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All materials CHN; collected in Germany, Schleswig-Holstein; collectors: BMB = Babette & Matthias Baltisberger; vouchers in Z+ZT.

## ASTERACEAE

*Aster tripolium* L., 2n = 18; BMB 15908.  
*Hypochaeris radicata* L., 2n = 8; BMB 15898, BMB 16655.  
*Leontodon autumnalis* L., 2n = 12; BMB 16219.

## CARYOPHYLLACEAE

*Silene latifolia* Poir., 2n = 24; BMB 15889, BMB 16678.

## RANUNCULACEAE

*Ranunculus acris* L., 2n = 14; BMB 15922, BMB 16809.  
*Ranunculus sceleratus* L., 2n = 32; BMB 15910, BMB 16359.

## Revaz Gagnidze, Tsiala Gviniashvili,\* Irina Danelia &amp; Giorgi Tedoradze

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## ALISMATACEAE

*Sagittaria trifolia* L., 2n = 22; Georgia, ID 92.

## ALLIACEAE

*Allium kunthianum* Vved., 2n = 16; Georgia, RG & LKh 1275.

## ASTERACEAE

*Achillea biserrata* M.Bieb., 2n = 18; Georgia, ID 95-127.  
*Achillea millefolium* L., 2n = 18; Georgia, ID 106.  
*Anthemis candidissima* Willd. ex Spreng., 2n = 18; Georgia, ID 108.  
*Erigeron alpinus* L., 2n = 18; Georgia, ID 30-82.  
*Grossheimia macrocephala* (Muss.Puschk. ex Willd.) Sosn. & Takht., 2n = 18; Georgia, ID 95-117.  
*Hieracium pilosella* L., 2n = 18; Georgia, ID 26-88.

All materials for the chromosome column should be submitted electronically to: Karol Marhold, [karol.marhold@savba.sk](mailto:karol.marhold@savba.sk) (Institute of Botany, Slovak Academy of Sciences, SK-845 23 Bratislava, Slovakia, and Department of Botany, Charles University, CZ 128-01 Prague, Czech Republic). The full version of this contribution is available in the online edition of TAXON appended to this article. The following citation format is recommended: Baltisberger, M. & Voelger, M. 2006. *Sternbergia sicula*. In: Marhold, K. (ed.), IAPT/IOPB chromosome data 1. *Taxon* 55: 444, E2.

*Inula orientalis* Lam., 2n = 16; Georgia, ID 30-91.  
*Jurinea filicifolia* Boiss., 2n = 36; Georgia, ShSh 1271.  
*Kemulariella rosea* (Steven) Tamamsch., 2n = 18; Georgia, RG, DCh & ShSh 1240.  
*Pyrethrum balsamita* Willd., 2n = 18; Georgia, RG, DM, ShSh & GK 1286.  
*Scorzonera dzhawakhetica* Sosn. ex Grossh., 2n = 14; Georgia, TsG & MP 1152.  
*Taraxacum stevenii* DC., 2n = 16; Georgia, ID 95-125.  
*Tragopogon graminifolius* DC., 2n = 12; Georgia, ID 95-142.

## BRASSICACEAE

*Coluteocarpus vesicaria* Holmboe, 2n = 14; Georgia, ID 95-108.  
*Draba supranivalis* Rupr., 2n = 16; Georgia, TsG 1299.  
*Pseudovesicaria digitata* (C.A.Mey.) Rupr., 2n = 10; Georgia, RG & DCh 1214.

## CAMPANULACEAE

*Campanula trautvetteri* Grossh. ex Fed., 2n = 90; Georgia, PCh 91-156.

## CARYOPHYLLACEAE

*Arenaria steveniana* Boiss., 2n = 26; Georgia, TsG & MP 1146.  
*Cerastium argenteum* M.Bieb., 2n = 36; Georgia, ID 66-147.  
*Dianthus orientalis* Adams, 2n = 30; Georgia, TK 62-149.

## CONVALLARIACEAE

*Polygonatum orientale* Desf., 2n = 18; Georgia, ID 95-14.

## DIPSACACEAE

*Scabiosa caucasica* M.Bieb., 2n = 36; Georgia, PCh 84-111.

## FABACEAE

*Colutea orientalis* Mill., 2n = 16; Georgia, ID 94-120.  
*Trifolium ambiguum* M.Bieb., 2n = 24; Georgia, ID 95-32.  
*Trifolium repens* L., 2n = 16; Georgia, ID 95-43.

## FUMARIACEAE

*Corydalis conorhiza* Ledeb., 2n = 16; Georgia, RG & MP 1219.

## GENTIANACEAE

*Centaurium pulchellum* (Sw.) Druce, 2n = 36; Georgia, ID 86-145.  
*Gentiana septemfida* Pall., 2n = 26; Georgia, ID 95-131.

## HYACINTHACEAE

*Muscari pallens* Fisch., 2n = 36; Georgia, TsG 1295.

## IRIDACEAE

*Crocus scharojanii* Rupr., 2n = 8; Georgia, RG, TsG & LKh 1278.

**LAMIACEAE**

*Betonica macrantha* K.Koch,  $2n = 16$ ; Georgia, *ID 105*.  
*Betonica ossetica* (Bornm.) Chinth.,  $2n = 16$ ; Georgia, *RG, DC & ShSh 1276*.

**LILIACEAE**

*Tulipa lipskyi* Grossh.,  $2n = 24$ ; Russia, Krasnodar district, *ID 34-84*.

**LIMONIACEAE**

*Acantholimon lepturoides* Boiss.,  $2n = 30$ ; Georgia, *ME & TK 88-164*.

**POACEAE**

*Alopecurus tuscheticus* Trautv.,  $2n = 28$ ; Georgia, *RG, DCh & ShSh 1244*.

*Festuca valesiaca* Schleich. ex Gaudin,  $2n = 14$ ; Georgia, *ID 131*.  
*Koeleria caucasica* (Domin) B.Fedtsch.,  $2n = 14$ ; Georgia, *ID 128*.  
*Melica transsilvanica* Schur,  $2n = 18$ ; Georgia, *ME & TK 63-122*.  
*Polypogon monspeliensis* Desf.,  $2n = 28$ ; Georgia, *ID & DK 87-148*.

**SCROPHULARIACEAE**

*Scrophularia scopoli* Hoppe ex Pers.,  $2n = 26$ ; Georgia, *ID 92-154*.

**URTICACEAE**

*Parietaria judaica* L.,  $2n = 26$ ; Georgia, *TK 95-136*.

**VALERIANACEAE**

*Centranthus longifolius* Steven,  $2n = 16$ ; Georgia, *ME & TK 69-134*.

**ZYGOPHYLLACEAE**

*Zygophyllum fabago* L.,  $2n = 22$ ; Georgia, *ID 118*.

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**ALLIACEAE**

*Allium kunthianum* Vved.,  $2n = 16$ ; Georgia, *RG & DM 975*.

**ASTERACEAE**

*Bidens tripartita* L.,  $2n = 48$ ; Georgia, *RG 89-102*.  
*Carthamus glaucus* M.Bieb.,  $2n = 20$ ; Georgia, *RG 65-110*.  
*Prenanthes abietina* (Boiss. & Balansa) Kirp.,  $2n = 16$ ; Georgia, *RG 819*.  
*Scariola viminea* F.W.Schmidt,  $2n = 18$ ; Georgia, *RG 90-112*.  
*Senecio pandurifolius* K.Koch,  $2n = 24$ ; Georgia, *RG & BZ 827*.  
*Senecio sosnowskyi* Sofieva,  $2n = 20$ ; Georgia, *RG, DCh, ShSh & GL 959*.  
*Taraxacum stevenii* DC.,  $2n = 16$ ; Georgia, *RG & DM 989*.  
*Tephrosia cladobotrys* Griseb. & Schenk,  $2n = 24$ ; Georgia, *RG 1291*.

**BORAGINACEAE**

*Symphytum asperum* Lepech.,  $2n = 32$ ; Georgia, *TsG 67-3*.  
*Symphytum caucasicum* M.Bieb.,  $2n = 24$ ; Georgia, *TsG 45-1*.  
*Symphytum ciscaucasicum* Gvin.,  $2n = 36$ ; Russia, Krasnodar district, *TsG 70-21*.  
*Symphytum grandiflorum* DC.,  $2n = 60$ ; Georgia, *TsG 50-9*.  
*Symphytum ibericum* Steven,  $2n = 24$ ; Georgia, *TsG 8-1*.  
*Symphytum peregrinum* Ledeb.,  $2n = 40$ ; Azerbaijan, *TsG 26-2*.

**BOTRYCHIACEAE**

*Botrychium lunaria* (L.) Sw.,  $2n = \text{ca. } 60$ ; Georgia, *RG, DCh & ShSh 1242*.

**CARYOPHYLLACEAE**

*Silene lacera* Sims,  $2n = 18$ ; Georgia, *TsG 1235*.

**FABACEAE**

*Onobrychis kachetica* Boiss. & Buhse,  $2n = 16$ ; Georgia, *RG 1302*.

**GENTIANACEAE**

*Swertia iberica* Fisch. ex Boiss.,  $2n = 26$ ; Georgia, *RG & TsG 970*.

**HELLEBORACEAE**

*Delphinium ironorum* N.Busch,  $2n = 16$ ; Georgia, *RG, DCh & ShSh 979*.

**LAMIACEAE**

*Lamium tomentosum* Willd.,  $2n = 18$ ; Georgia, *RG, DCh, ShSh, DM & GL 1000*; *RG, DCh, ShSh & GL 955*.

**POACEAE**

*Alopecurus laguroides* Balansa,  $2n = 14$ ; Georgia, *RG, DCh & ShSh 951*.

*Cynosurus echinatus* L.,  $2n = 14$ ; Georgia, *RG 71-138*.  
*Helictotrichon adzhaticum* (Albov) Grossh.,  $2n = 14$ ; Georgia, *RG, DCh, ShSh & GL 956*.

**PRIMULACEAE**

*Primula bayernii* Rupr.,  $2n = 22$ ; Georgia, *RG, ShSh & GL 985*.  
*Primula luteola* Rupr.,  $2n = 22$ ; Georgia, *RG & DCh 1251*.

**SCROPHULARIACEAE**

*Veronica schistosa* E.A.Busch,  $2n = 24$ ; Georgia, *RG, ShSh & GL 981*.

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**APIACEAE**

*Heracleum aconitifolium* Woronow,  $2n = 22$ ; Georgia, *RG, PCh & ACh 180, ACh 519*.  
*Heracleum asperum* M.Bieb.,  $2n = 22$ ; Georgia, *RG & PCh 632*.  
*Heracleum freynianum* Sommier & Levier,  $2n = 22$ ; Russia, Balkaria, *RG & PCh 182*.

**ASTERACEAE**

*Anthemis sosnovskyana* Fed.,  $2n = 18$ ; Georgia, *RG, DCh & ShSh 913*.  
*Centaurea cheiranthifolia* Willd.,  $2n = 18$ ; Georgia, *RG, DCh & ShSh 919*.  
*Dolichorrhiza correvoniana* (Albov) Galushko,  $2n = 40$ ; Georgia, *RG, TsG, GL & DK 1055*.  
*Jurinella subacaulis* (Fisch. & C.A.Mey.) Iljin,  $2n = 36$ ; Georgia, *RG, DM, DCh, ShSh & GL 991*.  
*Pyrethrum macrophyllum* Willd.,  $2n = 18$ ; Georgia, *RG 821*.

*Senecio pojarkovae* Schischk.,  $2n = 40$ ; Georgia, *RG & PCh 187*.  
*Telokia speciosa* Baumg.,  $2n = 20$ ; Georgia, *RG 818, RG 819*.

#### BORAGINACEAE

*Symphytum asperum* Lepech.,  $2n = 32$ ; Georgia, *RG, TsG & MM 823*.  
*Symphytum ibericum* Steven.,  $2n = 24$ ; Georgia, *TsG 809*.

#### BRASSICACEAE

*Cardamine uliginosa* M.Bieb.,  $2n = 16$ ; Georgia, *RG, DCh, ShSh & GL 980*.

#### CONVALLARIACEAE

*Polygonatum orientale* Desf.,  $2n = 18$ ; Georgia, *DCh 902*.

#### EUPHORBIACEAE

*Euphorbia oblongifolia* K.Koch.,  $2n = 16$ ; Georgia, *PCh & DCh 754*.

#### POACEAE

*Alopecurus laguroides* Balansa,  $2n = 28$ ; Georgia, *RG & DCh 739*.  
*Paracolpodium colchicum* (Albov) Tzvelev,  $2n = 28$ ; Georgia, *RG, DCh, MrM & MTs 1001*.

#### RANUNCULACEAE

*Aconitum nasutum* Rchb.,  $2n = 32$ ; Georgia, *RG & PCh 181, RG & PCh 637*.  
*Aconitum orientale* Mill.,  $2n = 16$ ; Georgia, *TsG, MCh & MP 1063*.

#### TRILLIACEAE

*Paris incompleta* M.Bieb.,  $2n = 10$ ; Georgia, *RG, MrM, DCh & ShSh 1036*.

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#### ACANTHACEAE

*Eranthemum capense* L.,  $n = 20$ ; India, Goa, *K.V.C. Gosavi 616*.

#### ANNONACEAE

*Polyalthia fragrans* (Dalzell) Bedd.,  $2n = 20$ ; India, Karnataka, *A.R. Gholave 629*.

#### ARECACEAE

*Phoenix humilis* Cav.,  $2n = 36$ ; India, Maharashtra, *K.V.C. Gosavi 1723*.

#### ASTERACEAE

*Goniocaulon indicum* C.B.Clarke,  $n = 16$ ; India, Maharashtra, *K.V.C. Gosavi 1724*.

#### BIGNONIACEAE

*Oroxylum indicum* (L.) Benth. ex Kurz,  $n = 28$ ; India, Maharashtra, *K.V.C. Gosavi 632*.

#### CAPPARACEAE

*Cadaba fruticosa* (L.) Druce,  $n = 16$ ; India, Maharashtra, *K.V.C. Gosavi 625*.

*Capparis decidua* (Forssk.) Edgew.,  $n = 16$ ; India, Maharashtra, *K.V.C. Gosavi 627*.

*Capparis grandis* L.f.,  $2n = 21$ ; India, Maharashtra, *K.V.C. Gosavi 626*.

*Capparis moonii* Wight,  $n = 21$ ; India, Maharashtra, *K.V.C. Gosavi 610*.

*Capparis rotundifolia* Rottler,  $2n = 21$ ; India, Maharashtra, *K.V.C. Gosavi 611*.

#### CONVALLARIACEAE

*Peliosanthes courtallensis* Wight,  $n = 16$ ; India, Kerala, *S.S. Kambale 3897*.

#### GOODENIACEAE

*Scaevola taccada* (Gaertn.) Roxb.,  $2n = 20$ ; India, North Andaman, *Pramod Lawand 638*.

#### ICACINACEAE

*Nothapodytes nimmoniana* (J.Graham) Mabb.,  $2n = 56$ ; India, Maharashtra, *K.V.C. Gosavi 603*.

#### LEGUMINOSAE

*Paracalyx scariosus* (Roxb.) Ali,  $2n = 22$ ; India, Maharashtra, *K.V.C. Gosavi 1722*.

#### NELUMBONACEAE

*Nelumbo nucifera* Gaertn.,  $2n = 18$ ; India, Karnataka, *S.S. Kambale 640*.

#### OCHNACEAE

*Ochna obtusata* DC.,  $n = 12$ ; India, Goa, *K.V.C. Gosavi 622*.

#### OLACACEAE

*Olax scandens* Roxb.,  $n = 12$ ; India, Goa, *K.V.C. Gosavi 621*.

*Petiveria alliacea* L.,  $n = 15$ ; India, Maharashtra, *S.R. Yadav 642*.

#### POACEAE

*Silentvalleya chandwadensis* Gosavi, B.R.Pawar & S.R.Yadav,  $n = 12$ ; India, Maharashtra, *K.V.C. Gosavi 2997*.

*Silentvalleya nairii* V.J.Nair, Sreek., Vajr. & Bhargavan,  $n = 12$ ; India, Kerala, *Amol Kulumvade 731*.

#### RUBIACEAE

*Wendlandia thyrsoidea* Steud.,  $n = 10$ ; India, Goa, *K.V.C. Gosavi 618*.

#### SAPINDACEAE

*Pometia pinnata* J.R.Forst. & G.Forst.,  $2n = 40$ ; India, North Andaman, *Pramod Lawand 635*.

#### THYMELAEACEAE

*Gnidia glauca* (Fresen.) Gilg,  $n = 8$ ; India, Maharashtra, *K.V.C. Gosavi 615*.

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All materials CHN; collected in Bulgaria; vouchers in SOM.

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**CHENOPODIACEAE**

- Blitum virgatum* L.;  $2n = 18$ ; N.H. Grozeva 4089.  
*Chenopodium album* subsp. *pedunculare* (Bertol.) Arcang.;  $2n = 54$ ; N.H. Grozeva 4090.  
*Chenopodium pratericola* Rydb.;  $2n = 18$ ; N.H. Grozeva 4091.  
*Chenopodium probstii* Aellen;  $2n = 54$ ; N.H. Grozeva 4092.  
*Petrosimonia brachiata* Bunge;  $2n = 16$ ; N.H. Grozeva 4093.  
*Salicornia europaea* L.;  $2n = 18$ ; N.H. Grozeva 4094.  
*Suaeda altissima* Pall.;  $2n = 18$ ; N.H. Grozeva 4095.  
*Suaeda maritima* (L.) Dumort.;  $2n = 36$ ; N.H. Grozeva 4096.

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**ASTERACEAE**

- Cicerbita racemosa* Beauverd,  $2n = 16$ ; RG 1256.  
*Erigeron uniflorus* L.,  $2n = 18$ ; DCh 1225.  
*Pyrethrum leptophyllum* Steven ex M.Bieb.,  $2n = 18$ ; RG 1255.  
*Scorzonera biebersteinii* Lipsch.,  $2n = 14$ ; RG & TsG 1297.

**BRASSICACEAE**

- Arabis brachycarpa* Rupr.,  $2n = 16$ ; DM 27-3.  
*Arabis nordmanniana* Rupr.,  $2n = 16$ ; ZG & DM 21-1.  
*Arabis sachokiana* (N.Busch) N.Busch,  $2n = 16$ ; ZG & DM 22-2.  
*Isatis iberica* Steven,  $2n = 14$ ; RG & TsG 1300.

**FABACEAE**

- Lathyrus annuus* L.  $2n = 14$ ; MS 1502.  
*Lathyrus aphaca* L.,  $2n = 14$ ; AA 1602.  
*Lathyrus cicera* L.,  $2n = 14$ ; AA 1611.  
*Lathyrus hirsutus* L.,  $2n = 14$ ; AA 1613.  
*Lathyrus ketzkhovelii* Avazneli,  $2n = 14$ ; AA 1684.  
*Lathyrus palustris* L.,  $2n = 14$ ; VI-K 1509.  
*Lathyrus pratensis* L.,  $2n = 14$ ; AA & MKh 1215.  
*Lathyrus roseus* Steven,  $2n = 14$ ; ZG & AA 1515.  
*Lathyrus rotundifolius* Willd.,  $2n = 14$ ; ZG, LKh & AA 1212.  
*Lathyrus sativus* L.,  $2n = 14$ ; AA 1613.  
*Lathyrus setifolius* L.,  $2n = 14$ ; IL 1668.  
*Lathyrus sylvestris* L.,  $2n = 14$ ; AA & NN 1614.  
*Lathyrus tuberosus* L.,  $2n = 14$ ; AA 1615.  
*Medicago lupulina* L.,  $2n = 16$ ; TsG 1301.  
*Orobus cyaneus* Steven,  $2n = 14$ ; ZG & AA 1603.

- Orobus nissolia* Döll,  $2n = 14$ ; AA 1601.  
*Orobus sphaericus* Philippe,  $2n = 14$ ; AA & MKh 1616.  
*Orobus vernus* L.,  $2n = 14$ ; AA 1600.

**PLANTAGINACEAE**

- Plantago atrata* Hoppe,  $2n = 24$ ; RG & MP 1216.

**POACEAE**

- Alopecurus arundinaceus* Poir.,  $2n = 14$ ; RG, DM, ShSh & GK 1289.

**RANUNCULACEAE**

- Batrachium rionii* Nym.,  $2n = 16$ ; TsG 1292.  
*Caltha palustris* L.,  $2n = 32$ ; TsG 1294.  
*Ficaria fascicularis* K.Koch,  $2n = 16$ ; DCh & LZ 1153.

**ROSACEAE**

- Alchemilla caucasica* Buser,  $2n = 64$ ; RG & TsG 1273.

**SAXIFRAGACEAE**

- Saxifraga sibirica* L.,  $2n = 20$ ; RG & TsG 1272.

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**ASTERACEAE**

- Achillea asiatica* Serg.,  $2n = 18$ ; Russia, Republic of Altai, A.A. Korobkov 2014-108 (LE).  
*Achillea millefolium* L.,  $2n = 36$ ; Russia, Altaiskii Krai, A.A. Korobkov 2014-109 (LE).  
*Anthemis melanoloma* Trautv.,  $2n = 18$ ; Russia, Republic of Dagestan, V.I. Dorofeyev 2014-09 (LE).  
*Artemisia bargusinensis* Spreng.,  $2n = 36$ ; Russia, Republic of Buryatiya, A.I. Shmakov & al. 2014-64 (ALTB).  
*Artemisia commutata* Besser,  $2n = 36$ ; Russia, Altaiskii Krai, A.A. Korobkov 2014-102 (LE).  
*Artemisia depauperata* Krasch.,  $2n = 36$ ; Russia, Republic of Altai, A.I. Shmakov & al. 2014-60 (ALTB).

*Artemisia dracuncululus* L.,  $2n = 36$ ; Russia, Republic of Altai, A.P. Shalimov & A.D. Dagilov 2014-61 (ALTB), A.P. Shalimov & A.D. Dagilov 2014-62 (ALTB); Altaiskii Krai, A.A. Korobkov 2014-101 (LE).

*Artemisia freyniana* (Pamp.) Krasch.,  $2n = 18$ ; China, Province Tszilin', VVK & M.O. Burlyayeva 2014-48 (LE), VVK & M.O. Burlyayeva 2014-49 (LE).

*Artemisia gmelinii* Weber ex Stechm.,  $2n = 36$ ; Russia, Republic of Altai, A.A. Korobkov 2014-106 (LE).

*Artemisia laciniata* Willd.,  $2n = 18$ ; Russia, Irkutskaya Oblast', A.I. Shmakov & al. 2014-58 (ALTB).

*Artemisia ledebouriana* Besser,  $2n = 36$ ; Russia, Irkutskaya Oblast', A.I. Shmakov & al. 2014-63 (ALTB).

*Artemisia macrocephala* Jacquem. ex Besser,  $2n = 18$ ; Russia, Republic of Tyva, A.Yu. Korolyuk 2014-53 (NS).

*Artemisia sacrorum* Ledeb.,  $2n = 54$ ; Russia, Republic of Altai, A.A. Korobkov 2014-103 (LE), A.A. Korobkov 2014-104 (LE), A.A. Korobkov 2014-105 (LE).

*Artemisia viridis* Willd. ex DC.,  $2n = 18$ ; Russia, Republic of Altai, A.I. Shmakov & al. 2014-56 (ALTB), A.P. Shalimov 2014-57 (ALTB).

*Artemisia vulgaris* L.,  $2n = 16$ ; Finland, VVK 2014-02 (LE), VVK 2014-03 (LE).

*Crepis tectorum* L.,  $2n = 8$ ; Russia, Irkutskaya Oblast', DAK & al. 36491 (IRK).

*Neopallasia pectinata* (Pall.) Poljakov,  $2n = 18$ ; Russia, Republic of Tyva, A.Yu. Korolyuk & E.A. Korolyuk 2014-59 (NS).

*Parmica ptarmicifolia* (E.Willd.) Galushko,  $2n = 18$ ; Russia, Republic of Dagestan, V.I. Dorofeyev 2014-10 (LE).

*Pyrethrum niveum* Lag.,  $2n = 18$ ; Russia, Republic of Dagestan, V.I. Dorofeyev 2014-06 (LE), V.I. Dorofeyev 2014-07 (LE).

*Tanacetum vulgare* L.,  $2n = 18$ ; Finland, VVK 2014-04 (LE), VVK 2014-05 (LE).

#### FABACEAE

*Astragalus austrosibiricus* Schischk.,  $2n = 32$ ; Russia, Irkutskaya Oblast', NVS 32109 (IRK).

*Astragalus bifidus* Turcz. ex Ledeb.,  $2n = 48$ ; Russia, Irkutskaya Oblast', AVV & al. 4195 (IRK) [Krivenko & al. in Taxon 60: 1222, E12. 2011 erroneously reported  $2n = 32$  for this sample], SGK 8849 (IRK) [Krivenko & al. in Taxon 60: 1222, E12. 2011 erroneously reported  $2n = 32$  for this sample], SGK 25319 (IRK); Russia, Republic of Buryatiya, DAK 31402 (IRK).

*Astragalus frigidus* A.Gray,  $2n = 16$ ; Russia, Irkutskaya Oblast', SGK 25325 (IRK), SGK 11729 (IRK), SGK 26616 (IRK); Russia, Republic of Buryatiya, SGK 16608 (IRK), DAK 32811 (IRK).

*Astragalus inopinatus* Boriss.,  $2n = 32$ ; Russia, Irkutskaya Oblast', NVS 32110 (IRK).

*Astragalus macropterus* DC.,  $2n = 48$ ; Russia, Republic of Altai, E.V. Zhmud' 32087 (IRK).

*Astragalus mongholicus* Bunge,  $2n = 16$ ; Russia, Sverdlovskaya Oblast', AYuB & A.D. Malinina 32794 (IRK); Russia, Irkutskaya Oblast', AVV 2979 (IRK); Russia, Republic of Buryatiya, AVV 23043 (IRK), E.V. Zhmud' & al. 19386 (IRK), D.V. Sandanov 32253 (IRK), D.V. Sandanov 32252 (IRK); Russia, Zabaikal'skii Krai, Ye.A. Bondarevich 22406 (IRK), Ye.A. Bondarevich 26152 (IRK).

*Astragalus olchonensis* Gontsch.,  $2n = 48$ ; Russia, Irkutskaya Oblast', M.M. Ivanova & G.P. Semenova 8766 (IRK) [Krivenko & al. in Turczaninowia 15(1): 101. 2012 erroneously reported  $2n = 32$  for this sample], AVV & Yu.N. Pochinchik 9608 (IRK) [Krivenko & al. in Taxon 60: 1222, E12. 2011 erroneously reported  $2n = 32$  for this sample], DAK 15615 (IRK) [Krivenko & al. in Turczaninowia 15(1): 101. 2012 erroneously reported  $2n = 32$  for this sample], DAK 32933 (IRK).

*Astragalus rytyensis* Stepantsova,  $2n = 48$ ; Russia, Irkutskaya Oblast', NVS 32046 (IRK), NVS 32112 (IRK).

*Astragalus versicolor* Pall.,  $2n = 16$ ; Russia, Irkutskaya Oblast', NVS 34957 (IRK), DAK31400 (IRK).  $2n = 48$ ; Russia, Irkutskaya Oblast', NVS32111 (IRK).

*Ervum hirsutum* L.,  $2n = 14$ ; Russia, Irkutskaya Oblast', M.G. Azovskaya 27887 (IRK), AVV & E.V. Tolstonogova 3772 (IRK).

*Lathyrus pisiformis* L.,  $2n = 14$ ; Russia, Irkutskaya Oblast', AVV 36512 (IRK).

*Lupinus polyphyllus* Lindl.,  $2n = 48$ ; Russia, Republic of Buryatiya, SGK 19931 (IRK).

*Medicago lupulina* L.,  $2n = 16$ ; Russia, Irkutskaya Oblast', SGK 23674 (IRK), SGK 24962 (IRK), SGK 26576 (IRK); Republic of Buryatiya, AVV 26775 (IRK).

*Medicago varia* Martyn,  $2n = 32$ ; Russia, Irkutskaya Oblast', AVV 24940 (IRK).

*Melilotus suaveolens* Ledeb.,  $2n = 16$ ; Russia, Zabaykals'kii Krai, SGK 33347 (IRK).

*Onobrychis arenaria* DC.,  $2n = 28$ ; Russia, Irkutskaya Oblast', SGK 22928 (IRK).

*Orobis fischerianus* Stank.,  $2n = 12$ ; Russia, Zabaykals'kii Krai, AVV & O.D. Chernova 36492 (IRK).

*Oxytropis mixotriche* Bunge,  $2n = 48$ ; Russia, Zabaykals'kii Krai, Ye.A. Bondarevich 32961 (IRK).

*Oxytropis popoviana* Peschkova,  $2n = 48$ ; Russia, Irkutskaya Oblast', NVS 33081 (IRK).

*Oxytropis tragacanthoides* Fisch. ex DC.,  $2n = 32$ ; Republic of Altai, DAK 33080 (IRK).  $2n = 48$ ; Russia, Irkutskaya Oblast', DAK 15330 (IRK) [Krivenko & al. in Taxon 60: 1222, E13. 2011 erroneously reported  $2n = 32$  for this sample], DAK 19717 (IRK).

*Sophora flavescens* Aiton,  $2n = 18$ ; Russia, Zabaykals'kii Krai, Ye.A. Bondarevich 22400 (IRK), SGK 33322 (IRK).

*Trifolium arvense* L.,  $2n = 14$ ; Russia, Republic of Buryatiya, AVV 26766 (IRK).

*Vicia amurensis* Oett.,  $2n = 12$ ; Russia, Zabaykals'kii Krai, Ye.A. Bondarevich 22398 (IRK).

*Vicia cracca* L.,  $2n = 14$ ; Russia, Irkutskaya Oblast', AVV 24914 (IRK).

*Vicia nervata* Sipliv.,  $2n = 24$ ; Russia, Zabaykals'kii Krai, Ye.A. Bondarevich 31510 (IRK), Ye.A. Bondarevich 26157 (IRK).

#### PAPAVERACEAE

*Chelidonium majus* L.,  $2n = 12$ ; Russia, Sverdlovskaya Oblast', AYuB 33294 (IRK).

*Eschscholzia californica* Cham.,  $2n = 12$ ; Russia, Irkutskaya Oblast', SGK & V.V. Domrachev 29878 (IRK).

#### POACEAE

*Trisetum molle* Kunth,  $2n = 28$ ; Russia, Zabaykals'kii Krai, I.V. Enushchenko 36493 (IRK).

#### POTAMOGETONACEAE

*Potamogeton perfoliatus* L.,  $2n = 78$ ; Russia, Zabaikal'skii Krai, SGK 20223 (IRK).

#### RANUNCULACEAE

*Batrachium kauffmannii* (Clerc) V.I.Krecz.,  $2n = 32$ ; Russia, Zabaikal'skii Krai, SGK 20227 (IRK).

#### SOLANACEAE

*Physochlaina physaloides* G.Don,  $2n = 48$ ; Russia, Irkutskaya Oblast', V.A. Petukhin 21816 (IRK).

#### VIOLACEAE

*Viola biflora* L.,  $2n = 12$ ; Russia, Altaiskii Krai, TVE 32800 (IRK).

*Viola dissecta* Ledeb.,  $2n = 24$ ; Russia, Republic of Altai, TVE 32906 (IRK); Russia, Novosibirskaya Oblast', TVE 32902 (IRK).

*Viola gmeliniana* Schult.,  $2n = 24$ ; Russia, Irkutskaya Oblast', M.O. Shchepina 32734 (IRK).

*Viola hirta* L.,  $2n = 20$ ; Russia, Republic of Altai, TVE 32913 (IRK), TVE 32904 (IRK), TVE 32903 (IRK); Russia, Novosibirskaya Oblast', TVE 32905 (IRK).  
*Viola incisa* Turcz.,  $2n = 24$ ; Russia, Republic of Altai, TVE 32915 (IRK); Russia, Krasnoyarskii Krai, N.I. Tupitsyna 32901 (IRK).  
*Viola irinae* Zolot.,  $2n = 24$ ; Russia, Republic of Altai, TVE 32908 (IRK).  
*Viola mandshurica* W.Becker,  $2n = 24$ ; Russia, Primorskii Krai, DAK 32932 (IRK).  
*Viola mauritii* Teplouchow,  $2n = 20$ ; Russia, Republic of Buryatiya, SGK 20653 (IRK).  
*Viola milanae* V.I.V.Nikitin,  $2n = 24$ ; Russia, Irkutskaya Oblast', NVS 23089 (IRK).  
*Viola mirabilis* L.,  $2n = 20$ ; Russia, Altaiskii Krai, TVE 36496 (IRK).  
*Viola rupestris* F.W.Schmidt,  $2n = 20$ ; Russia, Irkutskaya Oblast', AVV & DAK 31255 (IRK).  
*Viola selkirkii* Pursh ex Goldie,  $2n = 24$ ; Russia, Novosibirskaya Oblast', TVE & Yu.V. Ovchinnikov 32907 (IRK).  
*Viola tricolor* L.,  $2n = 26$ ; Russia, Irkutskaya Oblast', AVV & DAK 19387 (IRK), DAK 22011 (IRK), SGK 26014 (IRK).  
*Viola uniflora* L.,  $2n = 24$ ; Russia, Republic of Altai, TVE 36497 (IRK); Russia, Krasnoyarskii Krai, T. Chernikova & TVE 32846 (IRK).

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All materials CHN; collected in South Africa by I.A. Al-Shehbaz, M.A. Lysak, T. Mandáková, L. Mucina, K. Mummenhoff and P. Winter; counted by T. Mandáková; vouchers in NBG.

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#### BRASSICACEAE

*Chamira circaeoides* (L.f.) Zahlbr.,  $2n = 38$ ; NGS322.  
*Heliophila adpressa* O.E.Schulz,  $2n = 20$ ; NGS29A, NGS39A, NGS424.  
*Heliophila africana* (L.) Marais,  $2n = 20$ ; NGS338, NGS418.  
*Heliophila amplexicaulis* L.f.,  $2n = 22$ ; NGS181, NGS316.  
*Heliophila arenaria* Sond.,  $2n = 20$ ; NGS166, NGS297, NGS298, NGS323, NGS337.  
*Heliophila carnosus* (Thunb.) Steud.,  $2n = 22$ ; NGS200.  
*Heliophila crithmifolia* Willd.,  $2n = 22$ ; NGS65, NGS137, NGS170, NGS353, NGS389.  
*Heliophila descurva* Schltr.,  $2n = 20$ ; NGS361.  
*Heliophila diffusa* (Thunb.) DC. var. *diffusa*,  $2n = 44$ ; NGS311, NGS317.  
*Heliophila digitata* L.f.,  $2n = 20$ ; NGS15, NGS306A, NGS315, NGS354, NGS384.  
*Heliophila fistulosa* Sond.,  $2n = 20$ ; NGS413.  
*Heliophila juncea* (P.J.Bergius) Druce,  $2n = 32$ ; NGS343.  
*Heliophila lactea* Schltr.,  $2n = 18$ ; NGS124, NGS223, NGS227, NGS242, NGS268, NGS275, NGS277.

*Heliophila linearis* (Thunb.) DC.,  $2n = 20$ ; NGS35.  
*Heliophila linoides* Schltr.,  $2n = 20$ ; NGS387, NGS404.  
*Heliophila longifolia* DC.,  $2n = 20$ ; NGS292.  
*Heliophila macrostylis* E.Mey. ex Sond.,  $2n = 22$ ; NGS230.  
*Heliophila namaquana* Bolus,  $2n = 18$ ; NGS194, NGS216.  
*Heliophila nigellifolia* Schltr.,  $2n = 22$ ; NGS123, NGS187, NGS190.  
*Heliophila pinnata* L.f.,  $2n = 18$ ; NGS302.  $2n = 36$ ; NGS347.  
*Heliophila pusilla* L.f.,  $2n = 18$ ; NGS28A.  
*Heliophila rigidiuscula* Sond.,  $2n = 22$ ; NGS439.  
*Heliophila schulzii* Marais,  $2n = 20$ ; NGS182, NGS191.  
*Heliophila seselifolia* Burch. ex DC.,  $2n = 22$ ; NGS197A, NGS225, NGS237.  
*Heliophila subulata* Burch. ex DC.,  $2n = 20$ ; NGS390.  
*Heliophila variabilis* Burch. ex DC.,  $2n = 22$ ; NGS180, NGS205, NGS212, NGS224, NGS229.

**Julia V. Shner, Tatiana V. Alexeeva, Michael G. Pimenov,\* Eugene V. Kljuykov, Uljana A. Ukrainskaya & Ekaterina A. Zakharova**

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All materials CHN; collectors: EK = E.V. Kljuykov, EZ = E.A. Zakharova, MP = M.G. Pimenov, UU = U.A. Ukrainskaya; vouchers in MW.

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#### UMBELLIFERAE/APIACEAE

*Angelica komarovii* (Schischk.) V.N.Tikhom.,  $2n = 22$ ; Tajikistan, 31 Jul 2011, EK, EZ & UU s.n.; 6 Aug 2012, MP, EK & UU s.n.; Afghanistan, MP, EK & UU 60.  
*Anthriscus glacialis* Lipsky,  $2n = 18$ ; Tajikistan, MP, EK & UU 24.  
*Aulacospermum ikonnikovii* Kamelin,  $2n = 18$ ; Tajikistan, D. Nawrouzshoev 36.  
*Bupleurum aitchisonii* (Boiss.) H.Wolff,  $2n = 14$ ; Afghanistan, MP, EK & UU 62.  
*Bupleurum lipskianum* (Koso-Pol.) Lincz.,  $2n = 16$ ; Tajikistan, MP, EK & UU 10.  
*Cephalopodium badachschanicum* Korovin,  $2n = 22$ ; Tajikistan, MP, EK & UU 47.  
*Conioselinum tataricum* Hoffm. s.l. (= *C. schugnanicum* B.Fedtsch.),  $n = 11$ ; Afghanistan, MP, EK & UU 91.  
*Daucus carota* L.,  $2n = 18$ ; Tajikistan, 17 Aug 2011, EK, EZ & UU s.n.; Afghanistan, 7 Aug 2013, MP, EK & UU s.n.  
*Elaeosticta alaica* (Lipsky) Kljuykov & al.,  $2n = 22$ ; Tajikistan, MP, EK & UU 5.  
*Elaeosticta allioides* (Regel & Schmalh.) Kljuykov & al.,  $2n = 20$ ; Tajikistan, 17 Aug 2011, EK, EZ & UU s.n.; 30 Jul 2013, MP, EK & UU s.n.  
*Elaeosticta bucharica* (Korovin) Kljuykov & al.,  $2n = 22$ ; Tajikistan, 25 Jul 2013, MP, EK & UU s.n.  
*Elaeosticta hirtula* (Regel & Schmalh.) Kljuykov & al.,  $2n = 20$ ; Tajikistan, 4 Aug 2011, EK, EZ & UU s.n.; 11 Aug 2012, MP, EK & UU s.n.  
*Elaeosticta polycarpa* (Korovin) Kljuykov & al.,  $2n = 22$ ; Tajikistan, 17 Aug 2011, EK, EZ & UU s.n.; 25 Jul 2013, MP, EK & UU s.n.  
*Ehwendia badachschanica* (Kamelin) Pimenov & Kljuykov (≡ *Bunium badachschanicum* Kamelin),  $2n = 22$ ; Tajikistan, EK, EZ & UU 7.  
*Ehwendia persica* (Boiss.) Pimenov & Kljuykov (≡ *Bunium persicum* (Boiss.) B.Fedtsch.),  $2n = 14$ ; Tajikistan, 5 Aug 2011, EK, EZ & UU s.n.  
*Ferula gigantea* B.Fedtsch.,  $n = 11$ ; Tajikistan, MP, EK & UU 28;  $2n$

- = 22; Tajikistan, 5 Aug 2011, *EK, EZ & UU s.n.*; 17 Aug 2011, *EK, EZ & UU s.n.*; *MP, EK & UU 28*; Afghanistan, *MP, EK & UU 79*.  
*Ferula grigorievii* B.Fedtsch.,  $2n = 22$ ; Tajikistan, *EK, EZ & UU 2*; 13 Aug 2013, *MP, EK & UU s.n.*  
*Ferula hissarica* Pimenov & Kljuykov,  $2n = 22$ ; Tajikistan, 31 Jul 2012, *MP, EK & UU s.n.*  
*Ferula karategina* Lipsky,  $n = 11$ ;  $2n = 22$ ; Tajikistan, *MP, EK & UU 13*.  
*Ferula kokanica* Regel & Schmalh.,  $2n = 22$ ; Tajikistan, 31 Jul 2011, *EK, EZ & UU, s.n.*; *MP, EK & UU 1*; *MP, EK & UU 27*; 6 Aug 2012, *MP, EK & UU s.n.*  
*Ferula koso-poljanskyi* Korovin,  $2n = 22$ ; Tajikistan, 15 Aug 2011, *EK, EZ & UU, s.n.*; 12 Aug 2012, *MP, EK & UU 35*.  
*Ferula kuhistanica* Korovin,  $2n = 22$ ; Tajikistan, 15 Aug 2011, *EK, EZ & UU s.n.*; 31 Jul 2012, *MP, EK & UU s.n.*  
*Galaganian ferganensis* (Korovin) M.Vassiljeva & Pimenov,  $2n = 22$ ; Tajikistan, *MP, EK & UU 4*.  
*Galaganian fragrantissima* Lipsky,  $2n = 22$ ; Tajikistan, 25 Jul 2013, *MP, EK & UU s.n.*  
*Galaganian gracilis* (Kamelin & Pimenov) Kamelin & Pimenov,  $n = 11$ ; Tajikistan, *MP, EK & UU 31*.  
*Heracleum lehmannianum* Bunge,  $2n = 22$ ; Afghanistan, *MP, EK & UU 55*.  
*Hymenolaena badachschanica* Pissjauk.,  $2n = 22$ ; Tajikistan, *EK, EZ & UU 21*.  
*Kafirigania hissarica* (Korovin) Kamelin & Kinzik.,  $2n = 22$ ; Tajikistan, *EK & UU 39*.  
*Ladyginia bucharica* Lipsky,  $2n = 22$ ; Tajikistan, 2 Aug. 2012, *MP, EK & UU s.n.*  
*Lomatocarpa afghanica* (Rech.f.) Pimenov,  $2n = 22$ ; Tajikistan, 13 Aug 2011, *EK, EZ & UU s.n.*  
*Mediasia macrophylla* (Regel & Schmalh.) Pimenov,  $2n = 22$ ; Tajikistan, 15 Aug 2011, *EK, EZ & UU s.n.*  
*Myrrhoides nodosa* (L.) Cannon,  $2n = 22$ ; Tajikistan, 31 Jul 2012, *MP, EK & UU s.n.*  
*Paraligusticum discolor* (Ledeb.) V.N.Tikhom.,  $n = 11$ ,  $2n = 22$ ; Tajikistan, *MP, EK & UU 12*.  $2n = 22$ , 22+2B; Tajikistan, 6 Aug 2012 *MP, EK & UU s.n.*  
*Parasilau asiaticus* (Korovin) Pimenov,  $2n = 22$ ; Tajikistan, 12 Aug 2012, *MP, EK & UU s.n.*; Tajikistan, *MP, EK & UU 26*.  
*Paulita ovczinnikovii* (Korovin) Sojak,  $2n = 22$ ; Tajikistan, *MP, EK & UU 6*.  
*Pimpinella peregrina* L.,  $2n = 18$ ; Tajikistan, 17 Aug 2011, *EK, EZ & UU s.n.*  
*Prangos pabularia* Lindl.,  $2n = 22$ ; Tajikistan, 2 Aug 2012, *MP, EK & UU s.n.*  
*Seseli afghanicum* (Podlech) Pimenov,  $n = 11$ ; Afghanistan, *MP, EK & UU 81*;  $n = 11$ ,  $2n = 22$ ; Tajikistan, *EK, EZ & UU 32*;  $2n = 22$ ; Tajikistan, *EK, EZ & UU 27*.  
*Seseli mucronatum* (Schrenk) Pimenov & Sdobnina,  $2n = 22$ ; Tajikistan, *EK, EZ & UU 42*.  
*Seseli schrenkianum* (C.A.Mey. ex Schischk.) Pimenov & Sdobnina,  $n = 11$ ; Tajikistan, *MP, EK & UU 20*.  
*Tetrataenium olgae* (Regel & Schmalh.) Manden.,  $2n = 22$ ; Tajikistan, 5 Aug 2011, *EK, EZ & UU s.n.*; Afghanistan, *MP, EK & UU 82*.  
*Torilis arvensis* (Huds.) Link,  $2n = 12$ ; Tajikistan, 31 Jul 2013, *MP, EK & UU s.n.*

## IOPB COLUMN

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## IAPT/IOPB chromosome data 19 [extended online version]

Edited by Karol Marhold

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## ASTERACEAE

*Aster tripolium* L.

$2n = 18$ , CHN. Germany, Schleswig-Holstein, peninsula Eiderstedt, ca. 100 km W of Kiel, St. Peter-Ording, Böhl, salt meadow on the coast, 8 Oct 2012, Babette & Mathhias Baltisberger 15908 (Z+ZT).

The plants from coasts of northern Europe belong to *A. tripolium* subsp. *tripolium*. All six plants investigated showed  $2n = 18$  chromosomes confirming most of the indications in literature. Only one source indicates tetraploid plants with  $2n = 36$  chromosomes originating from the Mediterranean island Menorca and classified as a separate subspecies (Cardona, 1991).

*Hypochaeris radicata* L.

$2n = 8$ , CHN. Germany, Schleswig-Holstein, peninsula Eiderstedt, ca. 100 km W of Kiel, St. Peter-Ording, Ording, ruderal place on the coast, 7 Oct 2012, Babette & Mathhias Baltisberger 15898, Babette & Mathhias Baltisberger 16655 (Z+ZT).

*Leontodon autumnalis* L.

$2n = 12$ , CHN. Germany, Schleswig-Holstein, peninsula Eiderstedt, ca. 100 km W of Kiel, St. Peter-Ording, Böhl, salt meadow on the coast, 8 Oct 2012, Babette & Mathhias Baltisberger 16219 (Z+ZT).

*Leontodon autumnalis* is widespread in Europe. The six plants investigated were diploid with  $2n = 12$  chromosomes confirming the references in literature.

## CARYOPHYLLACEAE

*Silene latifolia* Poir.

$2n = 24$ , CHN. Germany, Schleswig-Holstein, peninsula Eiderstedt, ca. 100 km W of Kiel, St. Peter-Ording, between Bad and Ording, dunes on the coast, 4 Oct 2012, Babette & Mathhias Baltisberger 15889, Babette & Mathhias Baltisberger 16678 (Z+ZT).

*Silene latifolia* is widespread in Europe. The six plants investigated were diploid with  $2n = 24$  chromosomes corresponding to the references in literature.

## RANUNCULACEAE

*Ranunculus acris* L.

$2n = 14$ , CHN. Germany, Schleswig-Holstein, peninsula Eiderstedt, ca. 100 km W of Kiel, St. Peter-Ording, Ording, meadow near the coast, 9 Oct 2012, Babette & Mathhias Baltisberger 15922, Babette & Mathhias Baltisberger 16809 (Z+ZT).

Fig. 1. Somatic metaphase of *Ranunculus acris* (B. & M. Baltisberger 16809),  $2n = 14$ .



The common and widespread base chromosome number within the genus *Ranunculus* is  $x = 8$ . *Ranunculus acris* belongs to a group of species with a deviating base chromosome number of  $x = 7$  including diploid as well as polyploid taxa. All six plants investigated proved to be diploid with  $2n = 14$  chromosomes, the karyotype consists of 6 metacentric and 8 submeta- to subtelocentric chromosomes (Fig. 1). Chromosome number and karyotype correspond to references in literature (compilation of references and further comments see Baltisberger & Widmer, 2009).

*Ranunculus sceleratus* L.

$2n = 32$ , CHN. Germany, Schleswig-Holstein, peninsula Eiderstedt, ca. 100 km W of Kiel, St. Peter-Ording, Böhl, salt meadow on the coast, 8 Oct 2012, Babette & Mathhias Baltisberger 15910, Babette & Mathhias Baltisberger 16359 (Z+ZT).

*Ranunculus sceleratus* is a widespread annual growing in wet places. The six plants investigated proved to be tetraploid with  $2n = 32$  chromosomes. This corresponds to most of the numerous references in literature, but nevertheless some sources indicate octoploid plants with  $2n = 64$  and a few give the heptaploid chromosome number of  $2n = 56$  or even aneuploid chromosome numbers.

## Materials and methods

The seedborne plants were cultivated in the greenhouse. All investigations have been carried out on root tips (method see Baltisberger & Widmer, 2009). Indications of chromosome numbers in literature were checked with Goldblatt & Johnson (1979+).

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## ALISMATACEAE

*Sagittaria trifolia* L.

$2n = 22$ , CHN. Georgia, Ozurgeti area, Ureki, 15 Aug 1993, I. Danelia 92 (TBI).

## ALLIACEAE

*Allium kunthianum* Vved.

$2n = 16$ , CHN. Georgia, Khevsureti, gorge of river Arguni, Shatili, 1600 m, 9 Jul 1990, R. Gagnidze & L. Khutsishvili 1275 (TBI).



**ASTERACEAE***Achillea biserrata* M.Bieb.

2n = 18, CHN. Georgia, Kartli, Mtskheta, Armazi gorge, 800 m, 25 May 1995, *I. Danelia 95-127* (TBI).

*Achillea millefolium* L.

2n = 18, CHN. Georgia, Kartli, Tbilisi, gorge of river Legvtakhevi, 650 m, 10 May 1993, *I. Danelia 106* (TBI).

*Anthemis candidissima* Willd. ex Spreng.

2n = 18, CHN. Georgia, Kartli, Tbilisi, Nutsubidze plateau, 550 m, 2 May 1993, *I. Danelia 108* (TBI).

*Erigeron alpinus* L.

2n = 18, CHN. Georgia, Khevi (Kazbegi region), in the vicinity of Sameba church, 2150 m, 9 Jul 1995, *I. Danelia 30-82* (TBI).

*Grossheimia macrocephala* (Muss.Puschk. ex Willd.) Sosn. & Takht.

2n = 18, CHN. Georgia, Kartli, Bakuriani, Tskhratskaro pass, 2200 m, 17 Aug 1995, *I. Danelia 95-117* (TBI).

*Hieracium pilosella* L.

2n = 18, CHN. Georgia, Khevi (Kazbegi region), Kazbegi, Elia, 2000 m, 8 Jul 1995, *I. Danelia 26-88* (TBI).

*Inula orientalis* Lam.

2n = 16, CHN. Georgia, Khevi (Kazbegi region), Kazbegi, Elia, 1750 m, 8 Jul 1995, *I. Danelia 30-91* (TBI).

*Jurinea filicifolia* Boiss.

2n = 36, CHN. Georgia, Tusheti, upper reaches of river Pirikitalazani, Atsunta mountain-mass, 3100 m, 18 Aug 1989, *Sh. Shetekauri 1271* (TBI).

*Kemulariella rosea* (Steven) Tamamsch.

2n = 18, CHN. Georgia, Tusheti, gorge of river Diklostskali, Chesho mountain mass, 1800 m, 13 Jul 1986, *R. Gagnidze, D. Chelidze & Sh. Shetekauri 1240* (TBI).

*Pyrethrum balsamita* Willd.

2n = 18, CHN. Georgia, Javakheti, SE coast of lake Paravani, nearly the village Paravani, 2100 m, 21 Aug 1992, *R. Gagnidze, D. Mtskhvetadze, Sh. Shetekauri & G. Kuchukhidze 1286* (TBI).

*Scorzonera dzhawakhetica* Sosn. ex Grossh.

2n = 14, CHN. Georgia, Javakheti, limestone-built mountain-mass of Tetrobi, 2100 m, 10 Sep 1984, *Ts. Gviniashvili & M. Pataraja 1152* (TBI).

*Taraxacum stevenii* DC.

2n = 16, CHN. Georgia, Kartli, Bakuriani, Tskhratskaro pass, 2400 m, 17 Aug 1995, *I. Danelia 95-125* (TBI).

*Tragopogon graminifolius* DC.

2n = 12, CHN. Georgia, Kartli, Legvtakhevi gorge, 650 m, 20 May 1995, *I. Danelia 95-142* (TBI).

**BRASSICACEAE***Coluteocarpus vesicaria* Holmboe

2n = 14, CHN. Georgia, Kartli, Mtskheta, Armazi gorge, 800 m, 25 May 1995, *I. Danelia 95-108* (TBI).

*Draba supranivalis* Rupr.

2n = 16, CHN. Georgia, Mtiuleti, environs of Mleta, 1000 m, 22 May 1996, *Ts. Gviniashvili 1299* (TBI).

*Pseudovesicaria digitata* (C.A.Mey.) Rupr.

2n = 10, CHN. Georgia, Tusheti, Kavkasioni, Shaviklde mountain-mass, 3200 m, 22 Aug 1986, *R. Gagnidze & D. Chelidze 1214* (TBI).

**CAMPANULACEAE***Campanula trautvetteri* Grossh. ex Fed.

2n = 90, CHN. Georgia, Javakheti, environs of lake Paravani, 2100 m, 25 Jul 1994, *P. Chkheidze 91-156* (TBI).

**CARYOPHYLLACEAE***Arenaria steveniana* Boiss.

2n = 26, CHN. Georgia, Javakheti, limestone-built mountain-mass of Tetrobi, 2100 m, 10 Sep 1984, *Ts. Gviniashvili & M. Pataraja 1146* (TBI).

*Cerastium argenteum* M.Bieb.

2n = 36, CHN. Georgia, Kartli, Tbilisi, gorge of river Legvtakhevi, 650 m, 5 May 1993, *I. Danelia 66-147* (TBI).

*Dianthus orientalis* Adams

2n = 30, CHN. Georgia, Kartli, Tbilisi, gorge of river Legvtakhevi, 650 m, 10 Jun 1994, *T. Kurdadze 62-149* (TBI).

**CONVALLARIACEAE***Polygonatum orientale* Desf.

2n = 18, CHN. Georgia, Kartli, Mtskheta, Armazi gorge, 800 m, 25 May 1995, *I. Danelia 95-14* (TBI).

**DIPSACACEAE***Scabiosa caucasica* M.Bieb.

2n = 36, CHN. Georgia, Javakheti, environs of lake Paravani, 2100 m, 12 Jul 1994, *P. Chkheidze 84-111* (TBI).

**FABACEAE***Colutea orientalis* Mill.

2n = 16, CHN. Georgia, Kartli, Tbilisi, gorge of river Legvtakhevi, 650 m, 20 May 1995, *I. Danelia 94-120* (TBI).

*Trifolium ambiguum* M.Bieb.

2n = 24, CHN. Georgia, Khevi (Kazbegi region), Kazbegi, Gergeti, mt. Kvena, 2450 m, 12 Jul 1995, *I. Danelia 95-32* (TBI).

*Trifolium repens* L.

2n = 16, CHN. Georgia, Khevi (Kazbegi region), Kazbegi, Pansheti, 1700 m, 11 Jul 1995, *I. Danelia 95-43* (TBI).

**FUMARIACEAE***Corydalis conorrhiza* Ledeb.

2n = 16, CHN. Georgia, Tusheti, Kavkasioni, Abano pass, 2600 m, 16 Jul 1986, *R. Gagnidze & M. Pataraja 1219* (TBI).

**GENTIANACEAE***Centaurium pulchellum* (Sw.) Druce

2n = 36, CHN. Georgia, Guria, Ozurgeti area, Ureki, 12 Aug 1993, *I. Danelia 86-145* (TBI).

*Gentiana septemfida* Pall.

2n = 26, CHN. Georgia, Kartli, Bakuriani, Tskhratskaro pass, 2200 m, 17 Aug 1995, *I. Danelia 95-131* (TBI).

**HYACINTHACEAE***Muscari pallens* Fisch.

2n = 36, CHN. Georgia, Khevi (Kazbegi region), Kazbegi, mt. Kuro, 1800 m, 24 May 1996, *Ts. Gviniashvili 1295* (TBI).

**IRIDACEAE***Crocus scharojanii* Rupr.

2n = 8, CHN. Georgia, Svaneti, Ugviri mountain range, 1900 m, 18 Aug 1991, R. Gagnidze, Ts. Gviniashvili & L. Khutsishvili 1278 (TBI).

**LAMIACEAE***Betonica macrantha* K. Koch

2n = 16 CHN. Georgia, Khevi (Kazbegi region), Kazbegi, Elia, 1900 m, 15 Jul 1995, I. Danelia 105 (TBI).

*Betonica ossetica* (Bornm.) Chinth.

2n = 16, CHN. Georgia, Khevsureti, mountain-mass of Mutso, 1750 m, 11 Aug 1990, R. Gagnidze, D. Chelidze & Sh. Shetekauri 1276 (TBI).

**LILIACEAE***Tulipa lipskyi* Grossh.

2n = 24, CHN. Russia, Krasnodar district, mt. Latirgvarta, 2700 m, 6 Jun 1988, I. Danelia 34-84 (TBI).

**LIMONIACEAE***Acantholimon lepturoides* Boiss.

2n = 30, CHN. Georgia, Kartli, Tbilisi, gorge of river Legvtakhevi, 650 m, 20 Aug 1994, M. Eristavi & T. Kurdadze 88-164 (TBI).

**POACEAE***Alopecurus tuscheticus* Trautv.

2n = 28, CHN. Georgia, Tusheti, gorge of river Kvavlo, 2650 m, 31 Jul 1987, R. Gagnidze, D. Chelidze & Sh. Shetekauri 1244 (TBI).

*Festuca valesiaca* Schleich. ex Gaudin

2n = 14, CHN. Georgia, Kartli, Tbilisi, Nutsubidze plateau, 550 m, 2 May 1993, I. Danelia 131 (TBI).

*Koeleria caucasica* (Domin) B. Fedtsch.

2n = 14, CHN. Georgia, Kartli, Tbilisi, gorge of river Legvtakhevi, 650 m, 10 May 1993, I. Danelia 128 (TBI).

*Melica transsilvanica* Schur

2n = 18, CHN. Georgia, Kartli, Tbilisi, gorge of river Legvtakhevi, 650 m, 10 Jun 1994, M. Eristavi & T. Kurdadze 63-122 (TBI).

*Polypogon monspeliensis* Desf.

2n = 28, CHN. Georgia, Samegrelo, Poti, Maltakva, 50 m, 16 Aug 1993, I. Danelia & D. Kikodze 87-148 (TBI).

**SCROPHULARIACEAE***Scrophularia scopolii* Hoppe ex Pers.

2n = 26, CHN. Georgia, Guria, Ozurgeti area, Ureki, 14 Aug 1993, I. Danelia 92-154 (TBI).

**URTICACEAE***Parietaria judaica* L.

2n = 26, CHN. Georgia, Kiziki, Vashlovani reserve, 800 m, 15 May 1995, T. Kurdadze 95-136 (TBI).

**VALERIANACEAE***Centranthus longifolius* Steven

2n = 16, CHN. Georgia, Kartli, Tbilisi, gorge of river Legvtakhevi, 650 m, 14 Jul 1994, M. Eristavi & T. Kurdadze 69-134 (TBI).

**ZYGOPHYLLACEAE***Zygophyllum fabago* L.

2n = 22, CHN. Georgia, Kartli, Tbilisi, gorge of river Legvtakhevi, 650 m, 10 May 1993, I. Danelia 118 (TBI).

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**ALLIACEAE***Allium kunthianum* Vved.

2n = 16, CHN. Georgia, Racha, ridge Potskhvrevi, Shkmeri, 2400 m, 11 Aug 1982, R. Gagnidze & D. Mtskhvetadze 975 (TBI).

**ASTERACEAE***Bidens tripartita* L.

2n = 48, CHN. Georgia, Kartli, Tbilisi, environs of Saburtalo, 500 m, 30 Sep 1994, R. Gagnidze 89-102 (TBI).

*Carthamus glaucus* M. Bieb.

2n = 20, CHN. Georgia, Kartli, Tbilisi, environs of Delisi, 550 m, 1 Oct 1994, R. Gagnidze 65-110 (TBI).

*Prenanthes abietina* (Boiss. & Balansa) Kirp.

2n = 16, CHN. Georgia, Svaneti, Urashi, 1600 m, 16 Jul 1976, R. Gagnidze 819 (TBI).

*Scariola viminea* F.W. Schmidt

2n = 18, CHN. Georgia, Kartli, Tbilisi, environs of Central Botanical Garden, 5 Sep 1994, R. Gagnidze 90-112 (TBI).

*Senecio pandurifolius* K. Koch

2n = 24, CHN. Georgia, Svaneti, Kasleti, 1200 m, 23 Jul 1976, R. Gagnidze & B. Zurebiani 827 (TBI).

*Senecio sosnowskyi* Sofieva

2n = 20, CHN. Georgia, Racha, Mamisoni pass, 3000 m, 12 Jul 1982, R. Gagnidze, D. Chelidze, Sh. Shetekauri & G. Likokeli 959 (TBI).

*Taraxacum stevenii* DC.

2n = 16, CHN. Georgia, Shida-Kartli, south bank of lake Keli, 2900 m, 22 Aug 1982, R. Gagnidze & D. Mtskhvetadze 989 (TBI).

*Tephrosia cladobotrys* Griseb. & Schenk

2n = 24, CHN. Georgia, Kakheti, Lagodekhi reserve, 1000 m, 17 May 1996, R. Gagnidze 1291 (TBI).

**BORAGINACEAE***Symphytum asperum* Lepech.

2n = 32, CHN. Georgia, Khevi (Kazbegi region), Kazbegi, right bank of river Tergi, 6 Jul 1964, Ts. Gviniashvili 67-3 (TBI).

*Symphytum caucasicum* M. Bieb.

2n = 24; Georgia, Kartli, Tbilisi, environs of Central Botanical Garden, 21 May 1967, Ts. Gviniashvili 45-1 (TBI).

*Symphytum ciscaucasicum* Gvin.

2n = 36, CHN. Russia, Krasnodar district, basin of river Mzimta, Mt. Achishkho, 1800 m, 16 Jun 1967, Ts. Gviniashvili 70-21 (TBI).

*Symphytum grandiflorum* DC.

2n = 60, CHN. Georgia, Kartli, Mtskheta, Zedazeni, 1150 m, 15 May 1965, Ts. Gviniashvili 50-9 (TBI).

*Symphytum ibericum* Steven

2n = 24, CHN. Georgia, Abkhazeti, gorge of river Madjarka, 24 Apr 1964, Ts. Gviniashvili 8-1 (TBI).

*Symphytum peregrinum* Ledeb.

$2n = 40$ , CHN. Azerbaijan, Lenkoran, environs of Alekseevka, 13 May 1966, Ts. Gviniashvili 26-2 (TBI).

#### BOTRYCHIACEAE

*Botrychium lunaria* (L.) Sw.

$2n = ca. 60$ , CHN. Georgia, Tusheti, gorge of river Kvavlo, 2550 m, 31 Jul 1987, R. Gagnidze, D. Chelidze & Sh. Shetekauri 1242 (TBI).

#### CARYOPHYLLACEAE

*Silene lacera* Sims

$2n = 18$ , CHN. Georgia, Tusheti, plateau of Shenako, 1800 m, 7 Aug 1986, Ts. Gviniashvili 1235 (TBI).

#### FABACEAE

*Onobrychis kachetica* Boiss. & Buhse

$2n = 16$ , CHN. Georgia, Kartli, Mtskheta, Shiomgvime, 700 m, 23 Jun 1996, R. Gagnidze 1302 (TBI).

#### GENTIANACEAE

*Swertia iberica* Fisch. ex Boiss.

$2n = 26$ , CHN. Georgia, Racha, environs of Gebi, 1900 m, 30 Jun 1982, R. Gagnidze & Ts. Gviniashvili 970 (TBI).

#### HELLEBORACEAE

*Delphinium ironorum* N.Busch

$2n = 16$ , CHN. Georgia, Shida-Kartli, Ermani, 2300 m, 19 Aug 1982, R. Gagnidze, D. Chelidze & Sh. Shetekauri 979 (TBI).

#### LAMIACEAE

*Lamium tomentosum* Willd.

$2n = 18$ , CHN. Georgia, Shida-Kartli, mt. Fidar, 2700 m, 19 Aug 1982, R. Gagnidze, D. Chelidze, Sh. Shetekauri, D. Mtskhvetadze & G. Likokeli 1000 (TBI); Georgia, Racha, Mamisoni pass, 3000 m, 12 Jul 1982, R. Gagnidze, D. Chelidze, Sh. Shetekauri & G. Likokeli 955 (TBI).

#### POACEAE

*Alopecurus laguroides* Balansa

$2n = 14$ , CHN. Georgia, Racha, Mamisoni pass, 3100 m, 11 Jul 1982, R. Gagnidze, D. Chelidze & Sh. Shetekauri 951 (TBI).

*Cynosurus echinatus* L.

$2n = 14$ , CHN. Georgia, Kartli, Tbilisi, gorge of river Legvtakhevi, 650 m, 19 Jul 1993, R. Gagnidze 71-138 (TBI).

*Helictotrichon adzharicum* (Albov) Grossh.

$2n = 14$ , CHN. Georgia, Racha, Mamisoni pass, 3000 m, 12 Jul 1982, R. Gagnidze, D. Chelidze, Sh. Shetekauri & G. Likokeli 956 (TBI).

#### PRIMULACEAE

*Primula bayernii* Rupr.

$2n = 22$ , CHN. Georgia, Racha, Mamisoni pass, 3000 m, 12 Jul 1982, R. Gagnidze, Sh. Shetekauri & G. Likokeli 958 (TBI).

*Primula luteola* Rupr.

$2n = 22$ , CHN. Georgia, Tusheti, basin of river Pirikitalazani, between the mountain-masses of Dartlo and Chesho, 1750 m, 21 Aug 1987, R. Gagnidze & D. Chelidze 1251 (TBI).

#### SCROPHULARIACEAE

*Veronica schistosa* E.A.Busch

$2n = 24$ , CHN. Georgia, Shida-Kartli, Ermani, 2800 m, 19 Aug 1982, R. Gagnidze, Sh. Shetekauri & G. Likokeli 981 (TBI).

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#### APIACEAE

*Heracleum aconitifolium* Woronow

$2n = 22$ , CHN. Georgia, Abkhazeti, Avadkhara, 1800 m, 27 Jun 1974, R. Gagnidze, P. Chkheidze & A. Chukhrukidze 180, R. Gagnidze, P. Chkheidze & A. Chukhrukidze 519 (TBI).

*Heracleum asperum* M.Bieb.

$2n = 22$ , CHN. Georgia, Khevi (Kazbegi region), Kazbegi, Gergeti, 1700 m, 9 Jun 1974, R. Gagnidze & P. Chkheidze 632 (TBI).

*Heracleum freynianum* Sommier & Levier

$2n = 22$ , CHN. Russia, Balkaria, gorge of river Adyl-Su, 2600 m, 12 Jun 1974, R. Gagnidze & P. Chkheidze 182 (TBI).

#### ASTERACEAE

*Anthemis sosnovskyana* Fed.

$2n = 18$ , CHN. Georgia, Abkhazeti, Mt. Shkhabashkha, 1900 m, 18 Jun 1980, R. Gagnidze, D. Chelidze & Sh. Shetekauri 913 (TBI).

*Centaurea cheiranthifolia* Willd.

$2n = 18$ , CHN. Georgia, Abkhazeti, Arabica, 2300 m, 20 Jun 1980, R. Gagnidze, D. Chelidze & Sh. Shetekauri 919 (TBI).

*Dolichorrhiza correvoniana* (Albov) Galushko

$2n = 40$ , CHN. Georgia, Abkhazeti, Berchil, 2200 m, 6 Aug 1983, R. Gagnidze, Ts. Gviniashvili, G. Likokeli & D. Kikodze 1055 (TBI).

*Jurinella subacaulis* (Fisch. & C.A.Mey.) Iljin

$2n = 36$ , CHN. Georgia, Shida-Kartli, Keli upland, 2900 m, 22 Aug 1982, R. Gagnidze, D. Mtskhvetadze, D. Chelidze, Sh. Shetekauri & G. Likokeli 991 (TBI).

*Pyrethrum macrophyllum* Willd.

$2n = 18$ , CHN. Georgia, Svaneti, Urashi, 1600 m, 16 Jul 1976, R. Gagnidze 821 (TBI).

*Senecio pojarkovae* Schischk.

$2n = 40$ , CHN. Georgia, Svaneti, basin of river Mestiachala, 1600 m, 7 Aug 1974, R. Gagnidze & P. Chkheidze 187 (TBI).

*Telekia speciosa* Baumg.

$2n = 20$ , CHN. Georgia, Svaneti, Urashi, 1600 m, 16 Jul 1976, R. Gagnidze 818, 819 (TBI).

#### BORAGINACEAE

*Symphytum asperum* Lepech.

$2n = 32$ , CHN. Georgia, Svaneti, Urashi, 1400 m, 22 Jul 1976, R. Gagnidze, Ts. Gviniashvili & M. Mukbaniani 823 (TBI).

*Symphytum ibericum* Steven

$2n = 24$ , CHN. Georgia, Svaneti, Urashi, 1500 m, 11 Jul 1976, Ts. Gviniashvili 809 (TBI).

#### BRASSICACEAE

*Cardamine uliginosa* M.Bieb.

$2n = 16$ , CHN. Georgia, Shida-Kartli, Ermani, 2300 m, 19 Aug 1982, R. Gagnidze, D. Chelidze, Sh. Shetekauri & G. Likokeli 980 (TBI).

**CONVALLARIACEAE***Polygonatum orientale* Desf. $2n = 18$ , CHN. Georgia, Svaneti, Tsana, 1750 m, 21 Jul 1978, D. Chelidze 902 (TBI).**EUPHORBIACEAE***Euphorbia oblongifolia* K. Koch $2n = 16$ , CHN. Georgia, Svaneti, Tviberi, 1800 m, 3 Jul 1975, P. Chkheidze & D. Chelidze 754 (TBI).**POACEAE***Alopecurus laguroides* Balansa $2n = 28$ , CHN. Georgia, Svaneti, basin of river Mulkhura, Shergen plateau, 3200 m, 8 Aug 1975, R. Gagnidze & D. Chelidze 739 (TBI).*Paracolpodium colchicum* (Albov) Tzvelev $2n = 28$ , CHN. Georgia, Shida-Kartli, Keli upland, 2900 m, 28 Aug 1982, R. Gagnidze, D. Chelidze, M. Mosulishvili & M. Tsiklauri 1001 (TBI).**RANUNCULACEAE***Aconitum nasutum* Rchb. $2n = 32$ , CHN. Georgia, Svaneti, basin of river Mestiachala, 2100 m, 3 Aug 1974, R. Gagnidze & P. Chkheidze 181 (TBI); Georgia, Shida-Kartli, Tsei, 8 Jun 1974, R. Gagnidze & P. Chkheidze 637 (TBI).*Aconitum orientale* Mill. $2n = 16$ , CHN. Georgia, Abkhazeti, Berchil, 1900 m, 8 Aug 1983, Ts. Gviniashvili, M. Churadze & M. Pataraja 1063 (TBI).**TRILLIACEAE***Paris incompleta* M. Bieb. $2n = 10$ , CHN. Georgia, Shida-Kartli, gorge of river Ksani, Ukanamkhare, 1400 m, 27 Aug 1983, R. Gagnidze, M. Mosulishvili, D. Chelidze & Sh. Shetekauri 1036 (TBI).**Kumar Vinod C. Gosavi,<sup>1\*</sup> Avinash R. Gholave,<sup>2</sup> Malapati K. Janarthanam<sup>3</sup> & Shrirang R. Yadav<sup>2</sup>**<sup>1</sup> Dept. of Botany, P.S.G.V.P.M. A.S.C. College, Shahada, Dist. Nandurbar (MS), India<sup>2</sup> Dept. of Botany, Shivaji University, Kolhapur (MS) 416 004, India<sup>3</sup> Dept. of Botany, Goa University, Taleigao Plateau, Goa 403 206, India

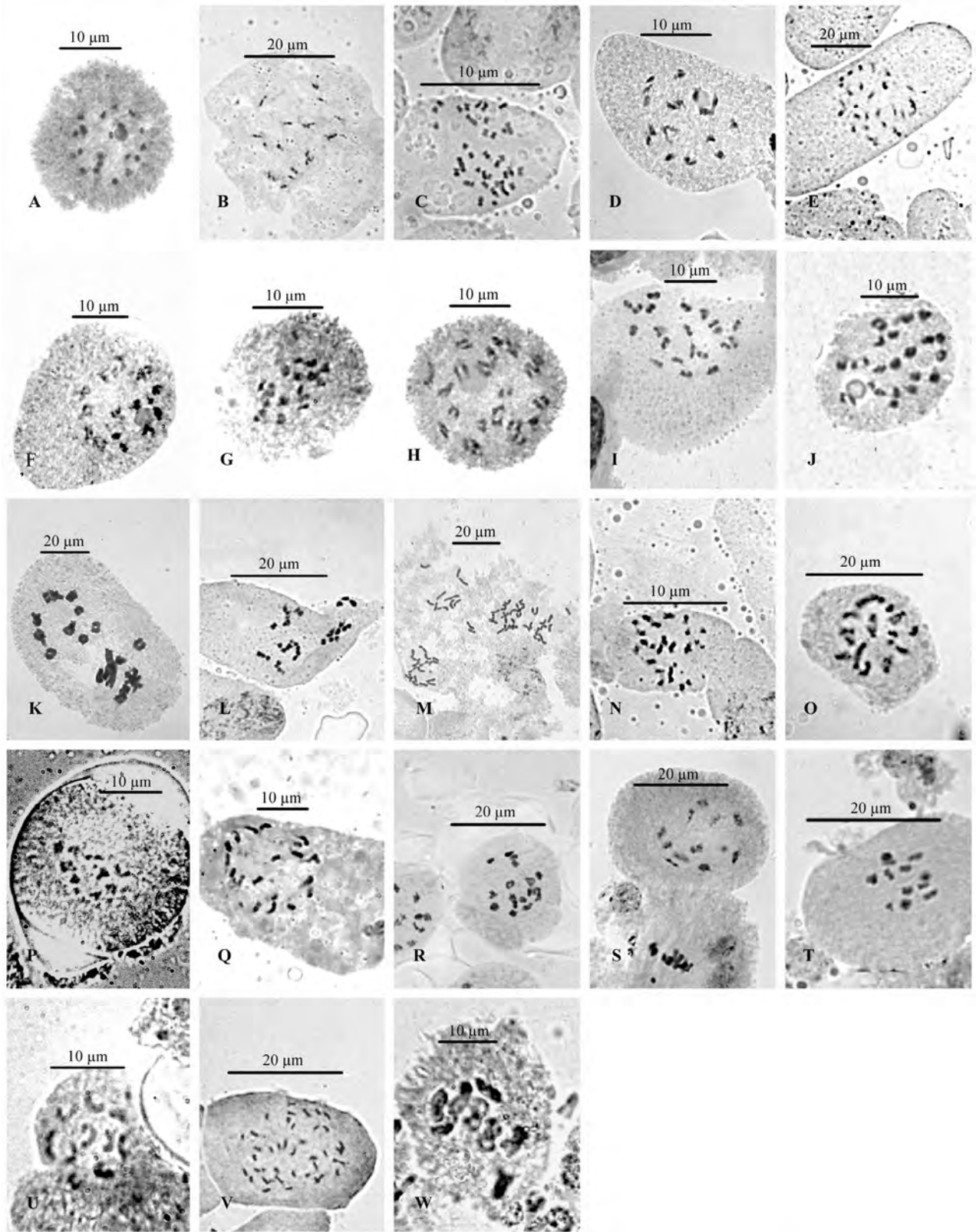
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\* First chromosome count for the species.

\*\* New chromosome number (cytotype) for the species.

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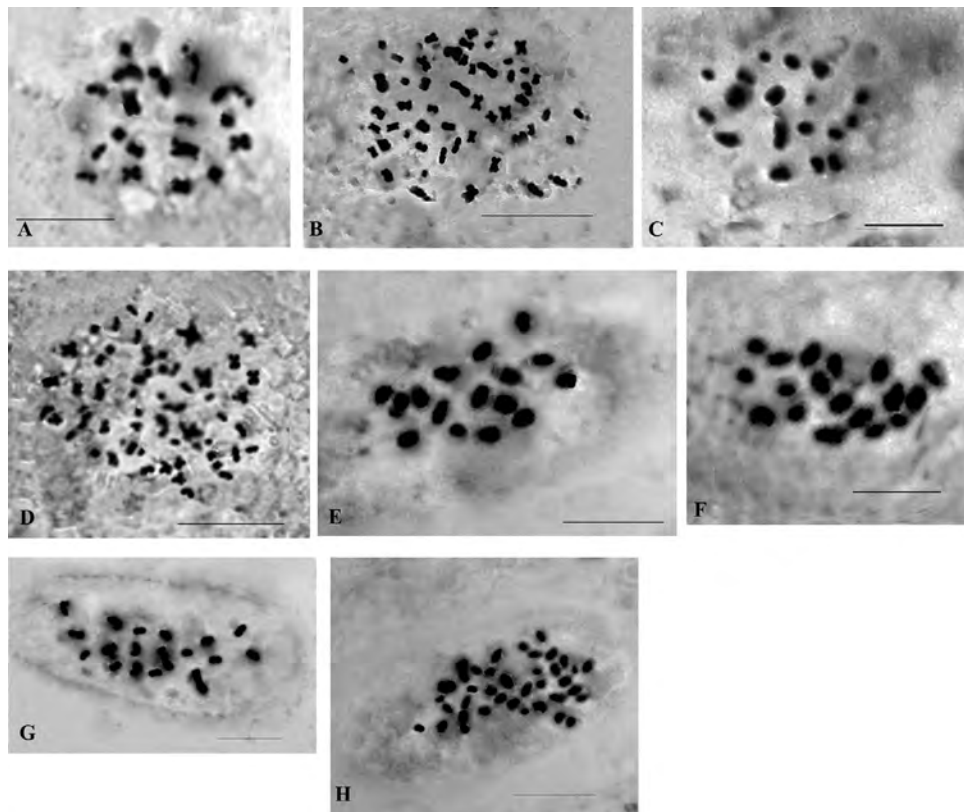
**ACANTHACEAE***Eranthemum capense* L. $n = 20$ , CHN. India, Goa, South Goa district, Netravali, 103 m, 13 Feb 2013, K.V.C. Gosavi 616 (SUK) [Fig. 2A].**ANNONACEAE**\**Polyalthia fragrans* (Dalzell) Bedd. $2n = 20$ , CHN. India, Karnataka, Uttara Canada district, Yana, 297 m, 26 Jan 2014, A.R. Gholave 629 (SUK) [Fig. 2B].**ARECACEAE**\**Phoenix humilis* Cav. $2n = 36$ , CHN. India, Maharashtra, Kolhapur district, Chandgad, Tillari Ghat, 587 m, 27 May 2012, K.V.C. Gosavi 1723 (SUK) [Fig. 2C].**ASTERACEAE***Goniocaulon indicum* C.B. Clarke $n = 16$ , CHN. India, Maharashtra, Akola district, Akola, 308 m, 31 Oct 2012, K.V.C. Gosavi 1724 (SUK) [Fig. 2D].**BIGNONIACEAE***Oroxylum indicum* (L.) Benth. ex Kurz $n = 28$ , CHN. India, Maharashtra, Nandurbar district, Amlibari Ghat, 351 m, 23 Mar 2014, K.V.C. Gosavi 632 (SUK) [Fig. 2E].**CAPPARACEAE**\**Cadaba fruticosa* (L.) Druce $n = 16$ , CHN. India, Maharashtra, Nandurbar district, Bhaler, 171 m, 22 Apr 2013, K.V.C. Gosavi 625 (SUK) [Fig. 2F].\*\**Capparis decidua* (Forssk.) Edgew. $n = 16$  CHN. India, Maharashtra, Nandurbar district, Bhaler, 169 m, 22 Apr 2013, K.V.C. Gosavi 627 (SUK) [Fig. 2G].*Capparis grandis* L.f. $2n = 21$ , CHN. India, Maharashtra, Nandurbar district, Bhaler, 170 m, 22 Apr 2013, K.V.C. Gosavi 626 (SUK) [Fig. 2H].\**Capparis moonii* Wight $n = 21$ , CHN. India, Maharashtra, Sindhudurg district, Amboli, Chaukul, 785 m, 22 Jan 2013, K.V.C. Gosavi 610 (SUK) [Fig. 2I].*Capparis rotundifolia* Rottler $2n = 21$ , CHN. India, Maharashtra, Sindhudurg district, Amboli, Amboli Ghat, 804 m, 22 Jan 2013, K.V.C. Gosavi 611 (SUK) [Fig. 2J].**CONVALLARIACEAE**\**Peliosanthes courtallensis* Wight $n = 16$ , CHN. India, Kerala state, Thiruvananthapuram District Bonaccord, 683 m, 17 May 2011, S.S. Kambale 3897 (SUK) [Fig. 2K].**GOODENIACEAE**\*\**Scaevola taccada* (Gaertn.) Roxb $2n = 20$ , CHN. India, North Andaman, Saddle Peak, 75 m, 9 May 2014, Pramod Lawand 638 (SUK) [Fig. 2L].**ICACINACEAE**\**Nothapodytes nimmoniana* (J.Graham) Mabb. $2n = 56$ , CHN. India, Maharashtra, Sindhudurg district, Amboli, 741 m, 9 Feb 2012, K.V.C. Gosavi 603 (SUK) [Fig. 2M].**LEGUMINOSAE**\**Paracalyx scariosus* (Roxb.) Ali $2n = 22$ , CHN. India, Maharashtra state, Kolhapur district, Tillari, 757 m, 21 Feb 2012, K.V.C. Gosavi 1722 (SUK) [Fig. 2N].**NELUMBONACEAE***Nelumbo nucifera* Gaertn. $2n = 18$ , CHN. India, Karnataka state, Shimoga Dist, Kuvempu, 662 m, 8 Apr 2014, S.S. Kambale 640 (SUK) [Fig. 2O].**OCHNACEAE***Ochna obtusata* DC. $n = 12$ , CHN. India, Goa, CHN. India, Goa, North Goa district, Goa University campus, 53 m, 2 Mar 2013, K.V.C. Gosavi 622 (SUK) [Fig. 2P].



**Fig. 2.** **A**, *Eranthemum capense*,  $n = 20$ ; **B**, *Polyalthia fragrans*,  $2n = 20$ ; **C**, *Phoenix humilis*,  $2n = 36$ ; **D**, *Goniocaulon indicum*,  $n = 16$ ; **E**, *Oroxylum indicum*,  $n = 28$ ; **F**, *Cadaba fruticosa*,  $n = 16$ ; **G**, *Capparis decidua*,  $n = 16$ ; **H**, *Capparis grandis*,  $2n = 21$ ; **I**, *Capparis moonii*,  $n = 21$ ; **J**, *Capparis rotundifolia*,  $2n = 21$ ; **K**, *Peliosanthes courtallensis*,  $n = 16$ ; **L**, *Scaevola taccada*,  $2n = 20$ ; **M**, *Nothapodytes nimmoniana*,  $2n = 56$ ; **N**, *Paracalyx scariosus*,  $2n = 22$ ; **O**, *Nelumbo nucifera*,  $2n = 18$ ; **P**, *Ochna obtusata*,  $n = 12$ ; **Q**, *Olax scandens*,  $n = 12$ ; **R**, *Petiveria alliacea*,  $n = 15$ ; **S**, *Silentvalleya chandwadensis*,  $n = 12$ ; **T**, *Silentvalleya nairii*,  $n = 12$ ; **U**, *Wendlandia thyrsoides*,  $n = 10$ ; **V**, *Pometia pinnata*,  $2n = 40$ ; **W**, *Gnidia glauca*,  $n = 8$ .

**OLACACEAE**\**Olax scandens* Roxb. $n = 12$ , CHN. India, Goa, South Goa district, Chorla Ghat, 497 m, 2 Mar 2013, *K.V.C. Gosavi 621* (SUK) [Fig. 2Q].*Petiveria alliacea* L. $n = 15$ , CHN. India, Maharashtra state, Kolhapur district, Islampur, 596 m, *S.R. Yadav 642* (SUK) [Fig. 2R].**POACEAE**\**Silentvalleya chandwadensis* Gosavi, B.R.Pawar & S.R.Yadav $n = 12$ , CHN. India, Maharashtra, Nashik district, Chandwad Ghat, 770 m, 10 Oct 2010, *K.V.C. Gosavi 2997* (SUK) [Fig. 2S].\**Silentvalleya nairii* V.J.Nair, Sreek., Vajr. & Bhargavan $n = 12$ , CHN. India, Kerala Palghal district, Silentvalley, 949 m, 26 Nov 2010, *Amol Kulumvade 731* (SUK) [Fig. 2T].**RUBIACEAE**\**Wendlandia thyrsoides* Steud. $n = 10$ , CHN. India, Goa, North Goa district, Bambolim, 19 m, 16 Feb 2013, *K.V.C. Gosavi 618* (SUK) [Fig. 2U].**SAPINDACEAE**\**Pometia pinnata* J.R.Forst. & G.Forst. $2n = 40$ , CHN. India, North Andaman, Saddle Peak, 75 m, 9 May 2014 *Pramod Lawand 635* (SUK) [Fig. 2V].**THYMELAEACEAE***Gnidia glauca* (Fresen.) Gilg $n = 8$ , CHN. India, Maharashtra, Sindhudurg district, Amboli, Chaukul, 993 m, 12 Feb 2013, *K.V.C. Gosavi 615* (SUK) [Fig. 2W].**Neli H. Grozeva***Department of Biology and Aquaculture, Faculty of Agriculture, Trakia University, 6000 Stara Zagora, Bulgaria; grozeva@uni-sz.bg*

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**CHENOPODIACEAE***Blitum virgatum* L. $2n = 18$ , CHN. Bulgaria, Stara planina mountains, Sinite kamani Natural park, a meadow in the area of Aba pazar, 42°44.11'N, 26°17.43' E, 843 m, 5 Sep 2013, *N.H. Grozeva 4089* (SOM) [Fig. 3A].*Chenopodium album* subsp. *pedunculare* (Bertol.) Arcang. $2n = 54$ , CHN. Bulgaria, Black Sea Coast, Nessebar town, ruderal terrains in the eastern parts of the Old town, 42°38.18'N, 27°39.34' E, 1 m, 30 Sep 2013, *N.H. Grozeva 4090* (SOM) [Fig. 3B].*Chenopodium pratericola* Rydb. $2n = 18$ , CHN. Bulgaria, Sophia region, Sofia city, ruderal terrains between block of flats together with *C. album*, 42°40.34'N, 23°21.78' E, 557 m, 12 Sep 2013, *N.H. Grozeva 4091* (SOM) [Fig. 3C].*Chenopodium probstii* Aellen $2n = 54$ , CHN. Bulgaria, Sophia region, Sofia city, ruderal terrains between block of flats together with *C. polyspermum*, 42°40.19'N, 23°21.56' E, 560 m, 12 Sep 2013, *N.H. Grozeva 4092* (SOM) [Fig. 3D].*Petrosimonia brachiata* Bunge $2n = 16$ , CHN. Bulgaria, the Black Sea Coast, Pomoriysko lake, in saline areas around the lake west of the Salt museum with *Bassia***Fig. 3.** Mitotic metaphases:**A,** *Blitum virgatum*,  $2n = 18$ ;**B,** *Chenopodium album* subsp.*pedunculare*,  $2n = 54$ ;**C,** *Chenopodium pratericola*,  $2n = 18$ ;**D,** *Chenopodium probstii*,  $2n = 54$ ;**E,** *Petrosimonia brachiata*,  $2n = 16$ ;**F,** *Salicornia europaea*,  $2n = 18$ ;**G,** *Suaeda altissima*,  $2n = 18$ ;**H,** *Suaeda maritima*,  $2n = 36$ . —Scale bar = 10  $\mu\text{m}$ .

*hirsuta* (L.) Asch. and *Suaeda maritima* (L.) Dumort, 42°35.34'N, 27°37.12'E, 10 m, 17 Sep 2013, N.H. Grozeva 4093 (SOM) [Fig. 3E].

*Salicornia europaea* L.

2n = 18, CHN. Bulgaria, the Black Sea Coast, Durankulak lake, in saline areas around the lake, 43°46.15'N, 28°32.17'E, 5 m, 27 Sep 2013, N.H. Grozeva 4094 (SOM) [Fig. 3F].

*Suaeda altissima* Pall.

2n = 18, CHN. Bulgaria, the Black Sea Coast, Bourgas town, Bourgas salt pans – North, near salt pans together with *Suaeda maritima*, 42°31'26"N, 27°29'04"E, 3 m, 29 Sep 2013, N.H. Grozeva 4095 (SOM) [Fig. 3G].

*Suaeda maritima* (L.) Dumort.

2n = 36, CHN. Bulgaria, the Black Sea Coast, Schablensko lake, in saline areas around the lake, 43°35.12'N, 28°33.13'E, 1 m, 29 Sep 2013, N.H. Grozeva 4096 (SOM) [Fig. 3H].

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**ASTERACEAE**

*Cicerbita racemosa* Beauverd

2n = 16, CHN. Georgia, Tusheti, basin in river Chanchakhovani, gorge of river Khiso, 1800 m, 1 Jul 1988, R. Gagnidze 1256 (TBI).

*Erigeron uniflorus* L.

2n = 18, CHN. Georgia, Tusheti, gorge of river Gometsris Alazani, Etelta, 3000 m, 7 Aug 1986, D. Chelidze 1225 (TBI).

*Pyrethrum leptophyllum* Steven ex M.Bieb.

2n = 18, CHN. Georgia, Tusheti, basin of river Chanchakhovani, gorge of river Khiso, 1800 m, 10 Jul 1988, R. Gagnidze 1255 (TBI).

*Scorzonera biebersteinii* Lipsch.

2n = 14, CHN. Georgia, Kartli, Tbilisi, Shindisi, 24 Jun 1996, R. Gagnidze & Ts. Gviniashvili 1297 (TBI).

**BRASSICACEAE**

*Arabis brachycarpa* Rupr.

2n = 16, CHN. Georgia, Kartli, Bakuriani, Tskhratskaro pass, 8 Aug 1971, D. Mtskhvetadze 27-3 (TBI).

*Arabis nordmanniana* Rupr.

2n = 16, CHN. Georgia, Abkhazeti, Gagra mountain range, Kudaishara, 26 Aug 1967, Z. Gviniashvili & D. Mtskhvetadze 21-1 (TBI).

*Arabis sachokiana* (N.Busch) N.Busch

2n = 16, CHN. Georgia, Abkhazeti, Gagra mountain range, Arabica mountain mass, 26 Aug 1967, Z. Gviniashvili & D. Mtskhvetadze 22-2 (TBI).

*Isatis iberica* Steven

2n = 14, CHN. Georgia, Kartli, Tbilisi, environs of Shindisi, 750 m, 24 Jun 1996, R. Gagnidze & Ts. Gviniashvili 1300 (TBI).

**FABACEAE**

*Lathyrus annuus* L.

2n = 14, CHN. Georgia, Kiziki, gorge of river Kasristskali, 200 m, 9 Jul 1979, M. Sokhadze 1502 (TBI).

*Lathyrus aphaca* L.

2n = 14, CHN. Georgia, Kiziki, gorge of river Kasristskali, 200 m, 9 Jul 1979, A. Avazneli 1602 (TBI).

*Lathyrus cicera* L.

2n = 14, CHN. Georgia, Kiziki, gorge of river Kasristskali, 200 m, 7 Jul 1979, A. Avazneli 1611 (TBI).

*Lathyrus hirsutus* L.

2n = 14, CHN. Georgia, Mtiuleti, Dusheti, lakeside Bazaleti, 900 m, 16 Jul 1988, A. Avazneli 1613 (TBI).

*Lathyrus ketzkhovelii* Avazneli

2n = 14, CHN. Georgia, Lechkhumi, Khvamli, 2000 m, 23 Jul 1980, A. Avazneli 1684 (TBI).

*Lathyrus palustris* L.

2n = 14, CHN. Georgia, Abkhazeti, basin of river Bzybi, gorge of river Anishkhtsara, 11 Jul 1979, V. Iabrova-Kolakovskaja 1509 (TBI).

*Lathyrus pratensis* L.

2n = 14, CHN. Georgia, Kartli, Bakuriani, 1750 m, 15 Jul 1981, A. Avazneli & M. Khutsishvili 1215 (TBI).

*Lathyrus roseus* Steven

2n = 14, CHN. Georgia, Kartli, Bakuriani, 1750 m, 14 Jul 1981, Z. Gviniashvili & A. Avazneli 1515 (TBI).

*Lathyrus rotundifolius* Willd.

2n = 14, CHN. Georgia, Kartli, Borjomi, gorge of river Chobiskhevi, 1000 m, 11 Jul 1982, Z. Gviniashvili, L. Khintibidze & A. Avazneli 1212 (TBI).

*Lathyrus sativus* L.

2n = 14, CHN. Georgia, Racha, Ambrolauri, Khidikari, 450 m, 29 Jul 1982, A. Avazneli 1613 (TBI).

*Lathyrus setifolius* L.

2n = 14, CHN. Georgia, Kakheti, Eniseli, 300 m, 19 Jul 1982, I. Lachashvili 1668 (TBI).

*Lathyrus sylvestris* L.

2n = 14, CHN. Georgia, Racha, Ambrolauri, 450 m, 25 Jul 1982, A. Avazneli & N. Narikashvili 1614 (TBI).

*Lathyrus tuberosus* L.

2n = 14, CHN. Georgia, Kartli, Tsodreti, 800 m, 8 Jul 1980, A. Avazneli 1615 (TBI).

*Medicago lupulina* L.

2n = 16, CHN. Georgia, Khevi (Kazbegi region), gorge of river Tergi, 1750 m, 18 Sep 1996, Ts. Gviniashvili 1301 (TBI).

*Orobanchaceae*

*Orobanchaceae*

2n = 14, CHN. Georgia, Shida-Kartli, Ermani mountain mass, 2350 m, 6 Jul 1979, Z. Gviniashvili & A. Avazneli 1603 (TBI).

*Orobanchaceae*

2n = 14, CHN. Georgia, Kartli, Tskneti, 800 m, 19 Jul 1982, A. Avazneli 1601 (TBI).

*Orobanchaceae*

2n = 14, CHN. Georgia, Kartli, Tbilisi, gorge of river Legytakhevi, 550 m, 2 Jun 1981, A. Avazneli & M. Khutsishvili 1616 (TBI).

*Orobus vernus* L.

$2n = 14$ , CHN. Georgia, Kartli, Bakuriani, 1750 m, 15 Jul 1981, A. Avazneli 1600 (TBI).

#### PLANTAGINACEAE

*Plantago atrata* Hoppe

$2n = 24$ , CHN. Georgia, Tusheti, Kavkasioni, Abano pass, 2800 m, 16 Jul 1986, R. Gagnidze & M. Pataraja 1216 (TBI).

#### POACEAE

*Alopecurus arundinaceus* Poir.

$2n = 14$ , CHN. Georgia, Javakheti, lakeside Paravani, 2100 m, 21 Aug 1992, R. Gagnidze, D. Mtskhvetadze, Sh. Shetekauri & G. Kuchukhidze 1289 (TBI).

#### RANUNCULACEAE

*Batrachium rionii* Nym.

$2n = 16$ , CHN. Georgia, Khevi (Kazbegi region), gorge of river Tergi, Pansheti, 1700 m, 23 May 1996, Ts. Gviniashvili 1292 (TBI).

*Caltha palustris* L.

$2n = 32$ , CHN. Georgia, Khevi (Kazbegi region), Cross pass, 2100 m, 10 May 1996, Ts. Gviniashvili 1294 (TBI).

*Ficaria fascicularis* K.Koch

$2n = 16$ , CHN. Georgia, Javakheti, limestone-built mountain-mass of Tetrobi, 2200 m, 31 May 1985, D. Chelidze & L. Zautashvili 1153 (TBI).

#### ROSACEAE

*Alchemilla caucasica* Buser

$2n = 64$ , CHN. Georgia, Kakheti, gorge of river Batsara, mt. Sakisto, 2500 m, 10 Aug 1990, R. Gagnidze & Ts. Gviniashvili 1273 (TBI).

#### SAXIFRAGACEAE

*Saxifraga sibirica* L.

$2n = 20$ , CHN. Georgia, Kakheti, gorge of river Batsara, mt. Sakisto, 2500 m, 10 Aug 1990, R. Gagnidze & Ts. Gviniashvili 1272 (TBI).

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\* First chromosome count for the species.

\*\* New chromosome number (cytotype) for the species.

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#### ASTERACEAE

*Achillea asiatica* Serg.

$2n = 18$ , CHN. Russia, Republic of Altai, Maiminskii Raion, right bank of Katun' River, vicinity of Manzherok village, rocks shore, 8 Oct 2013, A.A. Korobkov 2014-108 (LE).

*Achillea millefolium* L.

$2n = 36$ , CHN. Russia, Altaiskii Krai, territory of Barnaul city, Yuzhnyi village, pine belt forest, near road, 7 Oct 2013, A.A. Korobkov 2014-109 (LE).

*Anthemis melanoloma* Trautv.

$2n = 18$ , CHN. Russia, Republic of Dagestan, Akhtynskii Raion, valley of Akhtychai River, canyon of Kyzyl-dore River, vicinity of Khnov village, mountain-steppe slopes, 12 Aug 2013, V.I. Dorofeyev 2014-09 (LE).

*Artemisia bargusinensis* Spreng.

$2n = 36$ , CHN. Russia, Republic of Buryatiya, Okinskii Raion, valley of Oka River, 2 km upstream of mouth of Mongoma River, left bank, 1638 m, 52°10'56" N, 100°23'20" E, floodplain, 29 Aug 2010, A.I. Shmakov & al. 2014-64 (ALTB).

*Artemisia commutata* Besser

$2n = 36$ , CHN. Russia, Altaiskii Krai, territory of Barnaul city, Yuzhnyi village, pine belt forest, near road, motley grass group, 7 Oct 2013, A.A. Korobkov 2014-102 (LE).

*Artemisia depauperata* Krasch.

$2n = 36$ , CHN. Russia, Republic of Altai, Kosh-Agachskii Raion, Talduair massif, Songolu ravine, 115 km E of Kokorya village, 28 Aug 2012, A.I. Shmakov & al. 2014-60 (ALTB).

*Artemisia dracunculus* L.

$2n = 36$ , CHN. Russia, Republic of Altai, Kosh-Agachskii Raion, middle of Luskinar River, lower of Bo cabin, rocky mountain steppe, 22 Aug 2010, A.P. Shalimov & A.D. Dagilov 2014-61 (ALTB), A.P. Shalimov & A.D. Dagilov 2014-62 (ALTB); Russia, Altaiskii Krai, territory of Barnaul city, Yuzhnyi village, pine belt forest, near road, motley grass group, 7 Oct 2013, A.A. Korobkov 2014-101 (LE).

*Artemisia freyniana* (Pamp.) Krasch.

$2n = 18$ , CHN. China, Province Tszilin', Khun'chun' city, meadow on hill wall of Lin' Bao temple, 143 m, 42°53'12" N, 130°20'26" E, 29 Sep 2013, V.V. Kotseruba & M.O. Burlyayeva 2014-48 (LE), V.V. Kotseruba & M.O. Burlyayeva 2014-49 (LE).

*Artemisia gmelinii* Weber ex Stechm.

$2n = 36$ , CHN. Russia, Republic of Altai, Maiminskii Raion, right bank of Katun' River, near mouth of Zemlyanaya River, on rocks near highway, 12 Oct 2013, A.A. Korobkov 2014-106 (LE).

*Artemisia laciniata* Willd.

$2n = 18$ , CHN. Russia, Irkutskaya Oblast', Ol'khonskii Raion, Tazheranskaya Steppe, shore of Kholbo-Nur Lake, 597 m, 52°52'34" N, 106°35'14" E, steppe, 5 Sep 2010, A.I. Shmakov & al. 2014-58 (ALTB).

*Artemisia ledebouriana* Besser

$2n = 36$ , CHN. Russia, Irkutskaya Oblast', Ol'khonskii Raion, Ol'khon Island on Baikal Lake, vicinity of Peschanka village, 474 m,



53°16'58" N, 107°34'34" E, sand dunes, 3 Sep 2010, *A.I. Shmakov & al. 2014-63* (ALTB).

*Artemisia macrocephala* Jacquem. ex Besser

2n = 18, CHN. Russia, Republic of Tyva, Tandinskii Raion, unnamed salt lake 7–8 km W of Khadyn Lake, lake terrace, 30 Aug 2013, *A.Yu. Korolyuk 2014-53* (NS).

*Artemisia sacrorum* Ledeb.

2n = 54, CHN. Russia, Republic of Altai, vicinity of Gorno-Altai city, left bank of Katun' River, rocks near highway, 13 Oct 2013, *A.A. Korobkov 2014-103* (LE); Russia, Republic of Altai, Maiminskii Raion, right bank of Katun' River, near mouth of Zemlyanaya River, on rocks near highway, 12 Oct 2013, *A.A. Korobkov 2014-104* (LE), *A.A. Korobkov 2014-105* (LE).

*Artemisia viridis* Willd. ex DC.

2n = 18, CHN. Russia, Republic of Altai, Kosh-Agachskii Raion, confluence of Argut & Koxsu Rivers, 1509 m, 49°46'01" N, 87°15'28" E, 24 Aug 2009, *A.I. Shmakov & al. 2014-56* (ALTB); Russia, Republic of Altai, Kosh-Agachskii Raion, right bank of Malye Boguty Lake, 2400 m, steppe slopes, 16 Aug 2011, *A.P. Shalimov 2014-57* (ALTB).

*Artemisia vulgaris* L.

2n = 16, CHN. Finland, Uusimaa Maakunta, Helsinki city, campus of Helsinki University, on roadside, 18 Nov 2013, *V.V. Kotseruba 2014-02* (LE), *V.V. Kotseruba 2014-03* (LE).

*Crepis tectorum* L.

2n = 8, CHN. Russia, Irkutskaya Oblast', Irkutsk city, Gagarin Boulevard (embankment of Angara River), 427 m, 52°16'41" N, 104°16'34" E, cracks in concrete slabs, 6 Jul 2014, *D.A. Krivenko & al. 36491* (IRK).

*Neopallasia pectinata* (Pall.) Poljakov

2n = 18, CHN. Russia, Republic of Tyva, Tes-Khemskii Raion, lower reaches of Ulug-Oorug River, between of U-Shyinaa & O-Shyinaa villages, Nanophyton desert, 4 Sep 2013, *A.Yu. Korolyuk & E.A. Korolyuk 2014-59* (NS).

*Ptarmica ptarmicifolia* (E.Willd.) Galushko

2n = 18, CHN. Russia, Republic of Dagestan, Akhtynskii Raion, 3 km upstream Akhtychai River, valley of Dzavcha-dore stream, vicinity of Khnov village, 2000 m, 41°24' N, 47°24' E, mountain-steppe slopes, 14 Aug 2013, *V.I. Dorofeyev 2014-10* (LE).

*Pyrethrum niveum* Lag.

2n = 18, CHN. Russia, Republic of Dagestan, Akhtynskii Raion, valley of Akhtychai River, canyon of Kyzyl-dore River, vicinity of Khnov village, mountain-steppe slopes, 12 Aug 2013, *V.I. Dorofeyev 2014-06* (LE), *V.I. Dorofeyev 2014-07* (LE).

*Tanacetum vulgare* L.

2n = 18, CHN. Finland, Uusimaa Maakunta, Helsinki city, campus of Helsinki University, on roadside, 18 Nov 2013, *V.V. Kotseruba 2014-04* (LE), *V.V. Kotseruba 2014-05* (LE).

**FABACEAE**

*Astragalus austrosibiricus* Schischk.

2n = 32, CHN. Russia, Irkutskaya Oblast', Ol'khonskii Raion, north-west coast of Baikal Lake, Rytyi Cape, lower part alluvial cone of Rytoi River, steppe meadow, 9 Sep 2013, *N.V. Stepantsova 32109* (IRK).

*Astragalus bifidus* Turcz. ex Ledeb.

2n = 48, CHN. Russia, Irkutskaya Oblast', Ol'khonskii Raion, west coast of Baikal Lake, Zunduk Cape, right bank of Zunduk River, 53°25'22" N, 107°25'02" E, stony steppe, 4 Aug 2004, *A.V. Verkhovina & al. 4195* (IRK) [Krivenko & al., 2011: 1222, E12 erroneously reported 2n = 32 for this sample]; Russia, Irkutskaya Oblast', Ol'khonskii Raion, west coast of Baikal Lake, Zunduk Cape, coast lake, lower part of gravelly slope of eastern exposure, 477 m, 53°24'38" N, 107°26'37" E, steppe, 28 Jul 2005, *S.G. Kazanovsky 8849* (IRK) [Krivenko & al., 2011: 1222, E12 erroneously reported 2n = 32 for this sample], *S.G. Kazanovsky 25319* (IRK); Russia, Republic of Buryatiya, Tunkinskii Raion, valley of Irkut River, right bank, vicinity of Moigoty village, 51°39'10" N, 101°24'37" E, riverbank with sandy soil, 11 Aug 2012, *D.A. Krivenko 31402* (IRK).

*Astragalus frigidus* A.Gray

2n = 16, CHN. Russia, Irkutskaya Oblast', Ol'khonskii Raion, western shore of Baikal Lake, valley of Sarma River, near exit of gorge, 549 m, 53°07'59" N, 106°50'21" E, riverbank willow thickets, 30 Jul 2005, *S.G. Kazanovsky 25325* (IRK); Russia, Irkutskaya Oblast', Ol'khonskii Raion, valley of Kurtun River, 586 m, 52°37'85" N, 105°52'83" E, pine-birch sedge-forbs moss forest, 3 Aug 2005, *S.G. Kazanovsky 11729* (IRK); Russia, Irkutskaya Oblast', Shelekhovskii Raion, Bol'shoi Lug village, 487 m, 52°04'58" N, 104°06'27" E, pine-larch forbs forest, fringe, 19 Aug 2012, *S.G. Kazanovsky 26616* (IRK); Russia, Republic of Buryatiya, Tunkinskii Raion, Tunkinskaya Valley, estuary Belyi Irkut River, left bank, 1550 m, 51°46'08" N, 100°42'42" E, sparse aspen-birch-larch grass-forbs forest, 30 Aug 2010, *S.G. Kazanovsky 16608* (IRK); Russia, Republic of Buryatiya, Tunkinskii Raion, valley of Kharagun River, mineral springs Khongor-Uula, 9 km S of Okhor-Shibir' village, 51°56'56" N, 102°26'59" E, shrubs along creek, 12 Aug 2012, *D.A. Krivenko 32811* (IRK).

*Astragalus inopinatus* Boriss.

2n = 32, CHN. Russia, Irkutskaya Oblast', Ol'khonskii Raion, north-west coast of Baikal Lake, Rytyi Cape, gentle slope over southern part alluvial cone of Rytoi River, steppe, 30 Jul 2012, *N.V. Stepantsova 32110* (IRK).

*Astragalus macropterus* DC.

\*\*2n = 48, CHN. Russia, Republic of Altai, Chemal'skii Raion, vicinity of Yelanda village, 51°11'27" N, 086°05'23" E, steppe slope southern exposure, 6 Jul 2012, *E.V. Zhmud' 32087* (IRK).

*Astragalus mongholicus* Bunge

2n = 16, CHN. Russia, Sverdlovskaya Oblast', Rezhevskoi Raion, right bank of Rezh River, about 2.5 km SE of Golendukhino village, plot of boron below Bragino cliffs, 20 Jul 2013, *A.Yu. Belyaev & A.D. Malinina 32794* (IRK); Russia, Irkutskaya Oblast', Ol'khonskii Raion, Kocherikovskii Cape, Kheirem River, left bank, 669 m, 53°49'32" N, 107°55'16" E, riverbank, forbs mixed forest with poplar, 22 Jul 2007, *A.V. Verkhovina 2979* (IRK); Russia, Republic of Buryatiya, Severobaikal'skii Raion, about 9 km SW of Severobaikal'sk city, at entrance to gardening, near Sennoi lip, 481 m, 55°34'55" N, 109°13'12" E, roadside on edge of forest, 22 Jul 2010, *A.V. Verkhovina 23043* (IRK); Russia, Republic of Buryatiya, Barguzinskii Raion, Svyatoi Nos Peninsula, 3 km to N of ferry at Ust'-Barguzin village, 449 m, 53°27'01" N, 109°00'52" E, pine cranberry moss forest, 26 Jul 2011, *E.V. Zhmud' & al. 19386* (IRK); Russia, Republic of Buryatiya, Tarbagataiskii Raion, 15th km Spirtzavodskoi track, 5 km N of Niko-layevskii village, dry pine forest, 20 Sep 2013, *D.V. Sandanov 32253* (IRK); Russia, Republic of Buryatiya, Pribaikal'skii Raion, 2.5 km NE of Goryachinsk village, near floodplain Talovka River, dry pine forest, 21 Sep 2013, *D.V. Sandanov 32252* (IRK); Russia, Zabaikal'skii Krai, Nerchinsko-Zavodskii, vicinity of Ishaga village, 51°28'14" N, 119°58'12" E, meadow steppe, roadside, 3 Sep 2011, *Ye.A. Bondarevich*

22406 (IRK); Russia, Zabaikal'skii Krai, Akshinskii Raion, vicinity of Kurulga village, Mt. Undur, western slope of mountain, apical part, 50°55'31"N, 117°22'40"E, mountain steppe, 21 Jul 2012, *Ye.A. Bondarevich 26152* (IRK).

*Astragalus olechonensis* Gontsch.

2n = 48, CHN. Russia, Irkutskaya Oblast', Ol'khonskii Raion, Ol'khon Island on Baikal Lake, Khuzhir village, Listvennichnaya Bay, waving sands, 30 Jul 1986, *M.M. Ivanova & G.P. Semenova 8766* (IRK) [Krivenko & al., 2012: 101 erroneously reported 2n = 32 for this sample]; Russia, Irkutskaya Oblast', Ol'khonskii Raion, Ol'khon Island on Baikal Lake, Peschanka village, 456 m, 53°17'20"N, 107°35'27"E, sand dunes, 11 Aug 2009, *A.V. Verkhovina & Yu.N. Pochinichik 9608* (IRK) [Krivenko & al., 2011: 1222, E12 erroneously reported 2n = 32 for this sample]; Russia, Irkutskaya Oblast', Ol'khonskii Raion, Ol'khon Island on Baikal Lake, Peschanka village, 463 m, 53°17'11"N, 107°35'02"E, eolic sands, 28 Jul 2010, *D.A. Krivenko 15615* (IRK) [Krivenko & al., 2012: 101 erroneously reported 2n = 32 for this sample]; Russia, Irkutskaya Oblast', Ol'khonskii Raion, Ol'khon Island on Baikal Lake, Khuzhirskii Bay, vicinity of Khuzhir village, 53°11'32"N, 107°18'57"E, on sand, 7 Aug 2011, *D.A. Krivenko 32933* (IRK).

*Astragalus rtyzensis* Stepantsova

2n = 48, CHN. Russia, Irkutskaya Oblast', Ol'khonskii Raion, north-west coast of Baikal Lake, Rytvi Cape, southern arm of Rytvi River at bottom alluvial cone, 497 m, 53°50'24"N, 108°02'67"E, pebble dry riverbed, 29 Jul 2012, *N.V. Stepantsova 32046* (IRK); Russia, Irkutskaya Oblast', Ol'khonskii Raion, north-west coast of Baikal Lake, Rytvi Cape, gentle slope over southern part alluvial cone of Rytvi River, steppe, 9 Sep 2013, *N.V. Stepantsova 32112* (IRK).

*Astragalus versicolor* Pall.

2n = 16, CHN. Russia, Irkutskaya Oblast', Ol'khonskii Raion, north-west coast of Baikal Lake, Rytvi Cape, gentle slope over southern part alluvial cone of Rytvi River, steppe, 31 Jul 2012, *N.V. Stepantsova 34957* (IRK); Russia, Irkutskaya Oblast', Irkutskii Raion, vicinity of Bol'shoje Goloustnoye village, near base practices of Irkutsk State University, 52°02'14"N, 105°27'07"E, steppe, 15 Aug 2012, *D.A. Krivenko 31400* (IRK).

2n = 48, CHN. Russia, Irkutskaya Oblast', Ol'khonskii Raion, north-west coast of Baikal Lake, Onkholoi Cape, high baikal'skaya terrace, grass-forbs steppe, 28 Jul 2012, *N.V. Stepantsova 32111* (IRK).

*Ervum hirsutum* L.

2n = 14, CHN. Russia, Irkutskaya Oblast', Bratskii Raion, Bratskoye reservoir, Chama Cove, 56°01'00"N, 102°45'00"E, pebble shore, 7 Aug 2003, *M.G. Azovsky 27887* (IRK); Russia, Irkutskaya Oblast', Shelekhovskii Raion, vicinity of Smolenshchina village, 437 m, 52°14'53"N 104°08'01"E, 1 Sep 2006, *A.V. Verkhovina & E.V. Tolstonogova 3772* (IRK).

*Lathyrus pisiformis* L.

2n = 14, CHN. Russia, Irkutskaya Oblast', Ziminskii Raion, Sayansk city, Novo-Ziminskaya thermal power station, 54°06'50"N, 102°09'45"E, roadside, 19 Jul 2012, *A.V. Verkhovina 36512* (IRK).

*Lupinus polyphyllus* Lindl.

2n = 48, CHN. Russia, Republic of Buryatiya, Kabanskii Raion, Tankhoi village, 51°31'47"N, 105°06'46"E, grass-forbs meadow near train station, 22 Jul 2011, *S.G. Kazanovsky 19931* (IRK).

*Medicago lupulina* L.

2n = 16, CHN. Russia, Irkutskaya Oblast', Zalarinskii Raion, left bank of Unga River, vicinity of Tyret' village, 440 m, 53°39'51"N, 102°21'15"E, sedge-grass-forbs meadow, 4 Sep 2009, *S.G. Kazanovsky*

23674 (IRK); Russia, Irkutskaya Oblast', Nizhneilimskii Raion, vicinity of Khrebtovaya urban village, 592 m, 56°42'20"N, 104°16'51"E, motley grass meadow near road, 14 Aug 2012, *S.G. Kazanovsky 24962* (IRK); Irkutskaya Oblast', Shelekhovskii Raion, Bol'shoi Lug village, 482 m, 52°05'06"N, 104°06'29"E, soggy meadow near forest road, 19 Aug 2012, *S.G. Kazanovsky 26576* (IRK); Republic of Buryatiya, Pribaikal'skii Raion, Sennoi Island on Selenga River, 3.3 km W of Tataurovo village, 486 m, 52°08'11"N, 107°21'24"E, roadside, 21 Aug 2012, *A.V. Verkhovina 26775* (IRK).

*Medicago varia* Martyn

2n = 32, CHN. Russia, Irkutskaya Oblast', Nizhneilimskii Raion, 57 km NE of Novaya Igirma urban village, Bol'shaya Yalyka River, about 17 km upstream from river mouth, 488 m, 57°30'56"N, 104°33'06"E, roadside, 15 Aug 2012, *A.V. Verkhovina 24940* (IRK).

*Melilotus suaveolens* Ledeb.

2n = 16, CHN. Russia, Zabaikal'skii Krai, Borzinskii Raion, Borzya city, 708 m, 50°22'50"N, 116°38'34"E, ruderal community, 28 Aug 2013, *S.G. Kazanovsky 33347* (IRK).

*Onobrychis arenaria* DC.

2n = 28, CHN. Russia, Irkutskaya Oblast', Irkutsk city, near Akademgorodok, 565 m, 52°13'42"N, 104°15'23"E, pine-birch forest, roadside forest, 3 Sep 2002, *S.G. Kazanovsky 22928* (IRK).

*Orobrys fischerianus* Stank.

2n = 12, CHN. Russia, Zabaikal'skii Krai, Chita city, southern vicinity, left bank of Ingoda River, foothills of Mt. Titovskaya, 51°59'35"N, 113°27'10"E, birch motley grass forest, 12 Aug 2013, *A.V. Verkhovina & O.D. Chernova 36492* (IRK).

*Oxytropis mixotriche* Bunge

\*\*2n = 48, CHN. Russia, Zabaikal'skii Krai, Akshinskii Raion, Mt. Undur, vicinity of Kurulga village, 50°07'18"N, 112°44'42"E, apical part of slope, 27 Jul 2012, *Ye.A. Bondarevich 32961* (IRK).

*Oxytropis popoviana* Peschkova

\*\*2n = 48, CHN. Russia, Irkutskaya Oblast', Ol'khonskii Raion, Rytvi Cape, gentle slope over southern part alluvial cone of Rytvi River, rocky steppe, 1 Aug 2012, *N.V. Stepantsova 33081* (IRK).

*Oxytropis tragacanthoides* Fisch. ex DC.

2n = 32, CHN. Russia, Republic of Altai, Kosh-Agachskii Raion, Chuiskaya Steppe, 2187 m, 49°45'55"N, 088°46'56"E, slope rocky steppes south-eastern exposure with bedrock outcrops, 29 Jun 2012, *D.A. Krivenko 33080* (IRK).

\*\*2n = 48, CHN. Russia, Irkutskaya Oblast', Ol'khonskii Raion, west coast of Baikal Lake, near of Oto-Khushun Cape, 53°20'59"N, 107°16'19"E, forbs-hedysareae rocky steppe, 4 Sep 2010, *D.A. Krivenko 15330* (IRK) [Krivenko & al., 2011: 1222, E13 erroneously reported 2n = 32 for this sample]; Russia, Irkutskaya Oblast', Ol'khonskii Raion, west coast of Baikal Lake, near of Oto-Khushun Cape, 683 m, 53°20'43"N, 107°16'24"E, gravelly steep slope south exposure folded crystalline limestone, 25 Aug 2011, *D.A. Krivenko 19717* (IRK).

*Sophora flavescens* Aiton

2n = 18, CHN. Russia, Zabaikal'skii Krai, Aginskii Raion, 19 km S of Aginskoye village, 50°55'55"N, 114°32'15"E, apricot-elm bushes on steep rocky slope steppified southern exposure, 24 Aug 2011, *Ye.A. Bondarevich 22400* (IRK); Zabaikal'skii Krai, Nerchinskoye Zavodskii Raion, vicinity of Nerchinskii Zavod village, 582 m, 51°12'15"N, 119°27'27"E, grass-legume-forbs steppe, 29 Aug 2013, *S.G. Kazanovsky 33322* (IRK).

*Trifolium arvense* L.

$2n = 14$ , CHN. Russia, Republic of Buryatiya, Pribaikal'skii Raion, Sennoi Island on Selenga River, 3.3 km W of Tataurovo village, 486 m, 52°08'11"N, 107°21'24"E, roadside, 21 Aug 2012, A.V. Verkhozina 26766 (IRK).

*Vicia amurensis* Oett.

$2n = 12$ , CHN. Russia, Zabaikals'kii Krai, Nerchinsko-Zavodskii Raion, vicinity of Damasovo village, 51°31'59"N, 119°59'31"E, stepped elm grove (*Ulmus pumila*) with *Securinega suffruticosa* near road, 3 Sep 2011, Ye.A. Bondarevich 22398 (IRK).

*Vicia cracca* L.

$2n = 14$ , CHN. Russia, Irkutskaya Oblast', Ust'-Kutskii Raion, 8.5 km to WNW of Yarakta oilmen village, left bank of Yarakta River, near bridge at road, 447 m, 57°59'46"N, 106°39'16"E, on river bank, 9 Aug 2012, A.V. Verkhozina 24914 (IRK).

*Vicia nervata* Sipliv.

$2n = 28$ , CHN. Russia, Zabaikals'kii Krai, Sretenskii Raion, Shilka River, between of Ust'-Karsk & Starolonchakovo villages, nature sanctuary "Rocky cliffs Polosatik", 470 m, 52°39'52"N, 118°44'49"E, canyon, 2 Jul 2012, Ye.A. Bondarevich 31510 (IRK); Russia, Zabaikals'kii Krai, Akshinskii Raion, vicinity of Kurulga village, western slope of Mt. Undur, 50°55'31"N, 117°22'40"E, apricot grove, 21 Jul 2012, Ye.A. Bondarevich 26157 (IRK).

**PAPAVERACEAE***Chelidonium majus* L.

$2n = 12$ , CHN. Russia, Sverdlovskaya Oblast', Nev'yanskii Raion, between Ayat' village & Tavatu train station, 57°02'13"N, 060°13'55"E, on sidelines of a dirt road in collective garden, on former drained peatlands, 7 Sep 2013, A.Yu. Belyaev 33294 (IRK).

*Eschscholzia californica* Cham.

$2n = 12$ , CHN. Russia, Irkutskaya Oblast', Irkutsk city, near Akademgorodok, left bank of Angara River, 423 m, 52°15'01"N, 104°17'13"E, sand-pebble shore, 15 Sep 2013, S.G. Kazanovsky & V.V. Domrachev 29878 (IRK).

**POACEAE***Trisetum molle* Kunth

$2n = 28$ , CHN. Russia, Zabaikals'kii Krai, Kalarskii Raion, Baikalo-Amurskaya Mainline, Nalednyi siding, left bank of Syul'ban River, 56°31'54"N, 117°08'56"E, on river bank, 13 Jul 2014, I.V. Enushchenko 36493 (IRK).

**POTAMOGETONACEAE***Potamogeton perfoliatus* L.

$2n = 78$ , CHN. Russia, Zabaikal'skii Krai, Nerchinsko-Zavodskii, vicinity of Znamenka village, Nercha River, at right bank, 531 m, 52°11'52"N, 116°14'21"E, in water, 13 Jul 2011, S.G. Kazanovsky 20223 (IRK).

**RANUNCULACEAE***Batrachium kauffmannii* (Clerc) V.I.Krecz.

$2n = 32$ , CHN. Russia, Zabaikal'skii Krai, Nerchinsko-Zavodskii, vicinity of Znamenka village, Nercha River, at right bank, 531 m, 52°11'52"N, 116°14'21"E, in water near shore, 13 Jul 2011, S.G. Kazanovsky 20227 (IRK).

**SOLANACEAE***Physochlaina physaloides* G.Don

$2n = 48$ , CHN. Russia, Irkutskaya Oblast', Irkutskii Raion, vicinity of Bol'shoye Goloustnoye village, 52°02'31"N, 105°24'40"E, rocky placer, 20 Jun 2011, V.A. Petukhin 21816 (IRK).

**VIOLACEAE***Viola biflora* L.

$2n = 12$ , CHN. Russia, Altaiskii Krai, Kur'inskii Raion, Kolyvanskii Ridge, Sinyukha Mt., 2 km of 8 Marta village, bedrock outcrops, 20 Jun 2012, T.V. Elisafenko 32800 (IRK).

*Viola dissecta* Ledeb.

$2n = 24$ , CHN. Russia, Republic of Altai, Ongudaiskii Raion, left bank of Katun' River, mouth Chuya River, pebbles in floodplain, 11 Jun 2006, T.V. Elisafenko 32906 (IRK); Russia, Novosibirskaya Oblast', Kolyvanskii Raion, vicinity of Kolyvan' village, floodplain of Ob' River, near "Rybatskoe" Gardening, stepped meadow, 21 May 2011, T.V. Elisafenko 32902 (IRK).

*Viola gmeliniana* Schult.

$2n = 24$ , CHN. Russia, Irkutskaya Oblast' Irkutskii Raion, left bank of Goloustnaya River, 2–3 km S of Bol'shoye Goloustnoye village, stepped meadow, 15 Aug 2012, M.O. Shchepina 32734 (IRK).

*Viola hirta* L.

$2n = 20$ , CHN. Russia, Republic of Altai, Ust'-Kanskii Raion, Anui River, edge forest, 22 Jun 2001, T.V. Elisafenko 32913 (IRK); Russia, Republic of Altai, Chermal'skii Raion, Sumul'tinskii wildlife preserve, Edigan River, vicinity of Chermal village, edge forest, 24 Jun 2001, T.V. Elisafenko 32904 (IRK); Russia, Republic of Altai, Chermal'skii Raion, right bank of Chermal River, vicinity of Chermal village, in rock crevices, 7 Jul 2008, T.V. Elisafenko 32903 (IRK); Russia, Novosibirskaya Oblast', Novosibirsk city, Akademgorodok, territory of Central Siberian Botanical Garden, forest, 2 Aug 2012, T.V. Elisafenko 32905 (IRK).

*Viola incisa* Turcz.

$2n = 24$ , CHN. Russia, Republic of Altai, Gorno-Altaysk Urban District, Mt. Tugoya, woodland park zone, 8 Jul 2009, T.V. Elisafenko 32915 (IRK); Russia, Krasnoyarskii Krai, Sharypovskii Raion, Ivanovka village, southern steppe slopes, 5 Jul 1982, N.I. Tupitsyna 32901 (IRK).

*Viola irinae* Zolot.

\*\* $2n = 24$ , CHN. Russia, Republic of Altai, Chermal'skii Raion, right bank of Chermal River, vicinity of Chermal village, pine forest at foot of cliffs, 7 Jul 2008, T.V. Elisafenko 32908 (IRK).

*Viola mandshurica* W.Becker

$2n = 24$ , CHN. Russia, Primorskii Krai, Khasanskii Raion, Vostochno-Man'chzhurskoye Highland, shore Japan Sea, Petra Velikogo Bay, Gamova Peninsula, Astaf'yeva Cove, 15 m, 42°36'47"N, 131°11'58"E, sodded clay slope to sea, 19 Oct 2013, D.A. Krivenko 32932 (IRK).

*Viola mauritii* Teplouchow

$2n = 20$ , CHN. Russia, Republic of Buryatiya, Tunkinskii Raion, right bank of Margasan River, 771 m, 51°40'56"N, 102°53'25"E, river bank, overgrown with bushes, 11 Jun 2011, S.G. Kazanovsky 20653 (IRK).

*Viola milanae* V.I.V.Nikitin

$2n = 24$ , CHN. Russia, Irkutskaya Oblast', Ol'khonskii Raion, left bank of Sarma River, end alluvial cone, 53°06'31"N, 106°52'40"E, pebble beach ridge, 4 Aug 2011, N.V. Stepan'tsova 23089 (IRK).

*Viola mirabilis* L.

$2n = 20$ , CHN. Russia, Altaiskii Krai, Zarinskii Raion, vicinity of Peshcherka village, fir forest, 20 May 2011, T.V. Elisafenko 36496 (IRK).

*Viola rupestris* F.W.Schmidt

$2n = 20$ , CHN. Russia, Irkutskaya Oblast', Irkutsk city, "Zvezdochka" Grove, near train station, poplar plantations, 17 Jul 2012, A.V. Verkhovina & D.A. Krivenko 31255 (IRK).

*Viola selkirkii* Pursh ex Goldie

$2n = 24$ , CHN. Russia, Novosibirskaya Oblast', Novosibirskii Raion, near Akademgorodok, Kirova village, slope in ravine, 23 Aug 2007, T.V. Elisafenko & Yu.V. Ovchinnikov 32907 (IRK).

*Viola tricolor* L.

$2n = 26$ , CHN. Russia, Irkutskaya Oblast', Slyudyanskii Raion, NE edge of Solzan village, 452 m, 51°29'53" N, 104°14'23" E, roadside village, 28 Jul 2011, A.V. Verkhovina & D.A. Krivenko 19387 (IRK); Russia, Irkutskaya Oblast', Irkutsk city, Topkinskii microdistrict, front of house No 54, 52°20'25" N, 104°19'04" E, ruderal community, 21 Oct 2011, D.A. Krivenko 22011 (IRK); Russia, Irkutskaya Oblast', Ust'-Kutskii Raion, 6.5 km NE of Podymakhino village, 271 m, 57°01'37" N, 106°14'29" E, ruderal community of road, 8 Aug 2012, S.G. Kazanovsky 26014 (IRK).

*Viola uniflora* L.

$2n = 24$ , CHN. Russia, Republic of Altai, Ongudaiskii Raion, Chuyskii tract, Seminskii mountain pass, alpine meadow, 11 Jun 2006, T.V. Elisafenko 36497 (IRK); Russia, Krasnoyarskii Krai, Partizanskii Raion, vicinity of Partizanskoye village, felling of birch, 15 Jun 2003, T. Chernikova & T.V. Elisafenko 32846 (IRK).

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## BRASSICACEAE

*Chamira circaeoides* (L.f.) Zahlbr.

$2n = 38$ , CHN. South Africa, Western Cape, Cederberg, Biedouw Valley, at road to Wupperthal, 32°09'59" S, 19°11'03" E, 7 Oct 2013, *Heliophila Team* NGS322 (NBG).

*Heliophila adpressa* O.E.Schulz

$2n = 20$ , CHN. South Africa, Western Cape, Overberg, Malgas, De Hoop Nature Reserve, Flats N of Limestone scarp, along road to Vaalkrans, 34°24'51" S, 20°34'30" E, 25 Sep 2013, *Heliophila Team* NGS29A (NBG); South Africa, Western Cape, S of Opstal, 34°28'37" S, 20°25'49" E, 25 Sep 2013, *Heliophila Team* NGS39A (NBG); South Africa, Western Cape, West Coast, West Coast National Park, road to Geelbek, 33°13'14" S, 18°08'52" E, 12 Oct 2013, *Heliophila Team* NGS424 (NBG).

*Heliophila africana* (L.) Marais

$2n = 20$ , CHN. South Africa, Western Cape, Brandewynsrivier, 32°04'13" S, 19°04'30" E, 7 Oct 2013, *Heliophila Team* NGS338 (NBG); South Africa, Western Cape, West Coast, Piketberg–Velddrif, at turn-off to Aurora, 32°48'29" S, 18°22'18" E, 11 Oct 2013, *Heliophila Team* NGS418 (NBG).

*Heliophila amplexicaulis* L.f.

$2n = 22$ , CHN. South Africa, Northern Cape, Namaqualand, Kamieskroon, Kamiesberg Pass, 30°11'23" S, 17°58'39" E, 1 Oct 2013, *Heliophila Team* NGS181 (NBG); South Africa, Western Cape, Cederberg, Clanwilliam, crest of Pakhuis Pass, Amon se Vlak, 32°09'02" S, 19°01'42" E, 7 Oct 2013, *Heliophila Team* NGS316 (NBG).

*Heliophila arenaria* Sond.

$2n = 20$ , CHN. South Africa, Western Cape, Knersvlakte, Vanrhynsdorp, red sands E of Varsch River, 31°31'49" S, 18°43'16" E, 30 Sep 2013, *Heliophila Team* NGS166 (NBG); South Africa, Western Cape, Cederberg, Clanwilliam, Pakhuis Pass, at Soldier's Head (Soldaatkop), 32°08'10" S, 18°57'46" E, 7 Oct 2013, *Heliophila Team* NGS297 (NBG); South Africa, Western Cape, Pakhuis Pass, Kliphuis, 32°08'08" S, 18°59'41" E, 7 Oct 2013, *Heliophila Team* NGS298 (NBG); South Africa, Western Cape, Cederberg, Biedouw Valley, at road to Wupperthal, 32°09'59" S, 19°11'03" E, 7 Oct 2013, *Heliophila Team* NGS323 (NBG); South Africa, Western Cape, Cedarberg, Pakhuis Pass, E of Boesmansklouf, 32°04'09" S, 19°06'10" E, 7 Oct 2013, *Heliophila Team* NGS337 (NBG).

*Heliophila carnosa* (Thunb.) Steud.

$2n = 22$ , CHN. South Africa, Northern Cape, Namaqualand, Kamiesberg, top of Studer Pass, 30°24'06" S, 18°04'47" E, 1 Oct 2013, *Heliophila Team* NGS200 (NBG).

*Heliophila crithmifolia* Willd.

$2n = 22$ , CHN. South Africa, Western Cape, Klein Roggeveld range, Karookop, Skaapberg, 450 m NE of "Kruispad" along road to Sutherland, 32°56'44" S, 20°33'10" E, 27 Sep 2013, *Heliophila Team* NGS65 (NBG); South Africa, Northern Cape, Hantam, Nieuwoudtville, Hantam National Botanical Garden, 31°24'09" S, 19°08'33" E, 29 Sep 2013, *Heliophila Team* NGS137 (NBG); South Africa, Northern Cape, Namaqualand, S of Garies, 30°43'40" S, 18°04'55" E, 30 Sep 2013, *Heliophila Team* NGS170 (NBG); South Africa, Western Cape, Op-die-Berg, Swarttruggens, near Houdenberg at the road to Wupperthal Pass, 32°55'26" S, 19°28'55" E, 9 Oct 2013, *Heliophila Team* NGS353 (NBG); South Africa, Western Cape, Ceres, Gydo Pass, top of the pass, 33°13'54" S, 19°19'34" E, 10 Oct 2013, *Heliophila Team* NGS389 (NBG).

*Heliophila descurva* Schltr.

$2n = 20$ , CHN. South Africa, Western Cape, Op-die-Berg, Swarttruggens, E of Katbakkies Pass, Hartneksklouf, 32°52'40" S, 19°39'28" E, 9 Oct 2013, *Heliophila Team* NGS361 (NBG).

*Heliophila diffusa* (Thunb.) DC. var. *diffusa*

$2n = 44$ , CHN. South Africa, Western Cape, Cederberg, Clanwilliam, road to Pakhuis Pass, at Leipoldt's Grave, 32°08'07" S, 18°59'20" E, 7 Oct 2013, *Heliophila Team* NGS311 (NBG); South

Africa, Western Cape, crest of Pakhuis Pass, 32°08'53" S, 19°01'46" E, 7 Oct 2013, *Heliophila Team NGS317* (NBG).

*Heliophila digitata* L.f.

$2n = 20$ , CHN. South Africa, Western Cape, W of Kleinmond, E of Palmiet River bridge, at parking lot, 34°19'51" S, 18°59'35" E, 24 Sep 2013, *Heliophila Team NGS15* (NBG); South Africa, Western Cape, Cederberg, Clanwilliam, Pakhuis Pass, Kliphuis, at the stream, 32°08'11" S, 18°59'41" E, 7 Oct 2013, *Heliophila Team NGS306A* (NBG); South Africa, Crest of Pakhuis Pass, 32°09'01" S, 19°01'45" E, 7 Oct 2013, *Heliophila Team NGS315* (NBG); South Africa, Western Cape, Op-die-Berg, at the road to Katbakkies Pass, at turn off to Rietvley, S of Swanepoelspoort Dam, 32°54'13" S, 19°31'21" E, 9 Oct 2013, *Heliophila Team NGS354* (NBG); South Africa, Western Cape, Ager-Witzenberg, Skurweberg Pass, top of the pass, 33°14'11" S, 19°18'23" E, 10 Oct 2013, *Heliophila Team NGS384* (NBG).

*Heliophila fistulosa* Sond.

$2n = 20$ , CHN. South Africa, Western Cape, West Coast, Piketbeg–Velddrif, at road W of Sauer, 32°49'57" S, 18°33'11" E, 11 Oct 2013, *Heliophila Team NGS413* (NBG).

*Heliophila juncea* (P.J.Bergius) Druce

$2n = 32$ , CHN. South Africa, Western Cape, Cederberg, between Garskraal village and Algeria, ca. 1 km NW of Algeria, 32°21'02" S, 19°02'17" E, 8 Oct 2013, *Heliophila Team NGS343* (NBG).

*Heliophila lactea* Schltr.

$2n = 18$ , CHN. South Africa, Northern Cape, Hantam, Calvinia, Akkerendam Nature Reserve, 31°25'57" S, 19°47'08" E, 29 Sep 2013, *Heliophila Team NGS124* (NBG); South Africa, Northern Cape, Namaqualand, road between Komaggas and Schaaprivier, 29°42'36" S, 17°31'26" E, 2 Oct 2013, *Heliophila Team NGS223* (NBG); South Africa, Cape, Namaqualand, Springbok, Goegap Nature Reserve, 29°40'02" S, 17°59'43" E, 3 Oct 2013, *Winter, PJD NGS227* (NBG); South Africa, Northern Cape, Namaqualand, N of Springbok, 2 km W of Bulletrap, 29°27'41" S, 17°45'39" E, 4 Oct 2013, *Heliophila Team NGS242* (NBG); South Africa, Northern Cape, Richtersveld, Steinkopf, Nuwekasteel, road Anenous Pass–Port Nolloth, 29°13'41" S, 17°40'45" E, 5 Oct 2013, *Heliophila Team NGS268* (NBG); South Africa, Anenous Pass, 29°13'36" S, 17°36'17" E, 5 Oct 2013, *Heliophila Team NGS275* (NBG); South Africa, Northern Cape, Richtersveld, near Steinkopf–Port Nolloth road, on Eksteenfontein road, Grasvlakte, 29°15'09" S, 17°25'41" E, 5 Oct 2013, *Heliophila Team NGS277* (NBG).

*Heliophila linearis* (Thunb.) DC.

$2n = 20$ , CHN. South Africa, Western Cape, Limestone hills S of Potberg on road to Vaalkrans, 34°25'18" S, 20°34'34" E, 25 Sep 2013, *Heliophila Team NGS35* (NBG).

*Heliophila linoides* Schltr.

$2n = 20$ , CHN. South Africa, Western Cape, Ager-Witzenberg, Pass, W flank near Slagboom, 33°14'33" S, 19°17'09" E, 10 Oct 2013, *Heliophila Team NGS387* (NBG); South Africa, Western Cape, Tulbagh Waterval, 33°21'04" S, 19°06'43" E, 11 Oct 2013, *Heliophila Team NGS404* (NBG).

*Heliophila longifolia* DC.

$2n = 20$ , CHN. South Africa, Western Cape, West Coast, Graafwater: W foot of hills between Klaver & Skurfkop, 31°56'28" S, 18°37'10" E, 6 Oct 2013, *Heliophila Team NGS292* (NBG).

*Heliophila macrostylis* E.Mey. ex Sond.

$2n = 22$ , CHN. South Africa, Northern Cape, Namaqualand, Springbok, Overberg Ave, open plot near Hoekom st., 29°40'15" S, 17°53'10" E, 3 Oct 2013, *Heliophila Team NGS230* (NBG).

*Heliophila namaquana* Bolus

$2n = 18$ , CHN. South Africa, Northern Cape, Namaqualand, Kamiesberg, road between Kamiesberg Pass and Leliefontein, 30°16'52" S, 18°03'14" E, 1 Oct 2013, *Heliophila Team NGS194* (NBG); South Africa, Northern Cape, Spektakelberg road, Ezelsfontein, near the bridge over Ezelsfontein stream, 29°41'58" S, 17°42'40" E, 2 Oct 2013, *Heliophila Team NGS216* (NBG).

*Heliophila nigellifolia* Schltr.

$2n = 22$ , CHN. South Africa, Northern Cape, Hantam, Calvinia, Akkerendam Nature Reserve, 31°25'57" S, 19°47'08" E, 29 Sep 2013, *Heliophila Team NGS123* (NBG); South Africa, Northern Cape, Namaqualand, Kamieskroon, top of Kamiesberg Pass, 30°11'16" S, 17°59'17" E, 1 Oct 2013, *Heliophila Team NGS187* (NBG); South Africa, top of Kamiesberg Pass, Ou Tuin, 30°10'20" S, 18°00'59" E, 1 Oct 2013, *Heliophila Team NGS190* (NBG).

*Heliophila pinnata* L.f.

$2n = 18$ , CHN. South Africa, Western Cape, Cederberg, Clanwilliam, Pakhuis Pass, Kliphuis, at the stream, 32°08'11" S, 18°59'41" E, 7 Oct 2013, *Heliophila Team NGS302* (NBG).

$2n = 36$ , CHN. South Africa, Western Cape, Cedarberg, Algeria, Uytkyk Pass, Crest of Pass, 32°24'23" S, 19°06'28" E, 8 Oct 2013, *Heliophila Team NGS347* (NBG).

*Heliophila pusilla* L.f.

$2n = 18$ , CHN. South Africa, Western Cape, Overberg, Malgas, De Hoop Nature Reserve, Potberg, at road at south foot of the mountain, 34°23'09" S, 20°32'31" E, 25 Sep 2013, *Heliophila Team NGS28A* (NBG).

*Heliophila rigidiuscula* Sond.

$2n = 22$ , CHN. South Africa, Free State Province, Golden Gate Highlands National Park, behind hotel, 28°30'23" S, 28°36'36" E, 22 Jan 2014, *Heliophila Team NGS439* (NBG).

*Heliophila schulzii* Marais

$2n = 20$ , CHN. South Africa, Northern Cape, Namaqualand, Kamieskroon, top of Kamiesberg Pass, 30°11'16" S, 17°59'17" E, 1 Oct 2013, *Heliophila Team NGS182* (NBG); South Africa, Northern Cape, top of Kamiesberg Pass, farm N of Ou Tuin (LM168), 30°09'24" S, 18°00'36" E, 1 Oct 2013, *Heliophila Team NGS191* (NBG).

*Heliophila seselifolia* Burch. ex DC.

$2n = 22$ , CHN. South Africa, Northern Cape, Namaqualand, Kamiesberg, road between Kamiesberg Pass and Leliefontein (LM170), 30°16'52" S, 18°03'15" E, 1 Oct 2013, *Heliophila Team NGS197A* (NBG); South Africa, Northern Cape, Namaqualand, Springbok, Goegap Nature Reserve, 29°40'17" S, 17°59'55" E, 3 Oct 2013, *Heliophila Team NGS225* (NBG); South Africa, Northern Cape, Bushmanland, Aggenys, Varsputs, 29°28'44" S, 18°18'28" E, 3 Oct 2013, *Heliophila Team NGS237* (NBG).

*Heliophila subulata* Burch. ex DC.

$2n = 20$ , CHN. South Africa, Western Cape, Ceres, Top of Gydo Pass (LM152), 33°13'54" S, 19°19'34" E, 10 Oct 2013, *Heliophila Team NGS390* (NBG).

*Heliophila variabilis* Burch. ex DC.

$2n = 22$ , CHN. South Africa, Northern Cape, Namaqualand, Kamieskroon, top of Kamiesberg Pass (LM164), 30°11'16" S, 17°59'17" E, 1 Oct 2013, *Heliophila Team NGS180* (NBG); South Africa, Northern Cape, Namaqualand, Kamieskroon, Buffel River, below the bridge, 29°59'33" S, 17°52'30" E, 2 Oct 2013, *Heliophila Team NGS205* (NBG); South Africa, Northern Cape, Namaqualand, Springbok, at road to Spektakelberg, 29°42'28" S, 17°45'45" E, 2 Oct 2013, *Heliophila*

*Team NGS212* (NBG); South Africa, Northern Cape, Namaqualand, Springbok, Goegap Nature Reserve, 29°40'17" S, 17°59'55" E, 3 Oct 2013, *Heliophila Team NGS224* (NBG); South Africa, Northern Cape, Goegap Nature Reserve, 29°40'08" S, 18°00'00" E, 3 Oct 2013, *Heliophila Team NGS229* (NBG).

#### Materials and methods

Young inflorescences were fixed in ethanol/acetic acid (3:1) fixative in the field for 24 hrs. The fixative was replaced by 70% ethanol for a long-term storage. Chromosome spreads were prepared as described by Mandáková & al. (2012). Chromosomes were stained with DAPI (2 µg/ml) in Vectashield anti-fade, photographed using Olympus BX-61 epifluorescence microscope equipped by CoolCube camera and counted from the captured images. At least 20 mitotic chromosome spreads were counted from each accession analyzed.

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\* First chromosome count for the species.

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#### UMBELLIFERAE/APIACEAE

*Angelica komarovii* (Schischk.) V.N.Tikhom.

$2n = 22$ , CHN. Afghanistan, Badakhshan, above Gardzhwin village, 37°28.60'N, 71°24.26'E, 3020 m, 6 Aug 2013, M.G. Pimenov, E.V. Kljuykov & U.A. Ukrainskaya 60 (MW); Tajikistan, Dushanbe prov., Alai Ridge, S slope, valley Yarkhych River, pasture Dashtiniron, 39°20.72'N, 70°37.29'E, 1970 m, 6 Aug 2012, M.G. Pimenov, E.V. Kljuykov & U.A. Ukrainskaya s.n. (MW); Tajikistan, Kūhistani Badakhshan, Khorog Botanical Garden, stony slope, 37°29'N, 71°36'E, 2800 m, 31 Jul 2011, E.V. Kljuykov, E.A. Zakharova & U.A. Ukrainskaya s.n. (MW). [Fig. 4A]

This is the second chromosome number report for this species; the previous one ( $2n = 22$ ) was published from Tajikistan (Vasil'eva & Pimenov, 1991). Five other investigated species of *Angelica* L. sect. *Archangelica* have the same chromosome number of  $2n = 22$ .

*Anthriscus glacialis* Lipsky

$2n = 18$ , CHN. Tajikistan, Khatlon prov., Dashtijum distr., vicinity of Kala-i Kunja ruins, pasture Bido, 38°00.27'N, 70°15.83'E, 2070 m, 11 Aug 2012, M.G. Pimenov, E.V. Kljuykov & U.A. Ukrainskaya 24 (MW). [Fig. 4B]

Two previous chromosome number reports were published from Tajikistan and they were different— $2n = 18$  (Vasil'eva & al., 1981) and  $n = 8$  (Vasil'eva & al., 1991). Our report corresponds to the first of them. Chromosome numbers were studied for eight species of *Anthriscus* Pers., and their infraspecific variation was reliably reported also for *Anthriscus nitida* (Wahlenb.) Hazsl. ( $2n = 16, 18$ ) (Pimenov & al., 2002).

\**Aulacospermum ikonnikovii* Kamelin

$2n = 18$ , CHN. Tajikistan, Kūhistani Badakhshan, S slope of Yazgulem Ridge, basin Bartang River, Khodorzhiodara River, above Sponch (Bartang) village, in rock fissures, 37°59'N, 71°45'E, 2900 m, 8 Aug 2011, D. Nawrouzshoev 36 (MW). [Fig. 4C]

This is the first chromosome number report for this rare endemic species. It corresponds with the chromosome numbers determined for all other investigated species of *Aulacospermum* Ledeb. (Pimenov & al., 2002).

\**Bupleurum aitchisonii* (Boiss.) H.Wolff

$2n = 14$ , CHN. Afghanistan, Badakhshan, road from above Gardzhwin village to Shewa Lake, Khidardzhidara River, spiny cushion vegetation with dominance of *Cousinia semilacera* Juz. 37°27.43'N, 71°24.22'E, 3140 m, 6 Aug 2013, M.G. Pimenov, E.V. Kljuykov & U.A. Ukrainskaya 62 (MW). [Fig. 4D]

This is the first chromosome number report for the species, distributed in Tajikistan, Afghanistan, Pakistan, NW India, and W China.

*Bupleurum lipskianum* (Koso-Pol.) Lincz.

$2n = 16$ , CHN. Tajikistan, Dushanbe prov., Karategin Ridge, basin of Komarou River, canyon of Darai-Tanchak, 39°09.19'N, 70°18.42'E, 1910 m, 4 Aug 2012, M.G. Pimenov, E.V. Kljuykov & U.A. Ukrainskaya 10 (MW). [Fig. 4E]

This is the second chromosome number report for this species; the previous one ( $n = 8$ ) was published from Tajikistan as well (Daushkevich & al., 1993).

*Cephalopodium badachschanicum* Korovin

$2n = 22$ , CHN. Tajikistan, Kūhistani Badakhshan, Vanch distr., valley of Piandj River, near Che-Chik village, 38°24.65'N, 71°03.38'E, 1500 m, 31 Jul 2013, M.G. Pimenov, E.V. Kljuykov & U.A. Ukrainskaya 47 (MW). [Fig. 4G]

This is the third chromosome number report for this species; two previous ones were also from Tajikistan ( $2n = 22$ , Pimenov & Vasil'eva, 1983; Vasil'eva & al., 1984). The species, previously regarded as a Tajik endemic has been recently collected in Afghanistan (Pimenov & al., 2014).

*Conioselinum tataricum* Hoffm. s.l. (= *C. schugnanicum* B.Fedtsch.)

$n = 11$ , CHN. Afghanistan, Badakhshan, Zebak distr., north slope of Hindukush Range, valley of Dara-i-Degul' River, near of mouth of Match River, 36°23.26'N, 71°25.64'E, 2960 m, 9 Aug 2013, M.G. Pimenov, E.V. Kljuykov & U.A. Ukrainskaya 91 (MW). [Fig. 5A]

Material from Afghanistan is investigated here for the first time. It corresponds to numerous previous reports ( $n = 11, 2n = 22$ ) made from different parts of distribution area of the species (Pimenov & al., 2002).

*Daucus carota* L.

$2n = 18$ , CHN. Afghanistan, Badakhshan, left bank of Pyandj River, 16 km above Kalai-Barpandzhokala village, near Shekhron village, in shrubby vegetation among small fields, 37°23.42'N, 71°28.43'E, 2140 m, 7 Aug 2013, M.G. Pimenov, E.V. Kljuykov & U.A. Ukrainskaya s.n. (MW); Tajikistan, Khatlon prov., Muminobod distr., N Kuljab, Tole, near Kiptschak village, 38°05'N, 70°00'E, 1000 m, 17 Aug 2011, E.V. Kljuykov, E.A. Zakharova & U.A. Ukrainskaya s.n. (MW). [Fig. 4F]

The chromosome numbers of this species were previously counted more than fifty times, the chromosome numbers reported were always  $n = 9$  ( $2n = 18$ ) (Pimenov & al., 2002); the previous report from Afghanistan was also  $2n = 18$  (Podlech & Dieterle, 1969); the material from Tajikistan is investigated here for the first time.

*Elaeosticta alaica* (Lipsky) Kljuykov & al.

$2n = 22$ , CHN. Tajikistan, Dushanbe prov., Karategin Ridge, basin of Komarou River, lower reaches, 39°09.19'N, 70°18.42'E, 1500–1600 m, 2 Aug 2012, M.G. Pimenov, E.V. Kljuykov & U.A. Ukrainskaya s.n. (MW). [Fig. 4K]

Two chromosome number reports for this species were published from Kyrgyzstan ( $2n = 22$ ; Kljuykov, 1978; Vasil'eva & al., 1991); material from Tajikistan is investigated here for the first time.

*Elaeosticta allioides* (Regel & Schmalh.) Kljuykov & al.

$2n = 20$ , CHN. Tajikistan, Kūhistani Badakhshan, Darwaz Ridge, valley of fl. Obi-Chingou, supra Tavildara, road to Khaburabad pass, Saed village, 38°46.64'N, 70°38.80'E, 1770 m, 30 Jul 2013, M.G. Pimenov, E.V. Kljuykov & U.A. Ukrainskaya s.n. (MW); Tajikistan, Khatlon prov., Muminobod distr., N Kuljab, Tole, near Kiptschak village, 38°05'N, 70°00'E, 1000 m, 17 Aug 2011, E.V. Kljuykov, E.A. Zakharova & U.A. Ukrainskaya s.n. (MW). [Fig. 4I]

The same chromosome number was reported for this species from Kazakhstan, Uzbekistan, Tajikistan and Turkmenistan (Kljuykov, 1978; Vasil'eva & al., 1981).

*Elaeosticta bucharica* (Korovin) Kljuykov & al.

$2n = 22$ , CHN. Tajikistan, Khatlon prov., vicinity of former village of Bog, valley of Shpiljau River, red sandstones, 37°34.33'N, 70°38.80'E, 720 m, 25 Jul 2013, M.G. Pimenov, E.V. Kljuykov & U.A. Ukrainskaya s.n. (MW). [Fig. 4J]

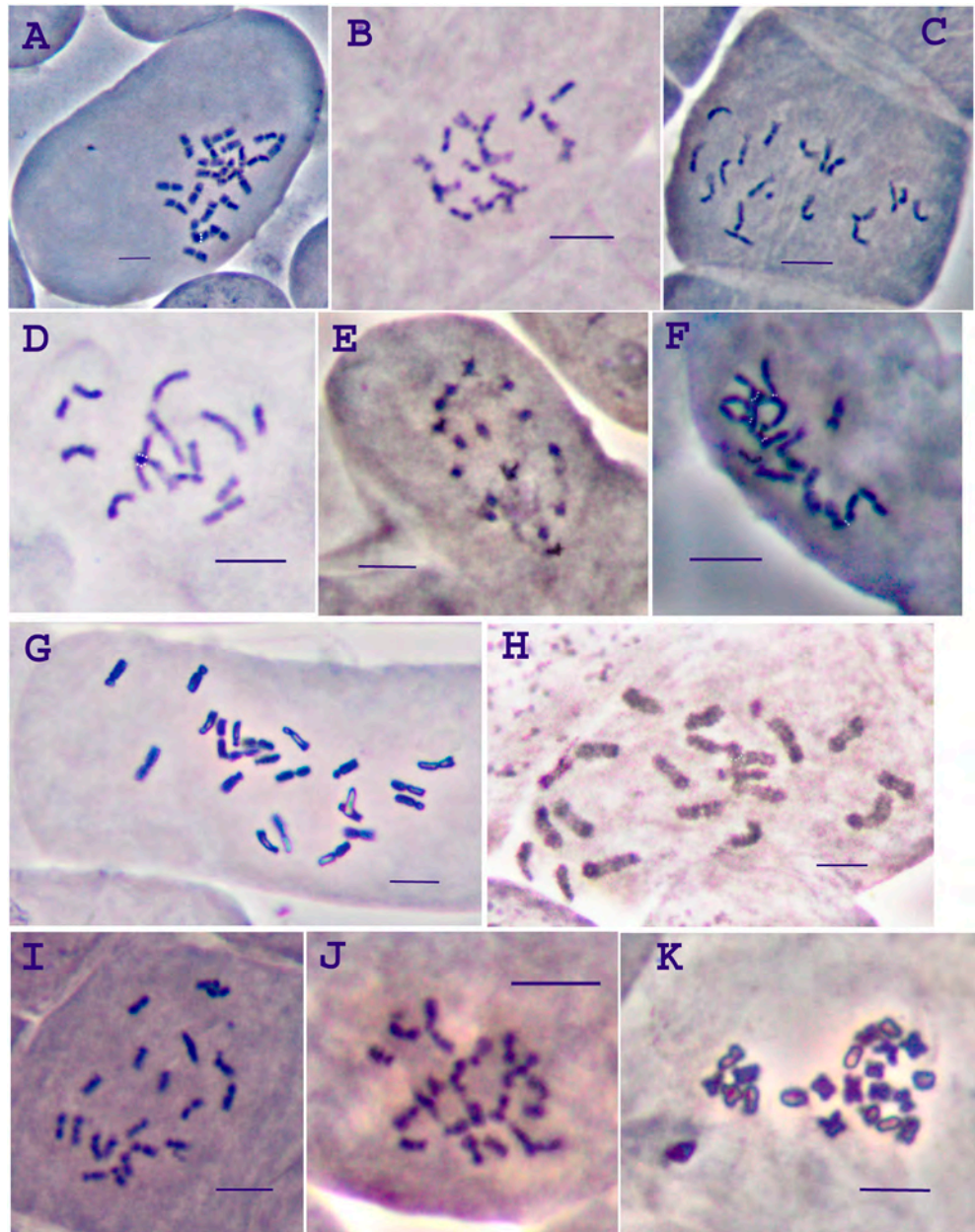
This chromosome number report confirms two previous ones (Kljuykov, 1978).

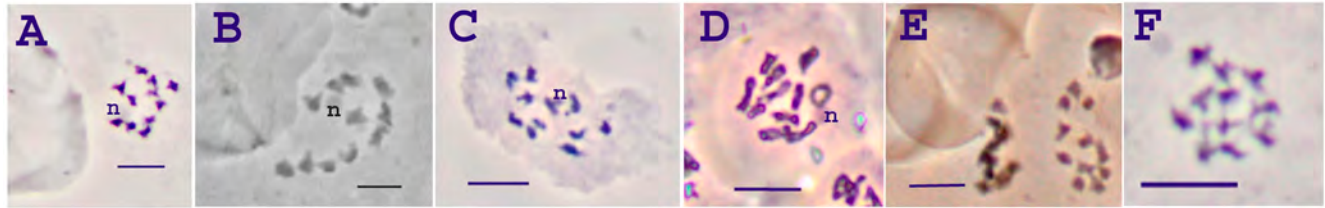
*Elaeosticta hirtula* (Regel & Schmalh.) Kljuykov & al.

$2n = 20$ , CHN. Tajikistan, Khatlon prov., Dashtijum distr., vicinity of Kala-i Kunja ruins, 38°00.27'N, 70°15.83'E, 2000 m, 11 Aug 2012, M.G. Pimenov, E.V. Kljuykov & U.A. Ukrainskaya s.n. (MW); Tajikistan, Kūhistani Badakhshan, W slope of Ishkashim Ridge,

**Fig. 4.** Mitotic chromosomes:

- A**, *Angelica komarovii*,  $2n = 22$ ;  
**B**, *Anthriscus glacialis*,  $2n = 18$ ;  
**C**, *Aulacospermum ikonnikovii*,  $2n = 18$ ;  
**D**, *Bupleurum aitchisonii*,  $2n = 14$ ;  
**E**, *Bupleurum lipskianum*,  $2n = 16$ ;  
**F**, *Daucus carota*,  $2n = 18$ ;  
**G**, *Cephalopodium badachschanicum*,  $2n = 22$ ;  
**H**, *Elaeosticta hirtula*,  $2n = 20$ ;  
**I**, *Elaeosticta allioides*,  $2n = 20$ ;  
**J**, *Elaeosticta bucharica*,  $2n = 22$ ;  
**K**, *Elaeosticta alaica*,  $2n = 22$ . —  
 Scale bars = 5  $\mu$ m.





**Fig. 5.** Meiotic chromosomes: **A**, *Conioselinum tataricum*,  $n = 11$ ; **B**, *Ferula gigantea*,  $n = 11$ ; **C**, *Galagania gracilis*,  $n = 11$ ; **D**, *Paraligusticum discolor*,  $n = 11$ ; **E**, *Seseli afghanicum*,  $n = 11$ ; **F**, *Seseli schrenkianum*,  $n = 11$ . — Scale bars = 10  $\mu\text{m}$ ;  $n$  = nucleolus.

bank of Daraibidgunt River, 37°18' N, 71°33' E, 2500 m, 4 Aug 2011, E.V. Kljuykov, E.A. Zakharova & U.A. Ukrainskaya s.n. (MW). [Fig. 4H]

This species was previously studied from different localities in the Middle Asia, and two cytotypes were reported—diploid with  $2n = 20$  from Tajikistan and Uzbekistan and tetraploid with  $2n = 40$  from Tajikistan and Kyrgyzstan (Kljuykov, 1978; Vasil'eva & al., 1991, 1993; Shner & al., 2012).

*Elaeosticta polycarpa* (Korovin) Kljuykov & al.

$2n = 22$ , CHN. Tajikistan, Khatlon prov., Muminobod distr., N Kuljab, Tole, near Kiptschak village, 38°05' N, 70°00' E, 1000 m, 17 Aug 2011, E.V. Kljuykov, E.A. Zakharova & U.A. Ukrainskaya s.n. (MW); Tajikistan, Khatlon prov., vicinity of Gulistan (Dzhilga), 37°40' N, 69°52' E, 25 Jul 2013, M.G. Pimenov, E.V. Kljuykov & U.A. Ukrainskaya s.n. (MW). [Fig. 6A]

This is the second chromosome number report for this species; the previous one ( $2n = 22$ ) was also published from Tajikistan (Kljuykov, 1978).

*Elwendia badachschanica* (Kamelin) Pimenov & Kljuykov  
(= *Bunium badachschanicum* Kamelin)

$2n = 22$ , CHN. Tajikistan, Kūhistani Badakhshan, Shugnan distr., N slope of Shugnan Ridge, valley of Gunt River, near Vog village, 37°43' N, 71°57' E, 31 Jul 2011, E.V. Kljuykov, E.A. Zakharova & U.A. Ukrainskaya 7 (MW). [Fig. 6B]

This is the second chromosome number report for this species; the previous one ( $2n = 22$ ) was also published from Tajikistan (Vasil'eva & al., 1985)

*Elwendia persica* (Boiss.) Pimenov & Kljuykov  
(= *Bunium persicum* (Boiss.) B.Fedtsch.)

$2n = 14$ , CHN. Tajikistan, Kūhistani Badakhshan, Ishkashim distr., W slope of Ishkashim Ridge, valley of Dargauheuz, 37°03' N, 71°34' E, 5 Aug 2011, E.V. Kljuykov, E.A. Zakharova & U.A. Ukrainskaya s.n. (MW). [Fig. 6C]

All previous reports (all with  $2n = 14$ ) for the species from India, Iran, Tajikistan and Kyrgyzstan (Koul & Hamal, 1979; Ahmad & Koul, 1980; Vasil'eva & al., 1985; Sheidai & al., 1996; Nagari & al., 1997; Chahota & al., 2011) showed an absence of chromosome number variation within this species of important economic value.

*Ferula gigantea* B.Fedtsch.

$n = 11$ , CHN. Tajikistan, Khatlon prov., Dashtijum distr., vicinity of Kala-i Kunja ruins, pasture Bido, 38°00.27' N, 70°15.83' E, 2070 m, 11 Aug 2012, M.G. Pimenov, E.V. Kljuykov & U.A. Ukrainskaya 28 (MW). [Fig. 5B]

$2n = 22$ , CHN. Afghanistan, Badakhshan, left bank of Pyandj River, 16 km above Kalai-Barpandzhokala village, near Shekhron village, in shrubby vegetation among small fields, 37°23.42' N, 71°28.43' E, 2140 m, 7 Aug 2013, M.G. Pimenov, E.V. Kljuykov & U.A. Ukrainskaya 79 (MW); Tajikistan, Khatlon prov., Dashtijum

distr., vicinity of Kala-i Kunja ruins, 38°00.27' N, 70°15.83' E, 2000 m, 12 Aug 2012, M.G. Pimenov, E.V. Kljuykov & U.A. Ukrainskaya 28 (MW); Tajikistan, Kūhistani Badakhshan, right bank of Pyandj River, above of Khorog, near Nishups village, 37°19' N, 71°30' E, 5 Aug 2011, E.V. Kljuykov, E.A. Zakharova & U.A. Ukrainskaya s.n. (MW); Tajikistan, Khatlon prov., Muminobod distr., N Kuljab, Tole, near Kiptschak village, 38°05' N, 70°00' E, 1000 m, 17 Aug 2011, E.V. Kljuykov, E.A. Zakharova & U.A. Ukrainskaya s.n. (MW). [Fig. 6D]

Material from Afghanistan is investigated here for the first time.

*Ferula grigorievii* B.Fedtsch.

$2n = 22$ , CHN. Tajikistan, Kūhistani Badakhshan, valley of Gunt River, near Kolkhozabad village, 37°34' N, 71°45' E, 13 Aug 2013, M.G. Pimenov, E.V. Kljuykov & U.A. Ukrainskaya s.n. (MW); Tajikistan, Kūhistani Badakhshan, Khorog Botanical Garden, stony slope, 37°29' N, 71°36' E, 2500 m, 31 Jul 2011, E.V. Kljuykov, E.A. Zakharova & U.A. Ukrainskaya 2 (MW). [Fig. 6E]

This is the second chromosome number report for this species; the previous one ( $2n = 22$ ) was also published from Tajikistan (Daushkevich & al., 1995).

\* *Ferula hissarica* Pimenov & Kljuykov

$2n = 22$ , CHN. Tajikistan, Dushanbe prov., Hissar Ridge, valley of Varsob River, supra Varsob village, 38°46' N, 68°49' E, 1200 m, 31 Jul 2012, M.G. Pimenov, E.V. Kljuykov & U.A. Ukrainskaya s.n. (MW). [Fig. 6F]

This is the first chromosome number report for this recently described species (Pimenov & Kljuykov, 2014).

*Ferula karategina* Lipsky

$n = 11$ ;  $2n = 22$ , CHN. Tajikistan, Dushanbe prov., Karategin Ridge, basin of Komarou River, canyon of Darai-Tanchak, 39°09.19' N, 70°18.42' E, 1950 m, 4 Aug 2012, M.G. Pimenov, E.V. Kljuykov & U.A. Ukrainskaya 13 (MW). [Fig. 6G]

This is the second chromosome number report for this species; the previous one ( $2n = 22$ ) was also published from Tajikistan (Vasil'eva & Pimenov, 1985).

*Ferula kokanica* Regel & Schmalh.

$2n = 22$ , CHN. Tajikistan, Kūhistani Badakhshan, Khorog Botanical Garden, stony slope, 37°29' N, 71°36' E, 2500 m, 31 Jul 2011, E.V. Kljuykov, E.A. Zakharova & U.A. Ukrainskaya s.n. (MW); Tajikistan, Dushanbe prov., Hissar Ridge, basin of Varzob River, Sioma River, 38°55.22' N, 68°48.21' E, 1900 m, 31 Jul 2012, M.G. Pimenov, E.V. Kljuykov & U.A. Ukrainskaya 1 (MW); Tajikistan, Dushanbe prov., Alai Ridge, S slope, valley Yarkhych River, pasture Dashtiniron, 39°20.72' N, 70°37.29' E, 1970 m, 6 Aug 2012, M.G. Pimenov, E.V. Kljuykov & U.A. Ukrainskaya s.n. (MW); Tajikistan, Khatlon prov., Dashtijum distr., vicinity of Kala-i Kunja ruins, pasture Bido, 38°00.27' N, 70°15.83' E, 2060 m, 11 Aug 2012, M.G. Pimenov, E.V. Kljuykov & U.A. Ukrainskaya 27 (MW). [Fig. 6H]



*Ferula koso-poljanskyi* Korovin

$2n = 22$ , CHN. Tajikistan, Kūhistani Badakhshan, S slope Darvaz Ridge, above Kalai-Khumb, Obikharak River, 38°34'N, 70°47'E, 15 Aug 2011, E.V. Kljuykov, E.A. Zakharova & U.A. Ukrainskaya s.n. (MW); Tajikistan, Khatlon prov., Dashtijum distr., vicinity of Kala-i Kunja ruins, 38°00.27'N, 70°15.83'E, 2070 m, 12 Aug 2012, M.G. Pimenov, E.V. Kljuykov & U.A. Ukrainskaya 35 (MW). [Fig. 6J]

This is the second chromosome number report for this species; the previous one ( $2n = 22$ ) was also published from Tajikistan (Vasil'eva & al., 1981).

*Ferula kuhistanica* Korovin

$2n = 22$ , CHN. Tajikistan, Kūhistani Badakhshan, bank of Pyandj River, W slope of Yazgulem Ridge, above Yazgulem River, 38°11'N, 71°23'E, 15 Aug 2011, E.V. Kljuykov, E.A. Zakharova & U.A. Ukrainskaya s.n. (MW); Tajikistan, Dushanbe prov., Hissar Ridge, valley of Varsob River, supra Varsob village, 38°46'N, 68°49'E, 1200 m, 31 Jul 2012, M.G. Pimenov, E.V. Kljuykov & U.A. Ukrainskaya s.n. (MW). [Fig. 6I]

Two chromosome number reports from Kyrgyzstan and Uzbekistan were published with  $2n = 22$  (Retina & Pimenov, 1977; Solov'eva & al., 1982); material from Tajikistan is investigated here for the first time.

*Galagania ferganensis* (Korovin) M.Vassiljeva & Pimenov

$2n = 22$ , CHN. Tajikistan, Dushanbe prov., Karategin Ridge, basin of Komarou River, lower reaches, 39°09.19'N, 70°18.42'E, 1500–1600 m, 2 Aug 2012, M.G. Pimenov, E.V. Kljuykov & U.A. Ukrainskaya 4 (MW). [Fig. 6K]

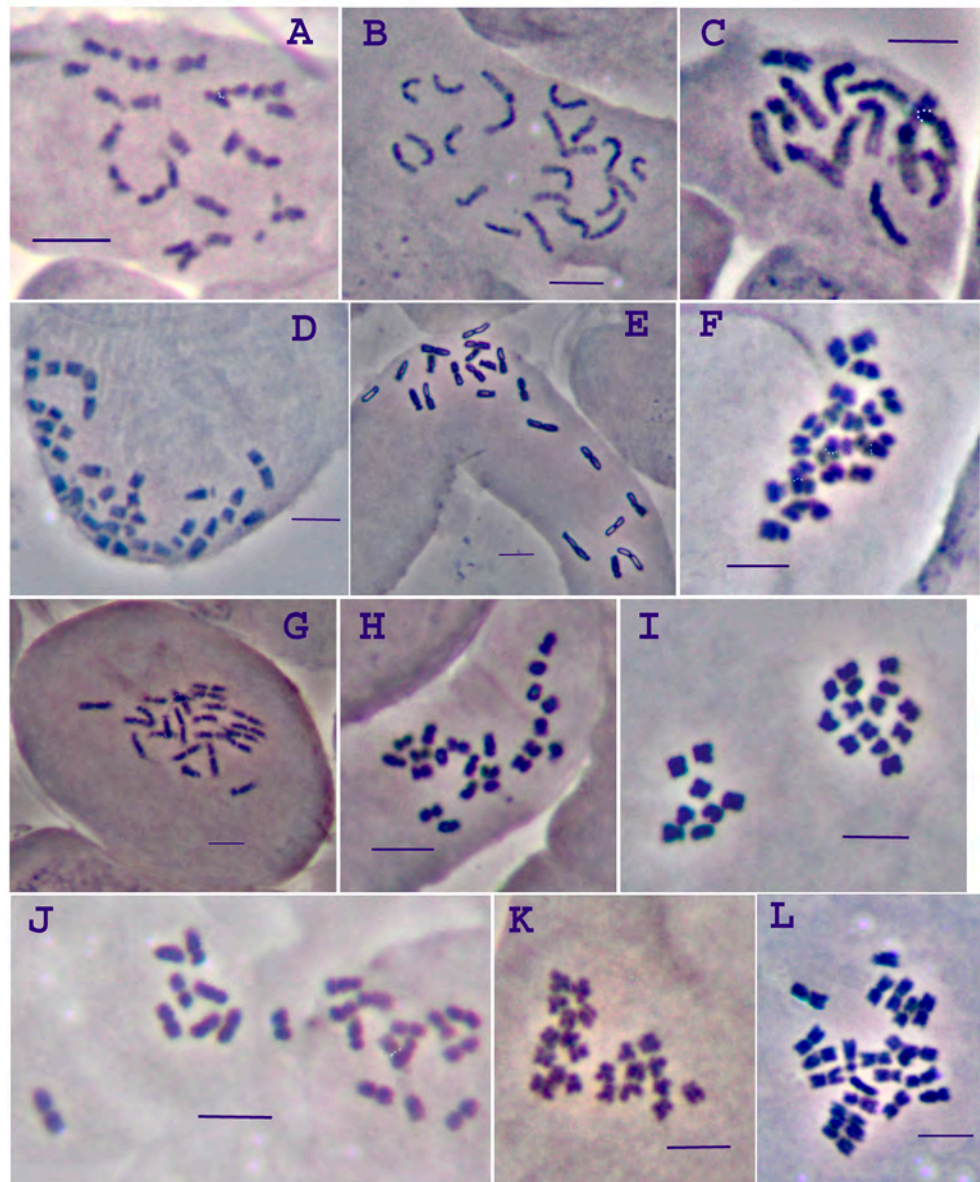
New chromosome number report corresponds with four previous ones ( $2n = 22$ , or  $n = 11$ ) from Tajikistan and Kyrgyzstan (Vasil'eva & al., 1981, 1991; Pimenov & al., 1998).

*Galagania fragrantissima* Lipsky

$2n = 22$ , CHN. Tajikistan, Khatlon prov., vicinity of former village of Bog, valley of Shpiljau River, red sandstones, 37°34.33'N, 70°38.80'E, 720 m, 25 Jul 2013, M.G. Pimenov, E.V. Kljuykov & U.A. Ukrainskaya s.n. (MW). [Fig. 7A]

**Fig. 6.** Mitotic chromosomes:

- A**, *Elaeosticta polycarpa*,  $2n = 22$ ;  
**B**, *Elwendia badachschanica*,  $2n = 22$ ;  
**C**, *Elwendia persica*,  $2n = 14$ ;  
**D**, *Ferula gigantea*,  $2n = 22$ ;  
**E**, *Ferula grigorievii*,  $2n = 22$ ;  
**F**, *Ferula hissarica*,  $2n = 22$ ;  
**G**, *Ferula karategina*,  $2n = 22$ ;  
**H**, *Ferula kokanica*,  $2n = 22$ ;  
**I**, *Ferula kuhistanica*,  $2n = 22$ ;  
**J**, *Ferula koso-poljanskyi*,  $2n = 22$ ;  
**K**, *Galagania ferganensis*,  $2n = 22$ ;  
**L**, *Paulita ovczinnikovii*,  $2n = 22$ . —  
 Scale bars = 5  $\mu$ m.



Earlier the chromosome numbers for the species were determined twice from Tajikistan and Uzbekistan (Retina & Pimenov, 1977; Vasil'eva & al., 1981), showing stability in chromosome number of this widely distributed species ( $2n = 22$ ).

*Galagania gracilis* (Kamelin & Pimenov) Kamelin & Pimenov  
 $n = 11$ , CHN. Tajikistan, Dushanbe prov., valley of Obichingou River, lower reaches, vicinity of village of Nurynch, 38°50.74'N, 70°08.85'E, 1460 m, 29 Jul 2013, M.G. Pimenov, E.V. Kljuykov & U.A. Ukrainskaya 31 (MW). [Fig. 5C]

There were two previous chromosome number reports for this species from Tajikistan (Vasil'eva & al., 1981, 1993). In general, all species of *Galagania* Lipsky, studied up to present time, have  $2n = 22$  or  $n = 11$ .

*Heracleum lehmannianum* Bunge

$2n = 22$ , CHN. Afghanistan, Badakhshan, route between Kalai Barpandzhokala and Gardzhwin pass, near Andez village, pebbles along the stream, 37°30.45'N, 71°28.63'E, 2300 m, 5 Aug 2013, M.G. Pimenov, E.V. Kljuykov & U.A. Ukrainskaya 55 (MW). [Fig. 7D]

Material from Afghanistan is investigated here for the first time, the report corresponds to the previous reports ( $2n = 22$ ) from Tajikistan and Uzbekistan (Pimenov & al., 2002; Shner & al., 2012). The species has been reported for Afghan flora only recently (Pimenov & al., 2014); *H. afghanicum* Kitam. is regarded as its synonym.

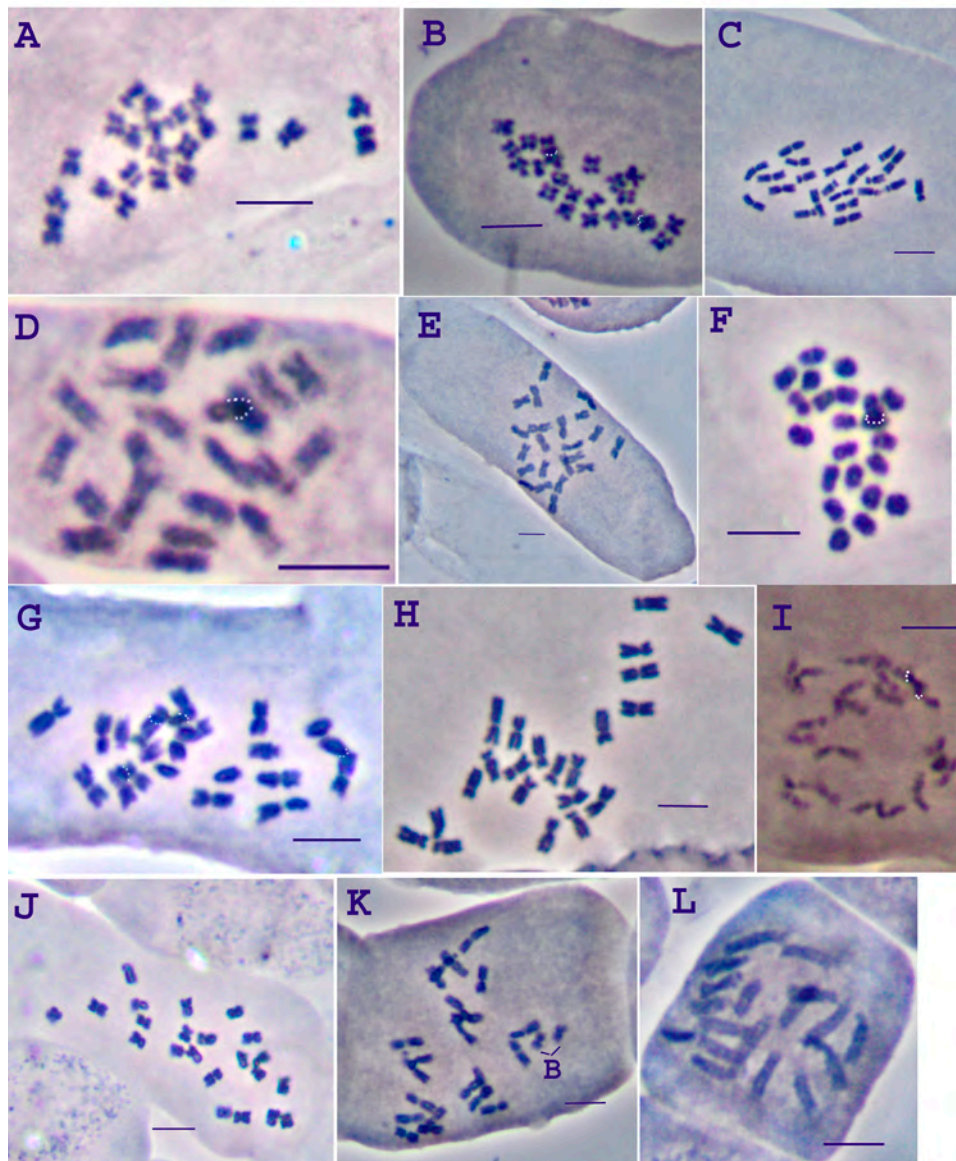
*Hymenolaena badachschanica* Pissjauk.

$2n = 22$ , CHN. Tajikistan, Kūhistani Badakhshan, Shugnan distr., Rushan Ridge, Koi-Tesek pass., 37°29'N, 72°44'E, 2 Aug 2011, E.V. Kljuykov, E.A. Zakharova & U.A. Ukrainskaya 21 (MW). [Fig. 7B]

This is the second chromosome number report for this species and the first one for the plants from nature; the previous one ( $2n = 22$ ) was published for cultivated plants (Vasil'eva & al., 1981).

*Kafirignania hissarica* (Korovin) Kamelin & Kinzik.

$2n = 22$ , CHN. Tajikistan, Dushanbe prov., Hissar Ridge, S slope, valley fl. Sarda-i Miona, 38°49'N, 69°15'E, 16 Aug 2012, E.V. Kljuykov & U.A. Ukrainskaya 39 (MW). [Fig. 7C]



**Fig. 7.** Mitotic chromosomes:

- A**, *Galagania fragrantissima*,  $2n = 22$ ;  
**B**, *Hymenolaena badachschanica*,  $2n = 22$ ;  
**C**, *Kafirignania hissarica*,  $2n = 22$ ;  
**D**, *Heracleum lehmannianum*,  $2n = 22$ ;  
**E**, *Lomatocarpa afghanica*,  $2n = 22$ ;  
**F**, *Parasilau asiaticus*,  $2n = 22$ ;  
**G**, *Ladyginia bucharica*,  $2n = 22$ ;  
**H**, *Mediasia macrophylla*,  $2n = 22$ ;  
**I**, *Myrrhoides nodosa*,  $2n = 22$ ;  
**J**, *Paraligusticum discolor*,  $2n = 22$ ;  
**K**, *Paraligusticum discolor*,  $2n = 22 + 2B$ ;  
**L**, *Pimpinella peregrina*,  $2n = 18$ . —  
Scale bars = 5  $\mu$ m; B = B-chromosomes.

This is the second chromosome number report for this species; the previous one ( $2n = 22$ ) was also published from Tajikistan (Solov'eva & al., 1985).

*Ladyginia bucharica* Lipsky

$2n = 22$ , CHN. Tajikistan, Dushanbe prov., valley Surkhob River, near Ragun, 38°48'N, 69°53'E, 2 Aug 2012, M.G. Pimenov, E.V. Kljuykov & U.A. Ukrainskaya s.n. (MW). [Fig. 7G]

This is the second chromosome number report for this species and the first one for the plants from nature; the previous one ( $n = 11$ ) was published for cultivated plants (Constance & al., 1976).

*Lomatocarpa afghanica* (Rech.f.) Pimenov

$2n = 22$ , CHN. Tajikistan, Kūhistani Badakhshan, Shugnan distr., Rushan Ridge, Turum-Taikul Lake, 37°29'N, 72°31'E, 13 Aug 2011, E.V. Kljuykov, E.A. Zakharova & U.A. Ukrainskaya s.n. (MW). [Fig. 7E]

This is the second chromosome number report for this species; the previous one ( $n = 11$ ) was published under the name *Lomatocarpa steineri* Podlech from Tajikistan (Vasil'eva & al., 1991).

*Mediasia macrophylla* (Regel & Schmalh.) Pimenov

$2n = 22$ , CHN. Tajikistan, Kūhistani Badakhshan, S slope Darvaz Ridge, above Kalai-Khumb, Obikharak River, 38°34'N, 70°47'E, 15 Aug 2011, E.V. Kljuykov, E.A. Zakharova & U.A. Ukrainskaya s.n. (MW). [Fig. 7H]

This is the second chromosome number report for this species and the first one from Tajikistan; the previous one ( $2n = 22$ ) was published from Uzbekistan (Vasil'eva & al., 1984).

*Myrrhoides nodosa* (L.) Cannon

$2n = 22$ , CHN. Tajikistan, Dushanbe prov., Hissar Ridge, valley of Varsob River, supra Varsob village, 38°46'N, 68°49'E, 1200 m, 31 Jul 2012, M.G. Pimenov, E.V. Kljuykov & U.A. Ukrainskaya s.n. (MW). [Fig. 7I]

This species was previously studied at least 11 times, the chromosome number reported was  $n = 11$  ( $2n = 22$ ) (Pimenov & al., 2002; Shner & al., 2012); material from Tajikistan is investigated here for the first time.

*Paraligusticum discolor* (Ledeb.) V.N.Tikhom.

$n = 11$ ;  $2n = 22$ , CHN. Tajikistan, Dushanbe prov., Karategin Ridge, basin of Komarou River, canyon of Darai-Tanchak, 39°09.19'N, 70°18.42'E, 1910 m, 4 Aug 2012, M.G. Pimenov, E.V. Kljuykov & U.A. Ukrainskaya 12 (MW). [Fig. 5D]

$2n = 22$ ,  $22+2B$ , CHN. Tajikistan, Dushanbe prov., Alai Ridge, S slope, valley Yarkhych River, pasture Dashti-Niron, 39°20.72'N, 70°37.29'E, 1970 m, 6 Aug 2012, M.G. Pimenov, E.V. Kljuykov & U.A. Ukrainskaya s.n. (MW). [Fig. 7J, K]

This is the second chromosome number report for this species and the first one from Tajikistan; the previous one ( $2n = 22$ ) was published from Kazakhstan (Retina & Pimenov, 1977). B chromosomes were found for the first time for this species.

*Parasilaus asiaticus* (Korovin) Pimenov

$2n = 22$ , CHN. Tajikistan, Khatlon prov., Dashtijum distr., vicinity of Kala-i Kunja ruins, pasture Bido, 38°00.27'N, 70°15.83'E, 2060 m, 12 Aug 2012, M.G. Pimenov, E.V. Kljuykov & U.A. Ukrainskaya s.n. (MW) [Fig. 7F]; Tajikistan, Khatlon prov., Shuroabad distr., vicinity of Safadob-bolo village, scree of conglomerates, 37°51.37'N, 70°05.32'E, 2260 m, 27 Jul 2013, M.G. Pimenov, E.V. Kljuykov & U.A. Ukrainskaya 26 (MW).

Two previous chromosome number reports for this species from Afghanistan and Tajikistan also showed  $2n = 22$  (Leute & Speta, 1972; Vasil'eva & al., 1981).

*Paulita ovczinnikovii* (Korovin) Sojak

$2n = 22$ , CHN. Tajikistan, Dushanbe prov., Karategin Ridge, basin of Komarou River, canyon of Darai-Tanchak, 39°09.19'N, 70°18.42'E, 1910 m, 4 Aug 2012, M.G. Pimenov, E.V. Kljuykov & U.A. Ukrainskaya 6 (MW). [Fig. 6L]

This is the second chromosome number report for this species, endemic to Tajikistan and S Uzbekistan; the previous one ( $2n = 22$ ) was also published from Tajikistan (Vasil'eva & al., 1984).

*Pimpinella peregrina* L.

$2n = 18$ , CHN. Tajikistan, Khatlon prov., Muminobod distr., N Kuljab, Tole, near Kiptschak village, 38°05'N, 70°00'E, 1000 m, 17 Aug 2011, E.V. Kljuykov, E.A. Zakharova & U.A. Ukrainskaya s.n. (MW). [Fig. 7L]

This species was previously studied at least 16 times from different parts of its distribution area (from South Europe to Afghanistan), the chromosome numbers reported were  $2n = 16$ , 18, 20 (Pimenov & al., 2002); material from Tajikistan is investigated here for the first time.

*Prangos pabularia* Lindl.

$2n = 22$ , CHN. Tajikistan, Dushanbe prov., Karategin Ridge, basin of Komarou River, canyon of Darai-Tanchak, 39°09.19'N, 70°18.42'E, 1500–1600 m, 2 Aug 2012, M.G. Pimenov, E.V. Kljuykov & U.A. Ukrainskaya s.n. (MW). [Fig. 8A]

This report corresponds with the most previous ones, while the earliest report from Afghanistan of  $2n = 36$  (Podlech & Dieterle, 1969) was not confirmed by other authors.

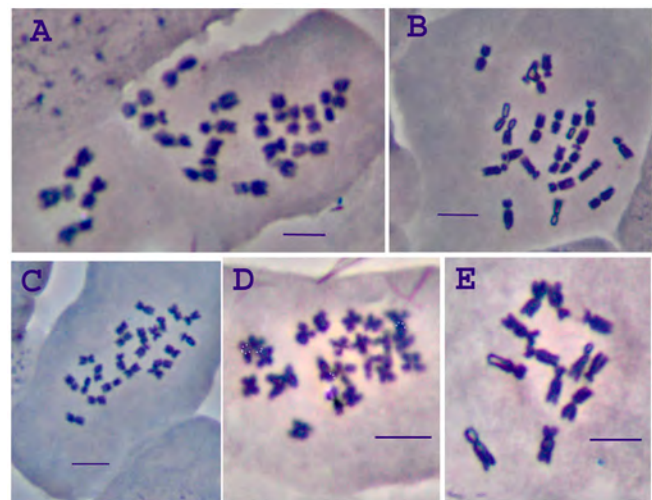
\**Seseli afghanicum* (Podlech) Pimenov

$n = 11$ , CHN. Afghanistan, Badakhshan, valley of the Pyandj River, Zuvardara rivulet near the mouth, stony slope, 37°08.89'N, 71°26.36'E, 2330 m, 8 Aug 2013, M.G. Pimenov, E.V. Kljuykov & U.A. Ukrainskaya 81 (MW).

$n = 11$ ,  $2n = 22$ , CHN. Tajikistan, Kūhistani Badakhshan, Ishkashim distr., W slope of Ishkashim Ridge, above Bolo villadge, bank of Dargauheus River, 37°03'N, 71°34'E, 5 Aug 2011, E.V. Kljuykov, E.A. Zakharova & U.A. Ukrainskaya 32 (MW). [Fig. 5E]

$2n = 22$ , CHN. Tajikistan, Kūhistani Badakhshan, Ishkashim distr., W slope of Ishkashim Ridge, Tschurg River, 37°11'N, 71°33'E, 5 Aug 2011, E.V. Kljuykov, E.A. Zakharova & U.A. Ukrainskaya 27 (MW). [Fig. 8B]

This is the first chromosome number report for the species.



**Fig. 8.** Mitotic chromosomes: **A**, *Prangos pabularia*,  $2n = 22$ ; **B**, *Seseli afghanicum*,  $2n = 22$ ; **C**, *Seseli mucronatum*,  $2n = 22$ ; **D**, *Tetrataenium olgae*,  $2n = 22$ ; **E**, *Torilis arvensis*,  $2n = 12$ . — Scale bars = 5  $\mu$ m.

*Seseli mucronatum* (Schrenk) Pimenov & Sdobnina  
 $2n = 22$ , CHN. Tajikistan, Kūhistani Badakhshan, Roshkala distr., right bank of Shahdara River, between Zirdbut and Shoshbuwad villages, 37°20'N, 72°16'E, 12 Aug 2011, E.V. Kljuykov, E.A. Zakharova & U.A. Ukrainskaya 42 (MW). [Fig. 8C]

This is the first chromosome number report for the species from Tajikistan and it corresponds to previous reports from Kyrgyzstan and India ( $n = 11$ ,  $2n = 22$ ) (Pimenov & al., 2002), the polyploid/aneuploid cytotypes ( $2n = 32$ , 132) were found in Kyrgyzstan (Retina & al., 1977).

*Seseli schrenkianum* (C.A.Mey. ex Schischk.) Pimenov & Sdobnina  
 $n = 11$ , CHN. Tajikistan, Dushanbe prov., Alai Ridge, S slope, valley Yarkhych River, Ausafet River, 39°20.72'N, 70°37.29'E, 2060 m, 7 Aug 2012, M.G. Pimenov, E.V. Kljuykov & U.A. Ukrainskaya 20 (MW). [Fig. 5F]

This is the first chromosome number report for this species from Tajikistan and it corresponds to previous ones from Kazakhstan and Kyrgyzstan (Pimenov & Vasil'eva, 1983; Pimenov & al., 1998; Shner & al., 2014).

*Tetrataenium olgae* (Regel & Schmalh.) Manden.  
 $2n = 22$ , CHN. Tajikistan, Kūhistani Badakhshan, Ishkashim distr., W slope of Ishkashim Ridge, above Bolo village, bank of Dargauheus River, 37°03'N, 71°34'E, 5 Aug 2011, E.V. Kljuykov, E.A. Zakharova & U.A. Ukrainskaya s.n. (MW); Afghanistan, Badakhshan, Pyandj Valley, near the mouth of Zuvardara, on pebbles along the rivulet, 37°08.89'N, 71°26.36'E, 2330 m, 7 Aug 2013, M.G. Pimenov, E.V. Kljuykov & U.A. Ukrainskaya 82 (MW). [Fig. 8D]

This is the second chromosome number report for this species; the previous one ( $2n = 22$ ) was also published from Tajikistan (Vasil'eva & al., 1991). The material from Afghanistan is investigated here for the first time.

*Torilis arvensis* (Huds.) Link  
 $2n = 12$ , CHN. Tajikistan, Kūhistani Badakhshan, valley of Piandj River, near Viskharv village, 38°28.56'N, 71°00.48'E, 2250 m, 31 Jul 2013, M.G. Pimenov, E.V. Kljuykov & U.A. Ukrainskaya s.n. (MW). [Fig. 8E]

This species was previously studied at least 30 times, the chromosome numbers reported were  $n = 6$  ( $2n = 12$ ) (Pimenov & al., 2002); the material from Tajikistan is investigated here for the first time.

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