conyza squarrosa* L. 1753, Sp. Pl.:861. - *Inula vulgaris* (Lam.) Trevisan, 1842, in Prosp. Fl. Eugani.: 29; Khalilov, 1961, Fl.Azerb. 8:227; Gorshkova, 1959, Fl. USSR, 25:473. – *I. conyzae* (Griess.) DC. 1836, in Prodr. 5: 464; Nikolayev, 2008, Conspect Fl. Cauc. 3(1):189. – *Pentanema conyzae* (Griess.) D.Gut.Larr. Santos-Vicente, Anderb., E.Rico et M.M.Mart.Ort. 2018, in Taxon, 67(1): 159. – *Aster conyzae* Griess. 1836, in Kleine Bot. Schr.: 122.–Ordinary p.

This is described from Europe. Typus: “in Germaniae, Belgii, Angliae” (G).

It is found in forests and bushes of Guba massif, east and west of the Greater Caucasus, in the north and center of the Lesser Caucasus, in the lower and middle mountain ranges of the Lankaran Mountains. It is a xeromesophyte.

Geographical type – Pluri regional.

Conclusions

1. For the first time in the flora of Azerbaijan, species composition of the genera *Inula* L. and *Pentanema* Cass. is analyzed and presented.

2. Presently, the genus *Inula* is supplemented by the species *I. aucheriana* and is currently represented in the flora of Azerbaijan by 5 species (*I. helenium* L., *I. grandiflora* Willd., *I. montbretiana* D.C., *I. acaulis* Schott et Kotschy ex Boiss., *I. aucheriana* DC.) and the genus *Pentanema* by 9 species (*P. orientale* (Lam.) D.Gut.Larr., Santos-Vicente, Anderb., E.Rico et M.M.Mart.Ort., *P. squarrosus* (L.) D.Gut.Larr., Santos-Vicente, Anderb., E.Rico et M.M.Mart.Ort., *P. germanicum* (L.) D.Gut.Larr., Santos-Vicente, Anderb., E.Rico et M.M.Mart.Ort., *P.*

asperum (Poir.) G.V.Boiko et Korniy., *P. mariae* (Bordz.) D.Gut.Larr., Santos-Vicente, Anderb., E.Rico et M.M.Mart.Ort., *P. squarrosus* (L.) D.Gut.Larr., Santos-Vicente, Anderb., E.Rico et M.M.Mart.Ort., *P. caspicum* (F.K.Blum ex Ledeb.) G.V.Boiko, Korniy. et Mosyakin, *P. oculus-christi* (L.) D.Gut.Larr., Santos-Vicente, Anderb., E.Rico et M.M.Mart.Ort., *P. britannica* (L.) D.Gut.Larr., Santos-Vicente, Anderb., E.Rico et M.M.Mart.Ort., *P. auriculatum* (Boiss. & Balansa) D.Gut.Larr., Santos-Vicente, Anderb., E.Rico et M.M.Mart.Ort., *P. squarrosus* (L.) D.Gut.Larr., Santos-Vicente, Anderb., E.Rico et M.M.Mart.Ort.) in our flora.

3. New key of the genera *Inula* and *Pentanema* and their species is given for the first time.

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