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All materials CHN; vouchers in EAN (Herbário Prof. Jayme Coelho de Moraes).

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BIGNONIACEAE

Tribe Bignonieae

Adenocalymma imperatoris-maximilianii (Wawra) L.G.Lohmann, 2*n* = 40; Brazil, Paraíba, *J.M.P. Cordeiro 143.*
Amphilophium bauhinioides (Bureau ex Baill.) L.G.Lohmann, 2*n* = 40; Brazil, Espírito Santo, *J.M.P. Cordeiro 1015.*
Amphilophium crucigerum (L.) L.G.Lohmann, 2*n* = 40; Brazil, Paraíba, *J.M.P. Cordeiro 144.*
Amphilophium elongatum (Vahl) L.G.Lohmann, 2*n* = 40; Brazil, Goiás, *J.M.P. Cordeiro 861.*
Anemopaegma laeve DC., 2*n* = 40; Brazil, Pernambuco, *J.M.P. Cordeiro 375.*
Cuspidaria bracteata (Baill. ex Bureau & K.Schum.) L.G.Lohmann, 2*n* = 40; Brazil, Sergipe, *J.M.P. Cordeiro 505.*
Dolichandra quadrivalvis (Jacq.) L.G.Lohmann, 2*n* = 40; Brazil, Paraíba, *J.M.P. Cordeiro 118.*
Dolichandra unguis-cati (L.) L.G. Lohmann, 2*n* = 80; Brazil, Paraíba, *J.M.P. Cordeiro 362B.*
Fridericia conjugata (Vell.) L.G.Lohmann, 2*n* = 40; Brazil, Paraíba, *J.M.P. Cordeiro 453.*
Fridericia dichotoma (Jacq.) L.G.Lohmann, 2*n* = 40; Brazil, Paraíba, *J.M.P. Cordeiro 164.*
Fridericia erubescens (DC.) L.G.Lohmann, 2*n* = 40; Brazil, Bahia, *L.P. Felix 14465.*
Fridericia platyphylla (Cham.) L.G.Lohmann, 2*n* = 40; Brazil, Bahia, *J.M.P. Cordeiro 189.*
Fridericia pubescens (L.) L.G.Lohmann, 2*n* = 40; Brazil, Paraíba, *J.M.P. Cordeiro 130.*
Lundia longa (Vell.) DC., 2*n* = 40; Brazil, Paraíba, *L.P. Felix 14511.*
Mansoa difficilis Bureau & K.Schum., 2*n* = 38; Brazil, Paraíba, *L.P. Felix 15029.*
Pyrostegia venusta Miers, 2*n* = 80; Brazil, Paraíba, *J.M.P. Cordeiro 160.*
Stizophyllum riparium (Kunth) Sandwith, 2*n* = 40; Brazil, Minas Gerais, *L.P. Felix 15403.*

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SOLANACEAE

Capsicum flexuosum Sendtn., 2*n* = 24; Argentina, Misiones province, *G.E. Barboza, F. Chiarini & E. Marini 1034* (CORD).

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All materials for the chromosome column should be submitted electronically to: Karol Marhold, 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.

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APIACEAE

Eryngium campestre L., 2*n* = 14; France, *AEK 15.*

ASTERACEAE

Dittrichia graveolens (L.) Greuter, 2*n* = 18; France, *AEK 255.*
Erigeron canadensis L., 2*n* = 18; France, *AEK 191.*
Inula conyzae (Griess.) Meikle, 2*n* = 32; France, *AEK 098.*
Senecio inaequidens DC., 2*n* = 40; France, *AEK 187.*

CARYOPHYLLACEAE

Silene vulgaris (Moench) Garcke, 2*n* = 24; France, *AEK 226.*
Spergula rupicola (Lebel) G.López, 2*n* = 36; France, *AEK 268.*

FABACEAE

Lathyrus japonicus subsp. *maritimus* (L.) P.W.Ball, 2*n* = 14; Russia, Northwestern Federal District, *AEK 1.*

HYPERICACEAE

Hypericum perforatum L., 2*n* = 32; France, *AEK 210.*

PAPAVERACEAE

Chelidonium majus L., 2*n* = 12; France, *AEK 4.*

POACEAE

Echinochloa crus-galli (L.) P.Beauv., 2*n* = 18; France, *AEK 233.*
Panicum miliaceum subsp. *ruderale* (Kitag.) Tzvelev, 2*n* = 36; France, *AEK. 40.*
Setaria pumila (Poir.) Roem. & Schult., 2*n* = 72; France, *AEK 196.*

RANUNCULACEAE

Aquilegia elegantula Greene, 2*n* = 14; U.S.A., Colorado, *AE 411.*
Aquilegia laramiensis A.Nelson, 2*n* = 14; U.S.A., Wyoming, *LH 1.*
Aquilegia oxysepala Trautv. & C.A.Mey., 2*n* = 14; Russia, Yakutiya Republic, *LN 18.*
Aquilegia parviflora Ledeb., 2*n* = 14; Russia, Magadanskaya Oblast', *S 1.*
Aquilegia sibirica Lam., 2*n* = 14; Mongolia, Selenginskii Aimak, *DS 112.*
Ranunculus repens L., 2*n* = 32; Mongolia, Selenginskii Aimak, *DS 113.*

SOLANACEAE

Solanum nigrum L., 2*n* = 72; France, *AEK 252.*

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ASTERACEAE

Artemisia argyi H.Lév. & Vaniot, 2*n* = 36; China, Province Tszilin', *VVK & MOB 2014-74a*, *VVK & MOB 2014-93a*. 2*n* = 43–46; China, Province Tszilin', *VVK & MOB 2014-74b*. 2*n* = 45; China, Province Tszilin', *VVK & MOB 2014-93b.*
Artemisia feddei H.Lév. & Vaniot, 2*n* = 16; China, Province Tszilin', *VVK & MOB 2014-73*; Russia, Primorskii Krai, *VVK & MOB 2014-70*, *VVK & MOB 2014-68*, *VVK & MOB 2014-69.*
Artemisia integrifolia L., 2*n* = 36; Russia, Primorskii Krai, *VVK & E.V. Vorzhosek 2014-99.*
Artemisia keiskeana Miq., 2*n* = 18; Russia, Primorskii Krai, *VVK & MOB 2014-44*, *VVK & MOB 2014-45.*
Artemisia laciniata Willd., 2*n* = 18; Russia, Primorskii Krai, *VVK & MOB 2014-51*, *VVK & MOB 2014-52.*
Artemisia lagocephala Fisch. ex Besser, 2*n* = 18; Russia, Primorskii Krai, *VVK & MOB 2014-65*, *VVK & MOB 2014-66*, *VVK & MOB 2014-113.*
Artemisia littoricola Kitam., 2*n* = 36; Russia, Primorskii Krai, *VVK & MOB 2014-01*, *VVK & MOB 2014-33*, *VVK & MOB 2014-34.*
Artemisia manshurica (Kom.) Kom., 2*n* = 36; Russia, Primorskii Krai, *VVK 2014-43*, *VVK & MOB 2014-41*, *VVK & MOB 2014-42.*
Artemisia pannosa Krasch., 2*n* = 36; Russia, Primorskii Krai, *VVK & MOB 2014-38*, *VVK & MOB 2014-39*, *VVK & MOB 2014-40.*
Artemisia rubripes Nakai, 2*n* = 36; China, Province Tszilin', *VVK & MOB 2014-92*, *VVK & MOB 2014-93*; Russia, Primorskii Krai, *VVK & E.V. Vrzhosek 2014-90*, *VVK & P.A. Chebukin 2014-91.*
Artemisia sacrorum Ledeb., 2*n* = 54; Russia, Primorskii Krai, *VVK & MOB 2014-47*, *VVK & MOB 2014-46*, *VVK & MOB 2014-50*, *VVK 2013-25.*
Artemisia saitoana Kitam., 2*n* = 18; Russia, Primorskii Krai, *VVK & MOB 2014-83*, *VVK & MOB 2014-84*, *VVK & MOB 2014-85*, *VVK & MOB 2014-86*, *VVK & MOB 2014-87*, *VVK & MOB 2014-88.*
Artemisia scoparia Waldst. & Kit., 2*n* = 16; China, Province Tszilin', *VVK & MOB 2014-37*; Russia, Primorskii Krai, *VVK & P.A. Chebukin 2014-36*, *VVK & MOB 2014-110*, *VVK & MOB 2014-35.*
Artemisia selengensis Turcz. ex Besser, 2*n* = 36; Russia, Primorskii Krai, *VVK & MOB 2014-75*, *VVK & MOB 2014-76*, *VVK & MOB 2014-89.*
Artemisia sieversiana Ehrh. ex Willd., 2*n* = 18; Russia, Primorskii Krai, *VVK & P.A. Chebukin 2014-67.*
Artemisia stelleriana Besser, 2*n* = 18; Russia, Primorskii Krai, *VVK & MOB 2014-81*, *VVK & MOB 2014-82.*
Artemisia stolonifera (Maxim.) Kom., 2*n* = 36; Russia, Primorskii Krai, *VVK & MOB 2014-79 VVK & MOB 2014-80*, *VVK & MOB 2014-78*, *VVK & MOB 2014-77.*
Artemisia umbrosa Turcz. ex DC., 2*n* = 36; Russia, Primorskii Krai, *VVK & P.A. Chebukin 2014-96*, *VVK & E.V. Vorzhosek 2014-97*, *VVK& MOB 2016-98*. 2*n* = 54; China, Province Tszilin', *VVK & MOB 2014-94*, *VVK & MOB 2014-95.*
Dendranthema naktongense (Nakai) Tzvelev, 2*n* = ca. 45; Russia, Primorskii Krai, *VVK & MOB 2014-13a*. 2*n* = 48; Russia, Primorskii Krai, *VVK & MOB 2014-13b*. 2*n* = 54; Russia, Primorskii Krai, *VVK & MOB 2014-13c*.
Ptarmica alpina DC., 2*n* = 18; Russia, Primorskii Krai, *VVK & MOB 2014-15*, *VVK & MOB 2014-16*. 2*n* = ca. 34; Russia, Primorskii Krai, *VVK & MOB 2014-114a*. 2*n* = 36; Russia, Primorskii Krai, *VVK & MOB 2014-114b*, *VVK & MOB 2016*, *VVK& MOB 2014-19.*

NELUMBONACEAE

Nelumbo nucifera Gaertn. s.l., 2*n* = 16; Russia, Primorskii Krai, *VVK & al. 45229*, *DAK & al. 45227*, *DAK & al. 45228.*

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ASTERACEAE

Achillea millefolium L., 2*n* = 18; Russia, Irkutskaya Oblast', *M.O. Burlyaeva 2015-35.* 2*n* = 36; Khabarovskii Krai, *VVK & DAK 2016-103, VVK & DAK 2016-104.*
Artemisia bargusinensis Spreng., 2*n* = 36; Russia, Republic of Sakha (Yakutia), *S. Chinenko 2016-66*, *S. Chinenko 2016-117.*
Artemisia commutata Besser, 2*n* = 18; Russia, Republic of Sakha (Yakutia), *Ye.G. Nikolin 2016-74*, *Ye.G. Nikolin 2016-76*, *Ye.G. Nikolin 2016-77*, *Ye.G. Nikolin 2016-78*, *Ye.G. Nikolin 2016-79*, *Ye.G. Nikolin 2016-80.* 2*n* = 36; Russia, Irkutskaya Oblast', *M.O. Burlyaeva 2015-38*.
Artemisia czekanowskiana Trautv., 2*n* = 63; Russia, Republic of Sakha (Yakutia), *S. Chinenko 2016-68.* 2*n* = 72; Russia, Republic of Sakha (Yakutia), *S. Chinenko 2016-67*, *S. Chinenko 2016-69a*. 2*n* = 74; Russia, Republic of Sakha (Yakutia), *S. Chinenko 2016-70.* 2*n* = 83; Russia, Republic of Sakha (Yakutia), *S. Chinenko 2016-69b*.
Artemisia koidzumii Nakai, 2*n* = 36; Russia, Sakhalinskaya Oblast', *DAK 2016-94*, *DAK 2016-95*, *VVK 2016-96*, *DAK 2016-97*, *VVK & R.A. Murtazaliev 2016-99*, *VVK & R.A. Murtazaliev 2016-100*, *VVK & R.A. Murtazaliev 2016-98a*. 2*n* = 45; Russia, Sakhalinskaya Oblast', *VVK & R.A. Murtazaliev 2016-98b.*
Artemisia laciniata Willd., 2*n* = 36; Russia, Republic of Sakha (Yakutia), *Ye.G. Nikolin 2016-75.*
Artemisia ledebouriana Besser, 2*n* = 36; Russia, Irkutskaya Oblast', *M.O. Burlyaeva 2015-36*, *M.O. Burlyaeva 2015-37.*
Artemisia leucophylla Turcz. ex C.B.Clarke, 2*n* = 16; Russia, Republic of Sakha (Yakutia), *S. Chinenko 2016-64*, *S. Chinenko 2016-65*, *S. Chinenko 2016-63.*
Artemisia littoricola Kitam., 2*n* = 36; Russia, Sakhalinskaya Oblast', *VVK 2016-120*, *VVK & R.A. Murtazaliev 2016-84*, *VVK & R.A. Murtazaliev 2016-85*, *VVK & R.A. Murtazaliev 2016-86*, *VVK 2016-87a*. 2*n* = ca. 48; Russia, Sakhalinskaya Oblast', *VVK 2016-87b.* 2*n* = 64; Russia, Sakhalinskaya Oblast', *VVK 2016-87c.*
Artemisia mongolica Fisch. ex Besser, 2*n* = 16; Russia, Irkutskaya Oblast', *M.O. Burlyaeva 2015-39.*
Artemisia montana Pamp., 2*n* = 54; Russia, Sakhalinskaya Oblast', *VVK 2016-93*, *DAK 2016-89*, *VVK & R.A. Murtazaliev 2016-90*, *VVK & R.A. Murtazaliev 2016-91*, *VVK & R.A. Murtazaliev 2016-88*.
Artemisia stelleriana Besser, 2*n* = 18; Russia, Sakhalinskaya Oblast', *VVK 2016-83*, *DAK 2016-81*, *DAK 2016-82.*
Dendranthema mongolicum (Ling) Tzvelev, 2*n* = 54; Russia, Sakhalinskaya Oblast', *DAK 2016-101.*
Lepidotheca suaveolens Nutt., 2*n* = 18; Russia, Irkutskaya Oblast', *M.O. Burlyaeva 2015-33.*
Leucanthemum vulgare Lam., 2*n* = 36; Russia, Irkutskaya Oblast', *M.O. Burlyaeva 2015-32*; Russia, Sakhalinskaya Oblast', *DAK 2016-109a*. 2*n* = 45, Russia, Sakhalinskaya Oblast', *DAK 2016-109b*. 2*n* = 54, Russia, Sakhalinskaya Oblast', *DAK 2016-109c*.
Ptarmica salicifolia (Besser) Myrz., 2*n* = 36; Russia, Sakhalinskaya Oblast', *DAK 2016-108.*
Ptarmica speciosa DC., 2*n* = 18; Russia, Sakhalinskaya Oblast', *VVK & R.A. Murtazaliev 2016-106*, *VVK & R.A. Murtazaliev 2016-107.*
Tanacetum boreale Fisch. ex DC., 2*n* = 18; Russia, Sakhalinskaya Oblast', *DAK 2016-102.*
Tanacetum vulgare L., 2*n* = 18; Russia, Irkutskaya Oblast', *M.O. Burlyaeva 2015-31.*
Tripleurospermum inodorum (L.) Sch.Bip., 2*n* = 36; Russia, Republic of Buryatia, *M.O. Burlyaeva 2015-34*; Russia, Sakhalinskaya Oblast', *DAK 2016-115*, *VVK 2016-113*, *DAK 2016-111*, *DAK 2016-116.*
Tripleurospermum tetragonospermum (F.Schmidt) Pobed., 2*n* = 18; Russia, Sakhalinskaya Oblast', *VVK & R.A. Murtazaliev 2016-114.*

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POACEAE

Chloris dandyana C.D.Adams. var. *dandyana*, *n* = 20, 2*n* = 4*x* = 40; Paraguay, Concepción, *R 1.*
Chloris inflata Link., *n* = 20, 2*n* = 4*x* = 40; Paraguay, Concepción, *R 30.*
Oplismenus hirtellus subsp. *setarius* (Lam.) Mez ex Ekman, *n* = 38, 2*n* = 76; Paraguay, Concepción, *R 38.*
Panicum campestre Nees ex Trin., *n* = 11, 2*n* = 2*x* = 22; Paraguay, Concepción, *R 9.*
Panicum trichanthum Nees, *n* = 18, 2*n* = 4*x* = 36; Paraguay, Concepción, *R 32.*
Paspalum arundinellum Mez, *n* = 20, 2*n* = 4*x* = 40; Paraguay, Concepción, *R 25.*
Paspalum compressifolium Swallen, *n* = 20, 2*n* = 4*x* = 40; Paraguay, Concepción, *R 28.*
Paspalum notatum Flüggé var. *notatum*, *n* = 20, 2*n* = 4*x* = 40; Paraguay, Concepción, *R 39.*
Paspalum simplex Morong., *n* = 20, 2*n* = 4*x* = 40; Paraguay, Concepción, *R 11.* *n* = 30, 2*n* = 6*x* = 60; Paraguay, Concepción, *R 13.*
Sporobolus jacquemontii Kunth., *n* = 12, 2*n* = 2*x* = 24; Paraguay, Concepción, *R 26.*

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CORDIACEAE

Cordia glabrata (Mart.) A.DC., 2*n* = 52; Brazil, Bahia, *D.D. Vieira 393.*
Cordia rufescens A.DC., 2*n* = ca. 28; Brazil, Bahia, *D.D. Vieira 447.*
Cordia trichotoma (Vell.) Arráb. ex Steud., 2*n* = ca. 72; Brazil, Bahia, *D.D. Vieira 380.*
Varronia curassavica Jacq., 2*n* = 18; Brazil, Bahia, *J.V. dos Santos 33* & *al.*
Varronia globosa Jacq., 2*n* = 18; Brazil, Bahia, *A.F.S. Brito 95.*
Varronia leucocephala (Moric.) J.S.Mill., 2*n* = 18; Brazil, Bahia, *L.R. Silva 64.*

HELIOTROPIACEAE

Euploca procumbens (Mill.) Diane & Hilger, 2*n* = 28; Brazil, Bahia, *D.D. Vieira 212.*
Heliotropium angiospermum Murray, 2*n* = 26; Brazil, Bahia, *D.D. Vieira 306* & *al.*
Heliotropium elongatum (Lehm.) I.M.Johnst., 2*n* = 48; Brazil, Bahia, *A.S. Conceição 1921.*
Heliotropium indicum L., 2*n* = 26; Brazil, Bahia, *D.D. Vieira 441.*
Myriopus candidulus (Miers) Feuillet, 2*n* = 24; Brazil, Bahia, *D.D. Vieira 454.*
Myriopus rubicundus (Salzm. ex DC.) Luebert, 2*n* = 48; Brazil, Bahia, *D.D. Vieira 427.*
Myriopus salzmannii (DC.) Diane & Hilger, 2*n* = 48; Brazil, Bahia, *A.S. Conceição 1896.*

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Methods for chromosome analysis were performed following Guerra & Souza (2002).

* First chromosome count for the species.

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BIGNONIACEAE

Tribe Bignonieae

**Adenocalymma imperatoris-maximilianii* (Wawra) L.G.Lohmann
2*n* = 40, CHN. Brazil, Paraíba, Serra da Raiz, Boa Ventura, 06°43′57″ S, 35°27′25″ W, 22 Nov 2013, *J.M.P. Cordeiro 143* (EAN) [Figs. 1A, 2A].

**Amphilophium bauhinioides* (Bureau ex Baill.) L.G.Lohmann
2*n* = 40, CHN. Brazil, Espírito Santo, Linhares, Rod. ES-248 km 48, 19°28′36″ S, 40°14′48″ W, 7 Feb 2015, *J.M.P. Cordeiro 1015* (EAN) [Fig. 2B].

Amphilophium crucigerum (L.) L.G.Lohmann
2*n* = 40, CHN. Brazil, Paraíba, Areia, Mata do Pau Ferro, 06°58′12″ S, 35°42′15″ W, 7 Dec 2013, *J.M.P. Cordeiro 144* (EAN) [Fig. 2C].

**Amphilophium elongatum* (Vahl) L.G.Lohmann
2*n* = 40, CHN. Brazil, Goiás, Alto Paraíso, Vale da Lua, 14°08′04″ S, 47°42′36″ W, 21 Jan 2015, *J.M.P. Cordeiro 861* (EAN) [Fig. 2D].

**Anemopaegma laeve* DC.
2*n* = 40, CHN. Brazil, Pernambuco, Buíque, Vale do Catimbau, 08°35′37″ S, 37°12′20″ W, 30 Jul 2014, *J.M.P. Cordeiro 375* (EAN) [Fig. 2E].

**Cuspidaria bracteata* (Baill. ex Bureau & K.Schum.) L.G.Lohmann
2*n* = 40, CHN. Brazil, Sergipe, Poço Redondo, Serra da Guia, 09°59′59″ S, 37°47′57″ W, 31 Oct 2014, *J.M.P. Cordeiro 505* (EAN) [Fig. 2F].

**Dolichandra quadrivalvis* (Jacq.) L.G.Lohmann
2*n* = 40, CHN. Brazil, Paraíba, Queimadas, 07°22′37″ S, 35°58′39″ W, 18 Dec 2013, *J.M.P. Cordeiro 118* (EAN) [Figs. 1B, 2G].

Dolichandra unguis-cati (L.) L.G.Lohmann
2*n* = 80, CHN. Brazil, Paraíba, Pico do Jabre, 07°15′09″ S, 37°23′03″ W, 29 Jul 2014, *J.M.P. Cordeiro 362B* (EAN) [Fig. 2H].

**Fridericia conjugata* (Vell.) L.G.Lohmann
2*n* = 40, CHN. Brazil, Paraíba, Serra da Raiz, Boa Ventura, 06°43′57″ S, 35°27′25″ W, 13 Oct 2014, *J.M.P. Cordeiro 453* (EAN) [Figs. 1C, 2I].

Fridericia dichotoma (Jacq.) L.G.Lohmann
2*n* = 40, CHN. Brazil, Paraíba, Serra da Raiz, Boa Ventura, 06°43′57″ S, 35°27′25″ W, 28 Dec 2013, *J.M.P. Cordeiro 164* (EAN) [Figs. 1D, 2J].

**Fridericia erubescens* (DC.) L.G.Lohmann
2*n* = 40, CHN. Brazil, Bahia, Maracás, 13°27′08″ S, 40°28′41″ W, 8 Dec 2013, *L.P. Felix 14465* (EAN) [Figs. 1E, 3A].

Fridericia platyphylla (Cham.) L.G.Lohmann
2*n* = 40, CHN. Brazil, Bahia, Ibicoara, 13°26′52″ S, 41°24′34″ W, 25 Jan 2014, *J.M.P. Cordeiro 189* (EAN) [Fig. 3B].

**Fridericia pubescens* (L.) L.G.Lohmann
2*n* = 40, CHN. Brazil, Paraíba, Pilões, Serra do Espinho, 06°42′42″ S, 35°36′36″ W, 27 Jun 2013, *J.M.P. Cordeiro 130* (EAN) [Figs. 1F, 3C].

**Lundia longa* (Vell.) DC.
2*n* = 40, CHN. Brazil, Paraíba, Mamanguape, Usina Monte Alegre, 06°52′47″ S, 35°07′59″ W, 27 Oct 2013, *L.P. Felix 14511* (EAN) [Figs. 1G, 3D].

Mansoa difficilis Bureau & K.Schum.
2*n* = 38, CHN. Brazil, Paraíba, São Sebastião de Lagoa de Roça, 07°05′10″ S, 35°50′59″ W, 25 Jun 2014, *L.P. Felix 15029* (EAN) [Fig. 3E].

Pyrostegia venusta Miers
2*n* = 80, CHN. Brazil, Paraíba, Serra da Raiz, Boa Ventura, 06°43′57″ S, 35°27′25″ W, 25 Dec 2013, *J.M.P. Cordeiro 160* (EAN) [Figs. 1H, 3F].

Stizophyllum riparium (Kunth) Sandwith
2*n* = 40, CHN. Brazil, Minas Gerais, Alvorada de Minas, 18°45′22″ S, 43°24′46″ W, 3 Feb 2015, *L.P. Felix 15403* (EAN) [Fig. 1I, 3G.].

Bignonieae is the largest tribe of the Bignoniaceae family and comprises 21 genera and 393 species (Lohmann & Taylor, 2014). It has predominantly Neotropical distribution, species of the tribe occur from the southeastern United States to the North of Chile and Argentina, where Brazil is the main center of diversity (Lohmann, 2006). The species of Bignonieae tribe have vine or shrub habit, opposite and compound leaves (usually 2–3 leaflets), with the terminal leaflet modified into a tendril. These species also have a wide variety in shapes and colors of their flowers (Fig. 1), which attract many pollinators, such as bees, wasps, butterflies, hummingbirds and bats (Gentry, 1980; Lohmann, 2006; Lohmann & Taylor, 2014). These morphological adaptations of species of the Bignonieae tribe allowed them to occupy a wide variety of habitats, from dry to humid forests (Lohmann, 2006; Lohmann & Taylor, 2014).

The tribe Bignonieae has stable karyotype, with most species analyzed possessing $2n = 40$ chromosomes (Moore, 1974; Goldblatt & Gentry, 1979; Piazzano, 1998; Piazzano & al., 2015). The variation in chromosomes number is limited to the ploidy level, with chromosome records of $2n = 40, 60, 80$ for *Pyrostegia venusta* (Goldblatt & Gentry, 1979; Piazzano, 1998), $2n = 40, 80$ for *Dolichandra unguis-cati* (Goldblatt & Gentry, 1979; Piazzano, 1998) and $2n = 40, 80$ for species of *Anemopaegma* Mart. ex Meisn. (Firetti-Leggieri & al., 2011). Only the genus *Mansoa* DC. seems to different from the rest of the tribe, with records of $2n = 38$ in *Mansoa hymenaea* (DC.) A.H.Gentry and $2n = 36(–38)$ in *Mansoa difficilis* (Cham.) Bureau & K.Schum. (Goldblatt & Gentry, 1979).

Among the 17 species analyzed in the present work, 14 had $2n = 40$, confirming the previous records available in the literature to many Bignonieae species. No previous counts are known for *Adenocalymma imperatoris-maximilianii*, *Amphilophium bauhinioides*, *A. elongatum*, *Anemopaegma laeve*, *Cuspidaria bracteata*, *Dolichandra quadrivalvis*, *Fridericia conjugata*, *F. erubescens*, *F. pubescens* and *Lundia longa*. The karyotypes were usually symmetrical, with predominantly metacentric and submetacentric chromosomes, and size from 2.24 µm ± 0.44 in *Fridericia dichotoma* to 1.36 µm ± 0.26 in *Fridericia erubescens*. Only two species were tetraploid with $2n = 80$, *Dolichandra unguis-cati* (Fig. 2H) and *Pyrostegia venusta* (Fig. 3F), while *Mansoa difficilis* possessed $2n = 38$ (Fig. 3E), possibly due to dysploidy.

The constant chromosome number $2n = 40$ for most species of Bignoniaceae suggests that the basic number of the family is $x = 20$ (see Goldblatt & Gentry, 1979; Piazzano, 1998; Piazzano & al., 2015). However, when phylogenetic analysis (Olmstead & al., 2009) is compared with chromosome records available for the family Bignoniaceae (Moore, 1974; Goldblatt & Gentry, 1979; Piazzano, 1998; Piazzano & al., 2015) we observed that $x = 20$ predominates in derived clades

Fig. 1. Representative species of the Neotropical clade Bignonieae (Bignoniaceae). **A,** *Adenocalymma imperatoris-maximilianii*; **B,** *Dolichandra quadrivalvis*; **C,** *Fridericia conjugata*; **D,** *Fridericia dichotoma*; **E,** *Fridericia erubescens*; **F,** *Fridericia pubescens*; **G,** *Lundia longa*; **H,** *Pyrostegia venusta*; **I,** *Stizophyllum riparium*.

(Bignonieae, Paleotropical clade, *Tabebuia* alliance and Catalpeae). In basal clade Jacarandeae predominates $2n = 36$ (Goldblatt & Gentry, 1979; Piazzano, 1998), while basal groups of the core Bignoniaceae, as Tecomeae, *Argylia* and *Delostoma* exhibit wide variation in their chromosome number ($2n = 22, 30, 36, 38, 42$) (Moore, 1974; Goldblatt & Gentry, 1979; Piazzano, 1998; Chen & al., 2004). Thus, it is assumed that $x = 18$ would be the basic number of Bignoniaceae, while the basal clades of the core Bignoniaceae (Tecomeae, *Argylia*, *Delostoma*) may form transition between groups $x = 18$ (Jacarandeae) and $x = 20$ (Bignonieae, Catalpeae, *Tabebuia* alliance).

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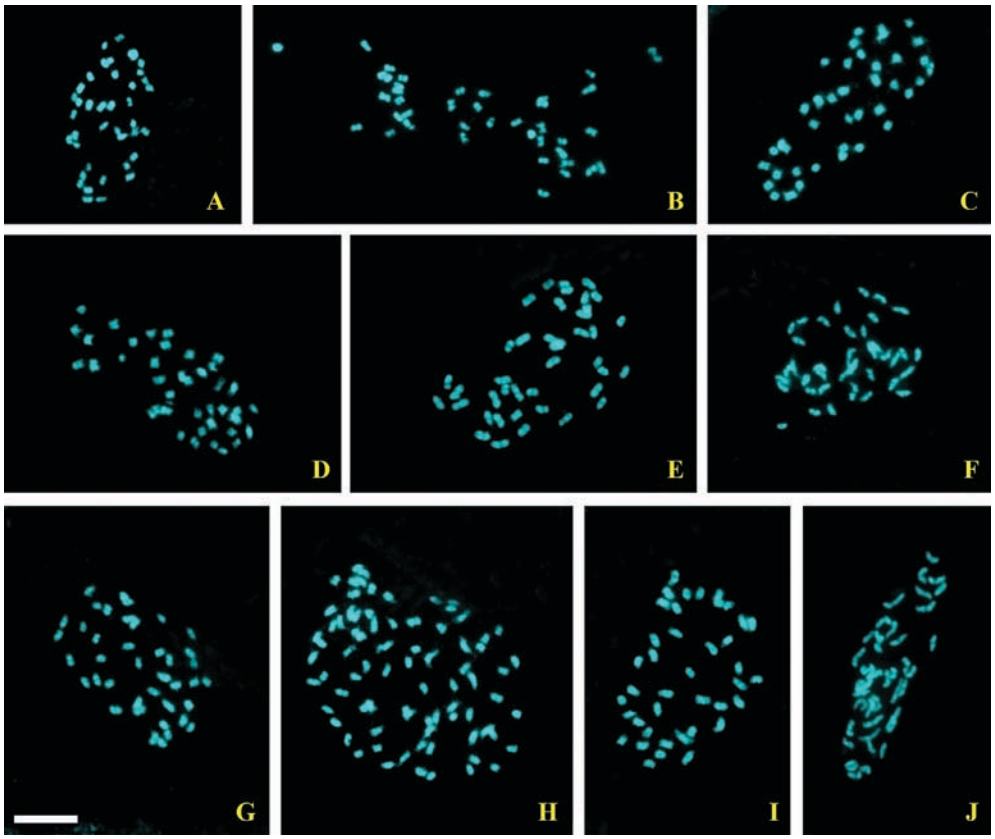

Fig. 2. A, *Adenocalymma imperatoris-maximilianii*, $2n = 40$; **B,** *Amphilophium bauhinioides*, $2n = 40$; **C,** *Amphilophium crucigerum*, $2n = 40$; **D,** *Amphilophium elongatum*, $2n = 40$; **E,** *Anemopaegma laeve*, $2n = 40$; **F,** *Cuspidaria bracteata*, $2n = 40$; **G,** *Dolichandra quadrivalvis*, $2n = 40$; **H,** *Dolichandra unguis-cati*, $2n = 80$; **I,** *Fridericia conjugata*, $2n = 40$; **J,** *Fridericia dichotoma*, $2n = 40$. — Scale bar = 10 µm.

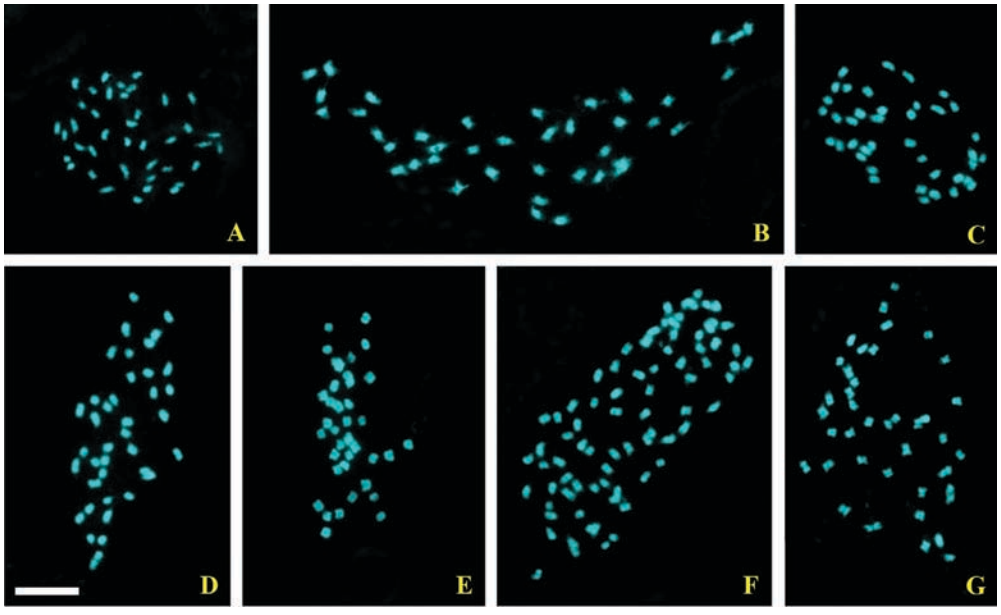

Fig. 3. A, *Fridericia erubescens*, $2n = 40$; **B,** *Fridericia platyphylla*, $2n = 40$; **C,** *Fridericia pubescens*, $2n = 40$; **D,** *Lundia longa*, $2n = 40$; **E,** *Mansoa difficilis*, $2n = 38$; **F,** *Pyrostegia venusta* $2n = 80$; **G,** *Stizophyllum riparium*, $2n = 40$. — Scale bar = 10 µm.

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SOLANACEAE

Capsicum flexuosum Sendtn.

$2n = 24$, CHN. Argentina, Misiones province, Guaraní department, 20 km from the detour on national route no. 14, in direction to the Predio Guaraní, 27.0° S, 54.2° W, 15 May 2004, *G.E. Barboza, F. Chiarini & E. Marini 1034* (CORD) [Fig. 4A–D].

Type, size and distribution of ribosomal loci (rDNA) in interphase nuclei added to prometaphase and metaphase chromosomes were revealed by fluorescent in situ hybridization (FISH) using a *Capsicum* derived 18S-25S (45S) rDNA probe (Grabiele, 2010) and according to the protocol of Moscone & al. (1996a). Fluorochrome staining with DAPI (4′-6-diamidino-2-phenylindole) subsequent to FISH in order to reveal nuclei and chromosome morphology was performed according to Moscone & al. (1996a). Somatic chromosome preparations and the procedure for measurements of chromosomes and their landmarks to build an idiogram are described in Moscone & al. (1996b). Fifteen metaphase plates were analyzed and five of them were included for measurements. Asymmetry indexes: A_1 and A_2 (Romero Zarco, 1986); r > 2 and R (Stebbins, 1971); i (centromeric mean). Abbreviations: *m*, metacentric; *st*, subtelocentric.

Capsicum flexuosum is a wild chili pepper native to Brazil, occurring at south (Paraná, Rio Grande do Sul, Santa Catarina) and southeast regions of this country (Minas Gerais, São Paulo), restricted to the phytogeographic domain of Mata Atlântica, but also present in Paraguay and NE Argentina at Corrientes and Misiones provinces (Zuloaga & Morrone, 1999; Stehmann & al., 2016). The species grows as a shrub (0.5–2 m), with white stellate flowers presenting greenish spots in the throat, and spherical depressed red hot fruits (Moscone & al., 2007).

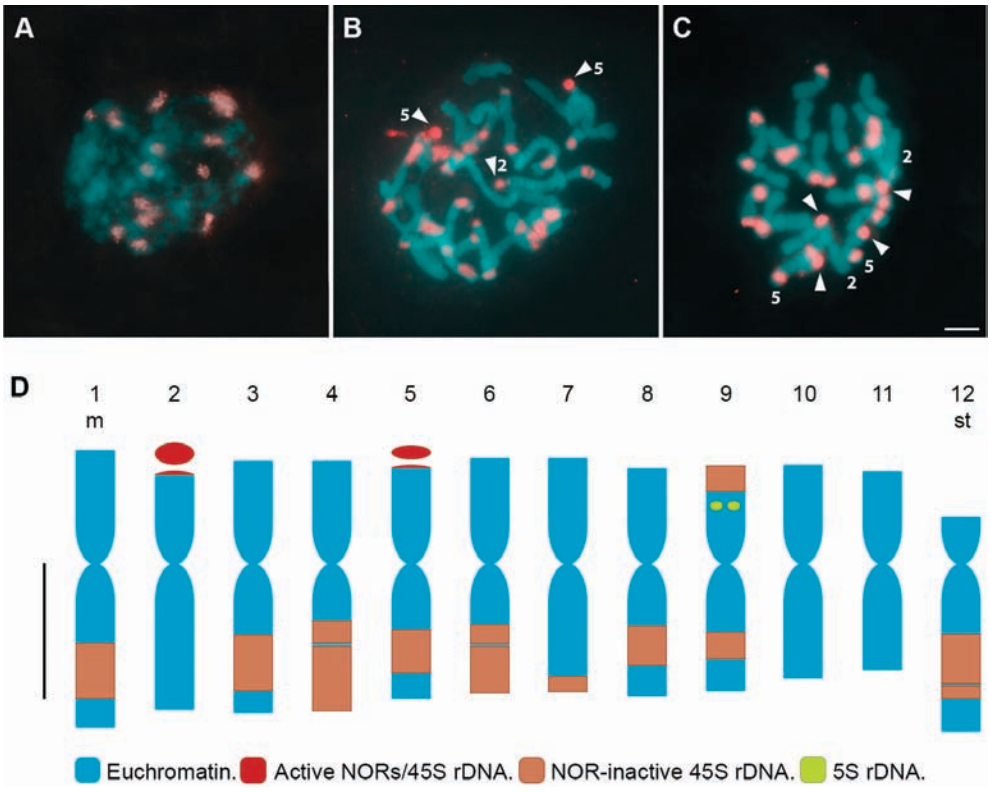

Fig. 4. Cytological characterization of the wild chili pepper *Capsicum flexuosum* by means of FISH. **A,** DAPI stained interphase nucleus (blue) showing widespread 18S-25S rDNA blocks (red signals) clustered at one side. **B & C,** DAPI stained $2n = 24$ prometaphase and metaphase chromosomes (blue), respectively, subjected to FISH with 18S-25S rDNA probe; note the widespread distribution of rDNA signals (red) mainly at the intercalar regions of chromosomes. **D,** Ideogram; note that each chromosome of the complement can be identified by morphological and/or rDNA markers; position of 5S rDNA follows Aguilera & al. (2016). — Arrowheads and numbers point out to chromosome pairs carrying NORs. Scale bars = 5 µm.

This diploid taxon based on $x = 12$ displays medium-sized to large chromosomes, with lengths ranging from 7.10 (*m*) to 10.26 µm (*m*) , a mean of 8.58 µm and 103.00 µm per haploid genome. The karyotype, 11 *m*+1 *st*, is unimodal ($A_2 = 0.10$; R = 1.45) and symmetrical ($A_1 = 0.25$; r > 2 = 0.08; i = 42.14) and belongs to the category 2A of Stebbins. Pairs number 2 (*m*) and 5 (*m*), which carry the active nucleolar organizer regions (NORs), display a terminal macrosatellite in their short arms (Fig. 4B–D).

FISH of 18S-25S rDNA to interphase nuclei of *C. flexuosum* revealed an extensive number of ribosomal blocks (12–15) of different size and clustered at one side of the nucleus, as usual in *Capsicum* (Fig. 4A). In addition, the prometaphase and metaphase 18S-25S rDNA FISH pattern of this taxon is consistent with ten chromosome pairs that embrace thirty ribosomal signals of different size. Twelve signals were observed at terminal regions (p2, 5, 9; q4, 6, 7) and eighteen at intercalar positions of large arms (q1, 3, 4, 5, 6, 8, 9, 12) (Fig. 4B, C). The smallest chromosome pairs, nos. 10 (*m*) and 11 (*m*), are deprived of rDNA loci (Fig. 4B–D). Furthermore, four of those 18S-25S rDNA FISH signals occurred at the expected active NOR chromosome pairs nos. 2 and 5, respectively (Fig. 4B, C). Supplementary 18S-25S rDNA loci are NOR-inactive and actually correspond to the typical CMA enhanced (CMA+) highly GC-rich constitutive heteterochomatin found in *C. flexuosum* and throughout *Capsicum* (Grabiele, 2010; Scaldaferro & al., 2013; Grabiele & al., unpub.). The 18S-25S ribosomal fraction comprises 19.18 µm (18.62%) of the haploid genome of *C. flexuosum* and the ratio of euchromatin to rDNA in this taxon is 4.37 : 1.

The cytological characterization of the wild hot chili pepper *C. flexuosum* performed here by means of a *Capsicum*-derived 18S-25S rDNA FISH probe resulted in a highly detailed chromosomal map for this taxon. For the first time each *C. flexuosum* chromosome can be further recognized via different markers, either morphological and/or related to rDNA (Fig. 4D).

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Mitotic chromosomes were examined in root tips of seedlings. Method is described in Smirnov (1968). Chromosome numbers in literature were checked using IPCN (Goldblatt & Johnson, 1979+).

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* First chromosome count for species

APIACEAE

Eryngium campestre L.

2*n* = 14, CHN. France, Region Midi-Pyrénées, Department Tarn, 1 km S of Escoussens, dry meadow, 43°29′N, 02°12′E, 26 Sep 2015, *A. Erst & I. Kuzmin AEK 15* (NS) [Fig. 5C].

ASTERACEAE

Dittrichia graveolens (L.) Greuter

2*n* = 18, CHN. France, Region Midi-Pyrénées, Department Haute-Garonne, Toulouse, near Cité de l'espace, waste places, 43°35′N, 01°29′E, 23 Oct 2015, *A. Erst & I. Kuzmin AEK 255* (NS).

Erigeron canadensis L.

2*n* = 18, CHN. France, Region Midi-Pyrénées, Department Haute-Garonne, Toulouse, Balma, small landfill site, 43°35′N, 01°29′E, 16 Oct 2015, *A. Erst & I. Kuzmin AEK 191* (NS).

Inula conyzae (Griess.) Meikle

2*n* = 32, CHN. France, Region Midi-Pyrénées, Department Tarn, 2 km W of Labruguière, 43°32′N, 02°13′E, 4 Oct 2015, *A. Erst & I. Kuzmin AEK 098* (NS) [Fig. 5D].

Senecio inaequidens DC.

2*n* = 40, CHN. France, Region Midi-Pyrénées, Department Haute-Garonne, Toulouse, Balma, small landfill site, 43°35′N, 01°29′E, 16 Oct 2015, *A. Erst & I. Kuzmin AEK 187* (NS).

CARYOPHYLLACEAE

Silene vulgaris (Moench) Garcke

2*n* = 24, CHN. France, Region Midi-Pyrénées, Department Tarn, 2 km W of Labruguière, roadside thickets of grass, 43°32′N, 02°13′E, 18 Oct 2015, *A. Erst & I. Kuzmin AEK 226* (NS).

Spergula rupicola (Lebel) G.Lopez

2*n* = 36, CHN. France, Region Bretagne, Department Ille-et-Vilaine, Saint-Malo, ruderal plants community on the coast of the English Channel, 48°39′N, 02°01′E, 25 Oct 2015, *A. Erst & I. Kuzmin AEK 268* (NS).

FABACEAE

Lathyrus japonicus subsp. *maritimus* (L.) P.W.Ball

2*n* = 14, CHN. Russia, Northwestern Federal District, Saint Petersburg, W of Vasilevsky Island, the coast of Gulf of Finland, 59°55′N, 30°13′E, 30 Aug 2014, *A. Erst & I. Kuzmin AEK 1* (NS) [Fig. 5E].

HYPERICACEAE

Hypericum perforatum L.

2*n* = 32, CHN. France, Region Midi-Pyrénées, Department Tarn, 2 km W of Labruguière, dry meadow on the slope, 43°32′N, 02°13′E, 18 Oct 2015, *A. Erst & I. Kuzmin AEK 210* (NS).

PAPAVERACEAE

Chelidonium majus L.

2*n* = 12, CHN. France, Region Midi-Pyrénées, Department Tarn, 2 km W of Labruguière, ruderal plants community, 43°32′N, 02°13′E, 26 Sep 2015, *A. Erst & I. Kuzmin AEK 4* (NS) [Fig. 5B].

POACEAE

**Echinochloa crus-galli* (L.) P.Beauv.

2*n* = 18, CHN. France, Region Midi-Pyrénées, Department Tarn, 2 km W of Labruguière, barley field, 43°32′N, 02°13′E, 18 Oct 2015, *A. Erst & I. Kuzmin AEK233* (NS) [Fig. 5A].

Panicum miliaceum subsp. *ruderale* (Kitag.) Tzvelev

2*n* = 36, CHN. France, Region Midi-Pyrénées, Department Tarn, 1 km S of Escoussens, barley field, 43°29′N, 02°12′E, 26 Sep 2015, *A. Erst & I. Kuzmin AEK40* (NS).

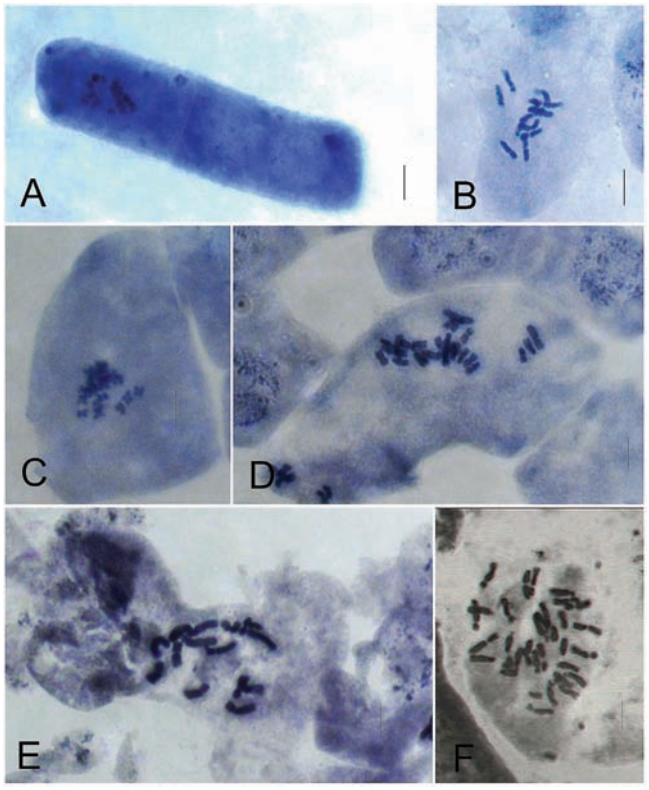

Fig. 5. Mitotic metaphase. **A,** *Echinochloa crus-galli* (L.) P.Beauv., 2*n* = 18; **B,** *Chelidonium majus* L., 2*n* = 12; **C,** *Eryngium campestre* L., 2*n* = 14; **D,** *Inula conyzae* (Griess.) Meikle L., 2*n* = 32; **E,** *Lathyrus japonicus* subsp. *maritimus* (L.) P.W.Ball, 2*n* = 14; **F,** *Ranunculus repens* L., 2*n* = 32. — Scale bars = 5 µm.

Setaria pumila (Poir.) Roem. & Schult.

2*n* = 72, CHN. France, Region Midi-Pyrénées, Department Haute-Garonne, Toulouse, Balma, small landfill site, 43°35′N, 01°29′E, 16 Oct 2015, *A. Erst & I. Kuzmin AEK 196* (NS).

RANUNCULACEAE

**Aquilegia elegantula* Greene

2*n* = 14, CHN. U.S.A., Colorado, Bear Creek Mountain, Tin-Aspen forest, bank of the stream, 39°13′N, 107°05′E, 2519 m, 6 Jul 2014, *A. Erst AE 411* (NS).

**Aquilegia laramiensis* A.Nelson

2*n* = 14, CHN. U.S.A., Wyoming, Albany County, on shaded ledges of granite, 2332 m, 21 Jul 2015, *L. Hill LH 1* (NS).

Aquilegia oxysepala Trautv. & C.A.Mey.

2*n* = 14, CHN. Russia, Yakutiya Republic, Khangalassky District, Bank of Lena River, 24 Aug 2012, *M. Lomonosova* & *E. Nikolin LN 18* (NS).

Aquilegia parviflora Ledeb.

2*n* = 14, CHN. Russia, Magadanskaya Oblast', Tenkinskii District, Elgenya River, estuary, 62°08′N, 148°51′E, 16 Oct 2015, *N. Sinelnikova S 1* (NS).

Aquilegia sibirica Lam.

2*n* = 14, CHN. Mongolia, Selenginskii Aimak, Sum Eroo, left bank of Chatangyjn-Gol River, Pine and *Betula* forest, 1380 m, 49°57′N, 107°04′E, *D. Shaulo DS 112* (NS).

Ranunculus repens L.

2n = 32, CHN. Mongolia, Selenginskii Aimak, Sum Mandal, Schivriin-Gol River, meadow, 992 m, *D. Shaulo DS 113* (NS) [Fig. 5F].

SOLANACEAE

Solanum nigrum L.

2*n* = 72, CHN. France, Region Midi-Pyrénées, Department Haute-Garonne, Toulouse, near Cité de l'espace, waste places, 43°35′N, 01°29′E, 23 Oct 2015, *A. Erst & I. Kuzmin AEK 252* (NS).

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ASTERACEAE

Artemisia argyi H.Lév. & Vaniot

2*n* = 36, CHN. China, Province Tszilin', Khun'chun' city, park

on hill near of Lin' Bao temple, 143 m, 42°53′20.3″ N, 130°20′43.7″ E, at track next to pine plantings, 29 Oct 2013, *V.V. Kotseruba & M.O. Burlyayeva 2014-74a* (LE), *V.V. Kotseruba & M.O. Burlyayeva 2014-93a* (LE).

2*n* = 43–46, CHN. China, Province Tszilin', Khun'chun' city, park on hill near of Lin' Bao temple, 143 m, 42°53′20.3″ N, 130°20′43.7″ E, at track next to pine plantings, 29 Oct 2013, *V.V. Kotseruba & M.O. Burlyayeva 2014-74b* (LE).

2*n* = 45, CHN. China, Province Tszilin', Khun'chun' city, park on hill near of Lin' Bao temple, 143 m, 42°53′20.3″ N, 130°20′43.7″ E, at track next to pine plantings, 29 Oct 2013, *V.V. Kotseruba & M.O. Burlyayeva 2014-93b* (LE).

Artemisia feddei H.Lév. & Vaniot

2*n* = 16, CHN. China, Province Tszilin', Khun'chun' city, park on hill near of Lin' Bao temple, 143 m, 42°53′20.3″ N, 130°20′43.7″ E, at track next to pine plantings, 29 Sep 2013, *V.V. Kotseruba & M.O. Burlyayeva 2014-73* (LE); Russia, Primorskii Krai, Khasanskii Raion, East Manchurian Highland, on way to Gamov Peninsula, near turning to Zarubino village, vicinity Sukhanovka village, on roadside, 30 Sep 2013, *V.V. Kotseruba & M.O. Burlyayeva 2014-70* (LE); Russia, Primorskii Krai, Khasanskii Raion, East Manchurian Highland, Gamov Peninsula, Petr Great Bay of Japan Sea, near Troitsa Cove, Shul'ts Cape, on coastal rocks, 1 Oct 2013, *V.V. Kotseruba & M.O. Burlyayeva 2014-68* (LE); Russia, Primorskii Krai, Khasanskii Raion, vicinity of Khasan village, coast Japan Sea, 3 m, 42°38′10.8″ N, 130°41′49.2″ E, in grassy swampy meadow, 3 Oct 2013, *V.V. Kotseruba & M.O. Burlyayeva 2014-69* (LE).

Artemisia integrifolia L.

2*n* = 36, CHN. Russia, Primorskii Krai, Vladivostok urban district, Empress Eugenia Archipelago, Peter Great Bay of Japan Sea, Popov Island, Promezhutochnaya Cove, Prokhodnoi Cape, 18 Sep 2013, *V.V. Kotseruba & E.V. Vorzhosek 2014-99* (LE).

Artemisia keiskeana Miq.

2*n* = 18, CHN. Russia, Primorskii Krai, Terneiskii Raion, K.G. Abramov Sikhote-Alin State Nature Biosphere Reserve, Blagodatnyi cordon, on edge of mixed forest, 7 Oct 2013, *V.V. Kotseruba & M.O. Burlyayeva 2014-44* (LE); Russia, Primorskii Krai, Terneiskii Raion, K.G. Abramov Sikhote-Alin State Nature Biosphere Reserve, on banks of Sukhoi Klyuch River, 95 m, 44°58′16.1″ N, 136°32′03.1″ E, in mixed forest, 9 Oct 2013, *V.V. Kotseruba & M.O. Burlyayeva 2014-45* (LE).

Artemisia laciniata Willd.

2*n* = 18, CHN. Russia, Primorskii Krai, Terneiskii Raion, K.G. Abramov Sikhote-Alin State Nature Biosphere Reserve, Blagodatnyi cordon, on edge of mixed forest, 7 Oct 2013, *V.V. Kotseruba & M.O. Burlyayeva 2014-51* (LE), *V.V. Kotseruba & M.O. Burlyayeva 2014-52* (LE).

Artemisia lagocephala Fisch. ex Besser

2*n* = 18, CHN. Russia, Primorskii Krai, Terneiskii Raion, K.G. Abramov Sikhote-Alin State Nature Biosphere Reserve, Lysaya Mount, 741 m, 44°60′09.8″ N, 136°30′06.05″ E, on stony placers among oaks, 9 Oct 2013, *V.V. Kotseruba & M.O. Burlyayeva 2014-65* (LE); Primorskii Krai, Terneiskii Raion, K.G. Abramov Sikhote-Alin State Nature Biosphere Reserve, cordon on Lysaya Mount, headwater Sukhoi Klyuch, 438 m, 44°59′46.5″ N, 136°30′08.05″ E, stony placers in mixed forest, 9 Oct 2013, *V.V. Kotseruba & M.O. Burlyayeva 2014-66* (LE), *V.V. Kotseruba & M.O. Burlyayeva 2014-113* (LE).

Artemisia littoricola Kitam.

2*n* = 36, CHN. Russia, Primorskii Krai, Khasanskii Raion, East Manchurian Highland, Gamov Peninsula, Petr Great Bay of Japan Sea, Opasnaya Cove, near Gamov lighthouse, 64 m, 42°33′28.1″ N, 131°12′55.4″ E, on rocky hillside, 2 Oct 2013, *V.V. Kotseruba & M.O. Burlyayeva 2014-01* (LE); Russia, Primorskii Krai, Khasanskii Raion, East Manchurian Highland, Gamov Peninsula, Petr Great Bay of Japan Sea, near road to Telyakovskii Cove, 176 m, 42°35′28.8″ N, 131°12′45.3″ E, top of hill, 2 Oct 2013, *V.V. Kotseruba & M.O. Burlyayeva 2014-33* (LE); Russia, Primorskii Krai, Terneiskii Raion, K.G. Abramov Sikhote-Alin State Nature Biosphere Reserve, Udobnaya Cove of Japan Sea, 44°56′51″ N, 136°33′00.7″ E, on sandy seashore, sedge-sagebrush glade, 7 Oct 2013, *V.V. Kotseruba & M.O. Burlyayeva 2014-34* (LE).

Artemisia manshurica (Kom.) Kom.

2*n* = 36, CHN. Russia, Primorskii Krai, Partizanskii Raion, Kalinovka village, 14 Sep 2013, *V.V. Kotseruba 2014-43* (LE); Russia, Primorskii Krai, Khasanskii Raion, East Manchurian Highland, on way to Gamov Peninsula, near turning to Zarubino village, 42°53′20.2″ N, 130°20′43.9″ E, roadside, 30 Sep 2013, *V.V. Kotseruba & M.O. Burlyayeva 2014-41* (LE); Russia, Primorskii Krai, Vladivostok urban district, Empress Eugenia Archipelago, Peter Great Bay of Japan Sea, Russkii Island, 35 m, 42°57′40.6″ N, 131°45′36.5″ E, mound near highway, 17 Oct 2013, *V.V. Kotseruba & M.O. Burlyayeva 2014-42* (LE).

Artemisia pannosa Krasch.

2*n* = 36, CHN. Russia, Primorskii Krai, Vladivostok urban district, Empress Eugenia Archipelago, Peter Great Bay of Japan Sea, Russkii Island, Avian Cape, on rocky cliff, 14 Oct 2013, *V.V. Kotseruba & M.O. Burlyayeva 2014-38* (LE), *V.V. Kotseruba & M.O. Burlyayeva 2014-39* (LE), *V.V. Kotseruba & M.O. Burlyayeva 2014-40* (LE).

Artemisia rubripes Nakai

2*n* = 36, CHN. China, Province Tszilin', Khun'chun' city, park on hill near of Lin' Bao temple, at track next to pine plantings, 143 m, 42°53′20.3″ N, 130°20′43.7″ E, 29 Sep 2013, *V.V. Kotseruba & M.O. Burlyayeva 2014-92* (LE), *V.V. Kotseruba & M.O. Burlyayeva 2014-93* (LE); Russia, Primorskii Krai, Vladivostok urban district, Empress Eugenia Archipelago, Peter Great Bay of Japan Sea, Popov Island, Promezhutochnaya Cove, Prokhodnoi Cape, 18 Sep 2013, *V.V. Kotseruba & E.V. Vrzhosek 2014-90* (LE); Russia, Primorskii Krai, Partizanskii Raion, Kalinovka village, 14 Sep 2013, *V.V. Kotseruba & P.A. Chebukin 2014-91* (LE).

Artemisia sacrorum Ledeb.

2*n* = 54, CHN. Russia, Primorskii Krai, Khasanskii Raion, East Manchurian Highland, Gamov Peninsula, Petr Great Bay of Japan Sea, near Troitsa Cove, Shul'ts Cape, 42°34′48.3″ N, 131°09′54″E, on coastal cliffs, 1 Oct 2013, *V.V. Kotseruba & M.O. Burlyayeva 2014-47* (LE); Primorskii Krai, Khasanskii Raion, East Manchurian Highland, Khasan Urban-type settlement, 42°38′10.8″ N, 130°41′49.2″ E, cereal marshy meadow at coast, 3 Oct 2013, *V.V. Kotseruba & M.O. Burlyayeva 2014-46* (LE); Russia, Primorskii Krai, Terneiskii Raion, K.G. Abramov Sikhote-Alinskii State Nature Biosphere Reserve, Blagodatnyi cordon, 11 m, 44°57′05.6″ N, 136°32′50.2″ E, edge of mixed forest at path, 7 Oct 2013, *V.V. Kotseruba & M.O. Burlyayeva 2014-50* (LE); Russia, Primorskii Krai, Vladivostok urban district, Empress Eugenia Archipelago, Peter Great Bay of Japan Sea, Popov Island, 7 m, 42°57′44.4″ N, 131°45′99″ E, 19 Oct 2012, *V.V. Kotseruba 2013-25* (LE).

Artemisia saitoana Kitam.

2*n* = 18, CHN. Russia, Primorskii Krai, Terneiskii Raion, K.G. Abramov Sikhote-Alin State Nature Biosphere Reserve, Udobnaya Cove of Japan Sea, 44°56′51″ N, 136°33′00.7″ E, on sandy seashore, among sedge, 7 Oct 2013, *V.V. Kotseruba & M.O. Burlyayeva 2014-83* (LE), *V.V. Kotseruba & M.O. Burlyayeva 2014-84* (LE), *V.V. Kotseruba & M.O. Burlyayeva 2014-85* (LE), *V.V. Kotseruba & M.O. Burlyayeva*

2014-86 (LE), *V.V. Kotseruba & M.O. Burlyayeva 2014-87* (LE), *V.V. Kotseruba & M.O. Burlyayeva 2014-88* (LE).

Artemisia scoparia Waldst. & Kit.

2*n* = 16, CHN. China, Province Tszilin', Khun'chun' city, park on hill near of Lin' Bao temple, at track next to pine plantings, 143 m, 42°53′20″ N, 130°20′44″ E, 29 Sep 2013, *V.V. Kotseruba & M.O. Burlyayeva 2014-37* (LE); Russia, Primorskii Krai, Partizanskii Raion, Kalinovka village, 14 Sep 2013, *V.V. Kotseruba & P.A. Chebukin 2014-36* (LE); Russia, Primorskii Krai, vicinity of Vladivostok city, Bogatoe reservoir or Far East Experimental Station the Federal Research Center the N.I. Vavilov All-Russian Institute of Plant Genetic Resources, 43°14′06.4″ N, 132°04′27.5″ E, on sandy beach, in motley grass meadow, 26 Sep 2013, *V.V. Kotseruba & M.O. Burlyayeva 2014-110* (LE); Primorskii Krai, Khasanskii Raion, East Manchurian Highland, vicinity of Khasan Urban-type settlement, 42°38′10.8″ N, 130°41′49.2″ E, cereal-motley grass marshy meadow, 3 Oct 2013, *V.V. Kotseruba & M.O. Burlyayeva 2014-35* (LE).

Artemisia selengensis Turcz. ex Besser

2*n* = 36, CHN. Russia, Primorskii Krai, Khasanskii Raion, East Manchurian Highland, vicinity of Khasan Urban-type settlement, 42°24′57.5″ N, 130°38′57.5″ E, roadside, 3 Oct 2013, *V.V. Kotseruba & M.O. Burlyayeva 2014-75* (LE); Russia, Primorskii Krai, Khasanskii Raion, East Manchurian Highland, vicinity of Khasan Urban-type settlement, coast of Japan Sea, 42°38′10.8″ N, 130°41′49.1″ E, in cereal meadow, 3 Oct 2013, *V.V. Kotseruba & M.O. Burlyayeva 2014-76* (LE); Russia, Primorskii Krai, Vladivostok urban district, Empress Eugenia Archipelago, Peter Great Bay of Japan Sea, Russkii Island, 42°57′40.6″ N, 131°45′36.5″ E, mound near highway, 35 m, 2013, *V.V. Kotseruba & M.O. Burlyayeva 2014-89* (LE).

Artemisia sieversiana Ehrh. ex Willd.

2*n* = 18, CHN. Russia, Primorskii Krai, Partizanskii Raion, Kalinovka village, 14 Sep 2013, *V.V. Kotseruba & P.A. Chebukin 2014-67* (LE).

Artemisia stelleriana Besser

2*n* = 18, CHN. Russia, Primorskii Krai, Terneiskii Raion, K.G. Abramov Sikhote-Alin State Nature Biosphere Reserve, Udobnaya Cove of Japan Sea, 44°56′51″ N, 136°33′00.7″ E, on sandy seashore, among sedges, 7 Oct 2013, *V.V. Kotseruba & M.O. Burlyayeva 2014-81* (LE); Russia, Primorskii Krai, Terneiskii Raion, K.G. Abramov Sikhote-Alin State Nature Biosphere Reserve, Golubichnaya Cove of Japan Sea, 44°54′19.4″ N, 136°31′56.8″ E, sandy seashore, 7 Oct 2013, *V.V. Kotseruba & M.O. Burlyayeva 2014-82* (LE).

Artemisia stolonifera (Maxim.) Kom.

2*n* = 36, CHN. Russia, Primorskii Krai, Nakhodka city, in the park near cliff to Nakhodka Cove, 81 m, 42°48′07.7″ N, 132°53′16.7″ E, 25 Sep 2013, *V.V. Kotseruba & M.O. Burlyayeva 2014-79* (LE); Russia, Primorskii Krai, Vladivostok city, near the dam, 22 m, 43°14′06.4″ N, 132°04′27.5″ E, 26 Sep 2013, *V.V. Kotseruba & M.O. Burlyayeva 2014-80* (LE); Russia, Primorskii Krai, Vladivostok urban district, Empress Eugenia Archipelago, Peter Great Bay of Japan Sea, Russkii Island, 35 m, 42°57′40.6″ N, 131°45′36.5″ E, mound near highway, 17 Oct 2013, *V.V. Kotseruba & M.O. Burlyayeva 2014-78* (LE); Russia, Primorskii Krai, Partizanskii Raion, vicinity of railway station Anisimovka, 77.9 m, 43°01′49.6″ N, 131°48′01.9″ E, about path in mixed forest, 19 Oct 2013, *V.V. Kotseruba & M.O. Burlyayeva 2014-77* (LE).

Artemisia umbrosa Turcz. ex DC.

2*n* = 36, CHN. Russia, Primorskii Krai, Partizanskii Raion, Kalinovka village, 14 Sep 2013, *V.V. Kotseruba & P.A. Chebukin 2014-96* (LE); Russia, Primorskii Krai, Vladivostok urban district, Empress Eugenia Archipelago, Peter Great Bay of Japan Sea, Popov Island, Promezhutochnaya Cove, Prokhodnoi Cape, 18 Sep 2013, *V.V. Kotseruba & E.V. Vorzhosek 2014-97* (LE); Russia, Primorskii Krai, Khasanskii Raion, 3 km from Khasan Urban-type settlement, mouth of Tumannaya (Tumangan) River, 28 m, 42°24′64.8″ N, 130°39′11.3″ E, on roadside near marshy meadow, 3 Oct 2013, *V.V. Kotseruba & M.O. Burlyayeva 2016-98* (LE).

2*n* = 54, CHN. China, Province Tszilin', Khun'chun' city, park on hill near of Lin' Bao temple, at track next to pine plantings, 143 m, 42°53′20.3″ N, 130°20′44″ E, 29 Sep 2013, *V.V. Kotseruba & M.O. Burlyayeva 2014-94* (LE), *V.V. Kotseruba & M.O. Burlyayeva 2014-95* (LE).

Dendranthema naktongense (Nakai) Tzvelev

2*n* = ca. 45, CHN. Russia, Primorskii Krai, Khasanskii Raion, East Manchurian Highland, Gamov Peninsula, Petr Great Bay of Japan Sea, near Gamov lighthouse, 64 m, 42°33′28.1″ N, 131°12′55.4″ E, on rocky slope, 2 Oct 2013, *V.V. Kotseruba & M.O. Burlyayeva 2014-13a* (LE).

2*n* = 48, CHN. Russia, Primorskii Krai, Khasanskii Raion, East Manchurian Highland, Gamov Peninsula, Petr Great Bay of Japan Sea, near Gamov lighthouse, 64 m, 42°33′28.1″ N, 131°12′55.4″ E, on rocky slope, 2 Oct 2013, *V.V. Kotseruba & M.O. Burlyayeva 2014-13b* (LE).

2*n* = 54, CHN. Russia, Primorskii Krai, Khasanskii Raion, East Manchurian Highland, Gamov Peninsula, Petr Great Bay of Japan Sea, near Gamov lighthouse, 64 m, 42°33′28.1″ N, 131°12′55.4″ E, on rocky slope, 2 Oct 2013, *V.V. Kotseruba & M.O. Burlyayeva 2014-13c* (LE).

Ptarmica alpina DC.

2*n* = 18, CHN. Russia, Primorskii Krai, vicinity of Vladivostok city, on sandy beach near Bogatoe reservoir, in meadow, 26 Sep 2013, *V.V. Kotseruba & M.O. Burlyayeva 2014-15* (LE); Russia, Primorskii Krai, Khasanskii Raion, near turning to Pos'et Cove, 42°42′08.9″ N, 130°50′09.9″ E, 3 Oct 2013, *V.V. Kotseruba & M.O. Burlyayeva 2014-16* (LE).

2*n* = ca. 34, CHN. Russia, Primorskii Krai, vicinity of Vladivostok city, Bogatoe reservoir or Far East Experimental Station the Federal Research Center the N.I. Vavilov All-Russian Institute of Plant Genetic Resources, 43°14′06.4″ N, 132°04′27.5″ E, on sandy beach, 26 Sep 2013, *V.V. Kotseruba & M.O. Burlyayeva 2014-114a* (LE).

2*n* = 36, CHN. Russia, Primorskii Krai, vicinity of Vladivostok city, Bogatoe reservoir or Far East Experimental Station the Federal Research Center the N.I. Vavilov All-Russian Institute of Plant Genetic Resources, 43°14′06.4″ N, 132°04′27.5″ E, on sandy beach, 26 Sep 2013, *V.V. Kotseruba & M.O. Burlyayeva 2014-114b* (LE); Russia, Primorskii Krai, Khasanskii Raion, vicinity of Khasan village, coast Japan Sea, 3 m, 42°38′10.8″ N, 130°41′49.2″ E, swampy meadow, among *Miscanthus* sp., *Artemisia* sp. & *Phragmites* sp., 3 Oct 2013, *V.V. Kotseruba & M.O. Burlyayeva 2016* (LE); Russia, Primorskii Krai, Terneiskii Raion, K.G. Abramov Sikhote-Alinskii State Nature Biosphere Reserve, Blagodatnyi cordon, 11 m, 44°57′05.6″ N, 136°32′50.2″ E, edge mixed forest at path near cordon, 7 Oct 2013, *V.V. Kotseruba & M.O. Burlyayeva 2014-19* (LE).

NELUMBONACEAE

Nelumbo nucifera Gaertn. s.l.

2*n* = 16, CHN. Russia, Primorskii Krai, Fokino closed administrative-territorial formation, Putyatin Island of Peter Great Bay of Japan Sea, Putyatin village, Goose Lake, 42°51′14.66″ N, 132°24′43.32″ E, in water, 14 Aug 2015, *V.V. Kotseruba & al. 45229* (IRK); Russia, Primorskii Krai, Khasanskii Raion, 2.5 km north from Khasan village, A 189 track, Lotus Lake, 42°27′21.77″ N, 130°38′20.66″ E, in marshy shore, 25 Aug 2015, *D.A. Krivenko & al. 45227* (IRK), *D.A. Krivenko & al. 45228* (IRK).

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ASTERACEAE

Achillea millefolium L.

2*n* = 18, CHN. Russia, Irkutskaya Oblast', Kazachinsko-Lenskii Raion, 15 km of Kunerma village, Kholodnoe Lake, 425 m, 55°56′51.1″ N, 107°29′52.4″ E, salty shore lake, 11 Aug 2014, *M.O. Burlyaeva 2015-35* (LE).

2*n* = 36, CHN. Khabarovskii Krai, Komsomol'sk-na-Amure city, near the train station, ruderal roadside, 16 Sep 2015, *V.V. Kotseruba & D.A. Krivenko 2016-103* (LE), *V.V. Kotseruba & D.A. Krivenko 2016-104* (LE).

Artemisia bargusinensis Spreng.

2*n* = 36, CHN. Russia, Republic of Sakha (Yakutia), Olenokskii evenkiiskii natsional'nyi Raion, up from Olenok village, Olenok River, 68°22.5′ N, 112°16.5′ E, sand-pebble plait, 9 Aug 2015, *S. Chinenko 2016-66* (LE); Russia, Republic of Sakha (Yakutia), Olenokskii evenkiiskii natsional'nyi Raion, Achys Ary terrain, left bank of Olenok River, first terrace of the river valley, 68°11.5′ N, 112°14.5′ E, grass-forbs community, 12 Aug 2015, *S. Chinenko 2016-117* (LE).

Artemisia commutata Besser

2*n* = 18, CHN. Russia, Republic of Sakha (Yakutia), Yakutsk city district, between Khatassy village and Yakutsk city, Shestakovka River, right tributary of Lena River, old barn, 1 Sep 2015, *Ye.G. Nikolin 2016-74* (LE), *Ye.G. Nikolin 2016-76* (LE), *Ye.G. Nikolin 2016-77* (LE), *Ye.G. Nikolin 2016-78* (LE), *Ye.G. Nikolin 2016-79* (LE), *Ye.G. Nikolin 2016-80* (LE).

2*n* = 36, CHN. Russia, Irkutskaya Oblast', Ust'-Ordynskii Buryatskii Okrug, Bayandaevskii Raion, vicinity of Khandagai village, 677 m, 33°11′ N, 105°48′ E, undergrowth birch forest at the roadside, 5 Aug 2015, *M.O. Burlyaeva 2015-38* (LE).

Artemisia czekanowskiana Trautv.

2*n* = 63, CHN. Russia, Republic of Sakha (Yakutia), Olenokskii evenkiiskii natsional'nyi Raion, up from Olenok village, Olenok River, 68°22.5′ N, 112°16.5′ E, sand-pebble plait, 9 Aug 2015, *S. Chinenko 2016-68* (LE).

2*n* = 72, CHN. Russia, Republic of Sakha (Yakutia), Olenokskii evenkiiskii natsional'nyi Raion, Achys Ary terrain, left bank of Olenok River, first terrace of the river valley, 68°11.5′ N, 112°14.5′ E, grass-forbs community, 12 Aug 2015, *S. Chinenko 2016-67* (LE); Russia, Republic of Sakha (Yakutia), Olenokskii evenkiiskii natsional'nyi Raion, up from Olenok village, Olenok River, 68°22.5′ N, 112°16.5′ E, sand-pebble plait, 9 Aug 2015, *S. Chinenko 2016-69a* (LE).

2*n* = 74, CHN. Russia, Republic of Sakha (Yakutia), Olenokskii evenkiiskii natsional'nyi Raion, Tiis Khaya terrain, Olenok River, terrace above the floodplain, 68°04′ N, 112°03.5′ E, pebble, 11 Aug 2015, *S. Chinenko 2016-70* (LE).

2*n* = 83, CHN. Russia, Republic of Sakha (Yakutia), Olenokskii evenkiiskii natsional'nyi Raion, up from Olenok village, Olenok River, 68°22.5′ N, 112°16.5′ E, sand-pebble plait, 9 Aug 2015, *S. Chinenko 2016-69b* (LE).

Artemisia koidzumii Nakai

2*n* = 36, CHN. Russia, Sakhalinskaya Oblast', Sakhalin Island, Smirnykhovskii Urban district, East Sakhalin Mountains, near Izvestkovyi terrain, elaborated quarry for limestone mining, on the tributary of Smuglyanka River, 49°57′08″ N, 143°23′24″ E, 21 Sep 2015, *D.A. Krivenko 2016-94* (LE), *D.A. Krivenko 2016-95* (LE); Russia, Sakhalinskaya Oblast', Sakhalin Island, Korsakovskii Urban district, Yunona Headland, 24 Sep 2015, *V.V. Kotseruba 2016-96* (LE); Russia, Sakhalinskaya Oblast', Sakhalin Island, Poronaiskii Urban district, Kamyshovyi Ridge, Poronaiskaya Mountain chain, R 487 track, 2 km SW from Matrosovo village, right bank of Matrosovka River, 49°27′03.79″ N, 142°49′15.54″ E, sand-pebble riverside, 21 Sep 2015, *D.A. Krivenko 2016-97* (LE); Russia, Sakhalinskaya Oblast', Sakhalin Island, Makarovskii Urban district, Zhdanko Ridge, 27 Sep 2015, *V.V. Kotseruba & R.A. Murtazaliev 2016-99* (LE), *V.V. Kotseruba & R.A. Murtazaliev 2016-100* (LE); Russia, Sakhalinskaya Oblast', Sakhalin Island, Makarovskii Urban district, Zhdanko Ridge, 27 Sep 2015, *V.V. Kotseruba & R.A. Murtazaliev 2016-98a* (LE).

2*n* = 45, CHN. Russia, Sakhalinskaya Oblast', Sakhalin Island, Makarovskii Urban district, Zhdanko Ridge, 27 Sep 2015, *V.V. Kotseruba & R.A. Murtazaliev 2016-98b* (LE).

Artemisia laciniata Willd.

2*n* = 36, CHN. Russia, Republic of Sakha (Yakutia), Khangalasskii Ulus, Yedei village, Kharyyalakh Island on Lena River, motley grass meadow, 12 Aug 2014, *Ye.G. Nikolin 2016-75* (LE).

Artemisia ledebouriana Besser

2*n* = 36, CHN. Russia, Irkutskaya Oblast', Ol'khonskii Raion, Ol'khon Island on Lake Baikal, basis of Kobyl'ya Golova Peninsula, Khul Cove, 465 m, 53°04′25″ N, 106°56′57″ E, feather grass-sagebrush steppe, 14 Aug 2014, *M.O. Burlyaeva 2015-36* (LE), *M.O. Burlyaeva 2015-37* (LE).

Artemisia leucophylla Turcz. ex C.B.Clarke

2*n* = 16, CHN. Russia, Republic of Sakha (Yakutia), Olenokskii evenkiiskii natsional'nyi Raion, Olenok village, shore Olenok River, 63°30.5′ N, 112°26.5′ E, mixed grass community, 5 Aug 2015, *S. Chinenko 2016-64* (LE); Russia, Republic of Sakha (Yakutia), Olenokskii evenkiiskii natsional'nyi Raion, Olenok village, near Olenok River, right from the mouth of valley Tumannakh River, 63°30.5′ N, 112°26.5′ E, footpath in high willow, 5 Aug 2015, *S. Chinenko 2016-65* (LE); Russia, Republic of Sakha (Yakutia), Olenokskii evenkiiskii natsional'nyi Raion, Olenok village, floodplain Olenok River, 63°30'N, 112°27'E, 6 Aug 2015, *S. Chinenko 2016-63* (LE).

Artemisia littoricola Kitam.

2*n* = 36, CHN. Russia, Sakhalinskaya Oblast', Sakhalin Island, Dolinskii Urban district, Terpenia Bay, vicinity of Starodubskoe village, 2.5 m, 47°24′27.6″ N, 142°50′54.1″ E, 20 Sep 2015, *V.V. Kotseruba 2016-120* (LE); Russia, Sakhalinskaya Oblast', Sakhalin Island, Makarovskii Urban district, Zhdanko Ridge, 27 Sep 2015, *V.V. Kotseruba & R.A. Murtazaliev 2016-84* (LE), *V.V. Kotseruba & R.A. Murtazaliev 2016-85* (LE), *V.V. Kotseruba & R.A. Murtazaliev 2016-86* (LE); Russia, Sakhalinskaya Oblast', Sakhalin Island, Dolinskii Urban district, Terpenia Bay, vicinity of Starodubskoe village, 2.5 m, 47°24′27.6″ N, 142°50′54.1″ E, 20 Sep 2015, *V.V. Kotseruba 2016-87a* (LE).

2*n* = ca. 48, CHN. Russia, Sakhalinskaya Oblast', Sakhalin Island, Dolinskii Urban district, Terpenia Bay, vicinity of Starodubskoe village, 2.5 m, 47°24′27.6″ N, 142°50′54.1″ E, 20 Sep 2015, *V.V. Kotseruba 2016-87b* (LE).

2*n* = 64, CHN. Russia, Sakhalinskaya Oblast', Sakhalin Island, Dolinskii Urban district, Terpenia Bay, vicinity of Starodubskoe village, 2.5 m, 47°24′27.6″ N, 142°50′54.1″ E, 20 Sep 2015, *V.V. Kotseruba 2016-87c* (LE).

Artemisia mongolica Fisch. ex Besser

2*n* = 16, CHN. Russia, Irkutskaya Oblast', Ol'khonskii Raion, Ol'khon Island on Lake Baikal, basis of Kobyl'ya Golova Peninsula, Khul Cove, 465 m, 53°04′25″ N, 106°56′57″ E, feather grass-sagebrush steppe, 14 Aug 2014, *M.O. Burlyaeva 2015-39* (LE).

Artemisia montana Pamp.

2*n* = 54, CHN. Russia, Sakhalinskaya Oblast', Sakhalin Island, Dolinskii Urban district, Terpenia Bay, vicinity of Starodubskoe village, 2.5 m, 47°24′27.6″ N, 142°50′54.1″ E, 20 Sep 2015, *V.V. Kotseruba 2016-93* (LE); Russia, Sakhalinskaya Oblast', Sakhalin Island, Smirnykhovskii Urban district, East Sakhalin Mountains, near Izvestkovyi terrain, elaborated quarry for limestone mining, on the tributary of Smuglyanka River, 49°28′08.76″ N, 142°51′42.6″ E, 21 Sep 2015, *D.A. Krivenko 2016-89* (LE); Russia, Sakhalinskaya Oblast', Sakhalin Island, Nevel'skii Urban district, Gornozavodsk town, forest near summer cottages, 26 Sep 2015, *V.V. Kotseruba & R.A. Murtazaliev 2016-90* (LE); Russia, Sakhalinskaya Oblast', Sakhalin Island, Nevel'sk town, on the coastal slopes, 26 Sep 2015, *V.V. Kotseruba & R.A. Murtazaliev 2016-91* (LE); Russia, Sakhalinskaya Oblast', Sakhalin Island, Makarovskii Urban district, Zhdanko Ridge, 27 Sep 2015, *V.V. Kotseruba & R.A. Murtazaliev 2016-88* (LE).

Artemisia stelleriana Besser

2*n* = 18, CHN. Russia, Sakhalinskaya Oblast', Sakhalin Island, Nevel'sk town, on the coastal slopes, 26 Sep 2015, *V.V. Kotseruba 2016-83* (LE); Russia, Sakhalinskaya Oblast', Sakhalin Island, Poronaiskii Urban district, 8 km south of Poronaisk town, coast of Terpenia Bay of Okhotsk Sea, 49°09′43.02″ N, 143°00′42.41″ E, sandy shore, 21 Sep 2015, *D.A. Krivenko 2016-81* (LE), *D.A. Krivenko 2016-82* (LE).

Dendranthema mongolicum (Ling) Tzvelev

2*n* = 54, CHN. Russia, Sakhalinskaya Oblast', Sakhalin Island, Smirnykhovskii Urban district, East Sakhalin Mountains, near Izvestkovyi terrain, elaborated quarry for limestone mining, on the tributary of Smuglyanka River, 49°57′08″ N, 143°23′24″ E, 21 Sep 2015, *D.A. Krivenko 2016-101* (LE).

Lepidotheca suaveolens Nutt.

2*n* = 18, CHN. Russia, Irkutskaya Oblast', Kachugskii Raion, vicinity of Shishkina village, Shishkinskie petroglyphs, right bank of Lena River, 519 m, 54°00′21″ N, 105°42′28.7″ E, dry rocky slope, 5 Aug 2014, *M.O. Burlyaeva 2015-33* (LE).

Leucanthemum vulgare Lam.

2*n* = 36, CHN. Russia, Irkutskaya Oblast', Zhigalovskii Raion, 2 km from Grekhovo village, 438 m, 55°25′41.5″ N, 106°20′56.6″ E, 5 Aug 2014, *M.O. Burlyaeva 2015-32* (LE); Russia, Sakhalinskaya Oblast', Sakhalin Island, Poronaiskii Urban district, Kamyshovyi Ridge, Poronaiskaya Mountain chain, R 487 track, near Matrosovo village, Matrosovo railway station, 49°28′08.76″ N, 142°51′42.6″ E, shrubby forest, 21 Sep 2015, *D.A. Krivenko 2016-109a* (LE).

2*n* = 45, CHN. Russia, Sakhalinskaya Oblast', Sakhalin Island, Poronaiskii Urban district, Kamyshovyi Ridge, Poronaiskaya Mountain chain, R 487 track, near Matrosovo village, Matrosovo railway station, 49°28′08.76″ N, 142°51′42.6″ E, shrubby forest, 21 Sep 2015, *D.A. Krivenko 2016-109b* (LE).

2*n* = 54, CHN. Russia, Sakhalinskaya Oblast', Sakhalin Island, Poronaiskii Urban district, Kamyshovyi Ridge, Poronaiskaya Mountain chain, R 487 track, near Matrosovo village, Matrosovo railway station, 49°28′08.76″ N, 142°51′42.6″ E, shrubby forest, 21 Sep 2015, *D.A. Krivenko 2016-109c* (LE).

Ptarmica salicifolia (Besser) Myrz.

2*n* = 36, CHN. Russia, Sakhalinskaya Oblast', Sakhalin Island, Smirnykhovskii Urban district, East Sakhalin Mountains, near Izvestkovyi terrain, elaborated quarry for limestone mining, on the tributary of Smuglyanka River, 49°57′08″ N, 143°23′24″ E, 21 Sep 2015, *D.A. Krivenko 2016-108* (LE).

Ptarmica speciosa DC.

2*n* = 18, CHN. Russia, Sakhalinskaya Oblast', Sakhalin Island, Dolinskii Urban district, Terpenia Bay, vicinity of Starodubskoe village, 2.5 m, 47°24′27.6″ N, 142°50′54.1″ E, 20 Sep 2015, *V.V. Kotseruba & R.A. Murtazaliev 2016-106* (LE); Russia, Sakhalinskaya Oblast', Sakhalin Island, Makarovskii Urban district, Zhdanko Ridge, 27 Sep 2015, *V.V. Kotseruba & R.A. Murtazaliev 2016-107* (LE).

Tanacetum boreale Fisch. ex DC.

2*n* = 18, CHN. Russia, Sakhalinskaya Oblast', Sakhalin Island, Poronaiskii Urban district, Kamyshovyi Ridge, Poronaiskaya Mountain chain, R 487 track, near Matrosovo village, Matrosovo railway station, 49°57′08″ N, 143°23′24″ E, 21 Sep 2015, *D.A. Krivenko 2016-102* (LE).

Tanacetum vulgare L.

2*n* = 18, CHN. Russia, Irkutskaya Oblast', Zhigalovskii Raion, 2 km from Grekhovo village, 438 m, 55°25′41.5″ N, 106°20′56.6″ E, couch grass-motley grass meadow, 5 Aug 2014, *M.O. Burlyaeva 2015-31* (LE).

Tripleurospermum inodorum (L.) Sch.Bip.

2*n* = 36, CHN. Russia, Republic of Buryatia, Severo-Baykal'skii Raion, Davan railway station, 955 m, 55°44′58.9″ N, 109°18′08.3″ E, rocky hillside with bushes, 9 Aug 2014, *M.O. Burlyaeva 2015-34* (LE); Russia, Sakhalinskaya Oblast', Sakhalin Island, Dolinskii Urban district, Sokol village, Sokol scientific base of A.V. Zhirmunskii Institute of Marine Biology of the Far Eastern Branch of the Russian Academy of Sciences, 47°24′27.6″ N, 142°50′54.1″ E, 20 Sep 2015, *D.A. Krivenko 2016-115* (LE); Russia, Sakhalinskaya Oblast', Sakhalin Island, Dolinskii Urban district, Terpenia Bay, vicinity of Starodubskoe village, 2.5 m, 47°24′27.6″ N, 142°50′54.1″ E, 20 Sep 2015, *V.V. Kotseruba 2016-113* (LE); Russia, Sakhalinskaya Oblast', Sakhalin Island, Poronaiskii Urban district, Kamyshovyi Ridge, Poronaiskaya Mountain chain, R 487 track, near Matrosovo village, Matrosovo railway station, 49°28′08.76″ N, 142°51′42.6″ E, shrubby forest, 21 Sep 2015, *D.A. Krivenko 2016-111* (LE); Russia, Sakhalinskaya Oblast', Sakhalin Island, Smirnykhovskii Urban district, East Sakhalin Mountains, near Izvestkovyi terrain, elaborated quarry for limestone mining, on the tributary of Smuglyanka River, 49°57′08″ N, 143°23′24″ E, 21 Sep 2015, *D.A. Krivenko 2016-116* (LE).

Tripleurospermum tetragonospermum (F.Schmidt) Pobed.

2*n* = 18, CHN. Russia, Sakhalinskaya Oblast', Sakhalin Island, Korsakovskii Urban district, Yunona Headland, 24 Sep 2015, *V.V. Kotseruba & R.A. Murtazaliev 2016-114* (LE).

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Methods are described in Honfi & al. (1990) and Rivarola & al. (2013).

* First chromosome count for the species.
** First gametic chromosome count for the species/cytotype.
▼ New chromosome number (cytotype) for the species.
■ First chromosome counts for an Paraguayan accession.

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POACEAE

**Chloris dandyana* C.D.Adams var. *dandyana*

n = 20, 2*n* = 40, CHN. Paraguay, Concepción Department, San Lázaro District, Vallemí, Tres Cerros, Cumbre II, 22°15′02″ S, 57°52′07.3″ W, Mar 2013, *A. Rivarola 4* (FACEN, MNES) [Fig. 6A].

The meiotic chromosome number *n* = 20II and occasionally 18II+1IV has been counted at diakinesis in pollen mother cells (PMCs) of this tetraploid species.

Chloris inflata Link

n = 20, 2*n* = 40, CHN. Paraguay, Concepción Department, San Lázaro District, Vallemí, Tres Cerros, Cumbre I, 22°15′11.5″ S, 57°51′11.7″ W, Mar 2013, *A. Rivarola 30* (FACEN, MNES).

This annual species has a consistent series of cytotypes 2*n* = 20, 40, ca. 50 (Anderson, 1974) and an unusual record of 2*n* = 56 (Rao & Mwasumbi, 1981; Pohl, 1994). Chromosomes behave irregularly at meiosis, with 20II at diakinesis and also 1I+16II+1III+1IV or 18II+1IV.

▼*Oplismenus hirtellus* subsp. *setarius* (Lam.) Mez ex Ekman

n = 38, 2*n* = 76, CHN. Paraguay. Concepción Department. San Lázaro District, Vallemí, Tres Cerros, Cumbre I, 22°15′11.5″ S, 57°51′11.7″ W, Mar 2013, *A. Rivarola 38* (FACEN, MNES) [Fig. 6H].

This is the first record for the subspecies and a new cytotype for South American specimens, where 2*n* = 90 was the only record found and clearly different from Mexican plants with 2*n* = 72 (Honfi & al., 1990, Hunziker & al., 1998; Pohl & Davidse, 1971). Also, in Africa, have been recorded 2*n* = 54, 60 and 72 chromosomes for this polymorphic species.

**Panicum campestre* Nees ex Trin.

n = 11, 2*n* = 22, CHN. Paraguay, Concepción Department, San Lázaro District, Vallemí, Tres Cerros, Cumbre II, 22°15′02″ S, 57°52′07.3″ W, Mar 2013, *A. Rivarola 9* (FACEN, MNES) [Fig. 6B].

Regularly, chromosomes associate in 1II at diakinesis and metaphase I in all analyzed PMCs of this diploid species.

Panicum trichanthum Nees

n = 18, 2*n* = 36, CHN. Paraguay, Concepción Department, San Lázaro District, Vallemí, Tres Cerros, Cumbre I, 22°15′16.2″ S, 57°51′15.0″ W, Mar 2013, *A. Rivarola 32* (FACEN, MNES) [Fig 6C].

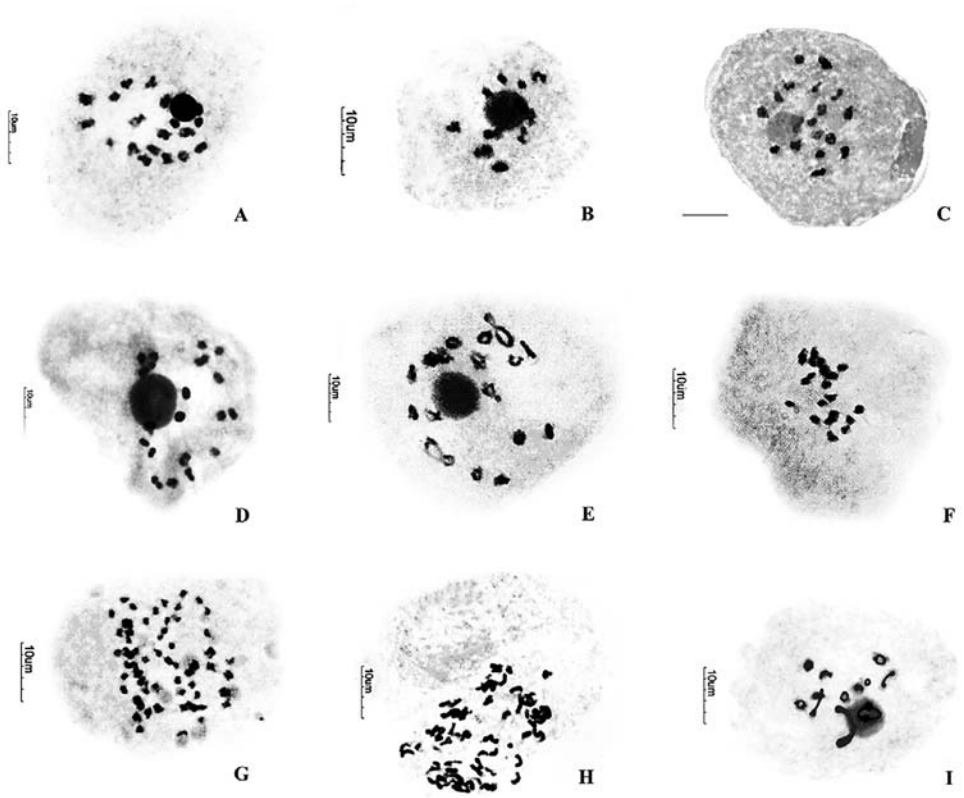

Fig. 6. A, *Chloris dandyana* var. *dandyana*, PMC at diakinesis, *n* = 20II with a prominent nucleolus; **B,** *Panicum campestre*, PMC at diakinesis with *n* = 11II; **C,** *Panicum trichanthum*, *n* = 18II; **D,** *Paspalum arundinellum*, *n* = 20; **E,** *P. compressifolium*, *n* = 14II+3IV; **F,** *P. simplex*, *n* = 20II; **G,** *P. simplex*, mitotic metaphase *2n* = 60; **H,** *Oplismenus hirtellus* subsp. *setarius*, mitotic metaphase, *2n* = 76; **I,** *Sporobolus jacquemontii*, diakinesis, *n* = 12II. — Scale bars = 10 µm.

The count of 18II in all PMCs at diakinesis agrees with all the South American studied accessions of this species (Pohl & Davidse, 1971; Honfi & al., 1990; Norrmann & al., 1994; Morrone & al., 2006).

■ *Paspalum arundinellum* Mez

n = 20, 2*n* = 40, CHN. Paraguay, Concepción Department, San Lázaro District, Vallemí, Tres Cerros, Cumbre I, 22°15′11.5″ S, 57°51′11.7″ W, Mar 2013, *A. Rivarola 25* (FACEN, MNES) [Fig. 6D].

Tetraploid cytotype of *P. arundinellum* has been found only in a little locality from Formosa, Argentina (Honfi, 2003). In Paraguay, several pentaploids were recorded (2*n* = 5*x* = 50) which are distributed along the Paraguay River and continue to Argentina by the Parana River (Honfi & al., 1990; Honfi, 2003). The chromosomes are associates as 20II at diakinesis in several PMCs.

■ *Paspalum compressifolium* Swallen

n = 20, 2*n* = 40, CHN. Paraguay, Concepción Department, San Lázaro District, Vallemí, 22°09′18.7″ S, 57°57′0.48″ W, Mar 2013, *A. Rivarola 28* (FACEN, MNES) [Fig. 6E].

Chromosomes behave mainly as 20II at diakinesis and metaphase I and sometimes as other two configurations, 18II + 1IV or 14II + 3IV. The presence of up to three quadrivalents at meiosis indicates an autotetraploid condition in agreement with Quarin & al. (1996). The geographical distribution area of tetraploids increases with our finding, from Brazil until North Paraguay.

Paspalum notatum Flüggé var. *notatum*

n = 20, 2*n* = 40, CHN. Paraguay, Concepción Department. San Lázaro District, Vallemí, Tres Cerros, Cumbre II, 22°15′02″ S, 57°52′07.3″ W, Mar 2013, *A. Rivarola 39* (FACEN, MNES).

This record agrees with previous counts (Burton, 1940) made on Paraguay's materials.

Paspalum simplex Morong

n = 20, 2*n* = 40, CHN. Paraguay, Concepción Department, San Lázaro District, Vallemí, Tres Cerros, Cumbre II, 22°15′09.4″ S, 57°52′22.4″ W, Mar 2013, *A. Rivarola 11* (FACEN, MNES) [Fig. 6F].

PMCs at diakinesis and metaphase I show 20II. Tetraploid populations are the most frequent in *P. simplex* from Paraguay and this count agrees with Urbani & al. (2002) and Højsgaard & al. (2009).

■ *n* = 30, 2*n* = 60, CHN. Paraguay, Concepción Department, San Lázaro District, Vallemí, Tres Cerros, Cumbre I, 22°15′11.5″ S, 57°51′11.7″ W, Mar 2013, *A. Rivarola 13* (FACEN, MNES) [Fig. 6G].

The specimens from this population showed 30II in PMCs at meiosis I, according to hexaploidy. The chromosomes segregate regularly. *P. simplex* is an agamic polyploidy complex with diploid, triploid, tetraploid and hexaploid cytotypes (Dandin & Chennaveeraiah, 1983; Caponio & Quarin, 1987, Espinoza & Quarin, 1997; Urbani & al., 2002; Højsgaard & al., 2009).

■ *Sporobolus jacquemontii* Kunth

n = 12, 2*n* = 24, CHN. Paraguay. Concepción Department. San Lázaro District, Vallemí, Tres Cerros, Cumbre I, 22°15′11.5″ S, 57°51′11.7″ W, Mar 2013, *A. Rivarola 26* (FACEN, MNES) [Fig. 6I].

Meiotic behavior of this species was regular, with 12II at diakinesis and metaphase I, according to the diploid state. In some PMCs was also observed 10II + 1IV suggesting the presence of a translocation in heterozygous condition This count is added to the contribution made by Pohl & Davidse (1971) and Peterson & al. (2004) who observed 2*n* = 24 for Mexican populations.

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Chromosome counts were done following the method by Guerra & Souza (2002).

* First chromosome count for the species.
\+ Endemic to Caatinga vegetation (BFG, 2015).

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CORDIACEAE

Cordia glabrata (Mart.) A.DC.
* 2*n* = 52, CHN. Brazil, Bahia, Paulo Afonso, Lago do Capuxú, 09°23′58″ S, 38°12′48″ W, 11 Oct 2012, *D.D. Vieira 393* (HUNEB) [Fig. 7A].

Cordia rufescens A.DC.
* 2*n* = ca. 28, CHN. Brazil, Bahia, Euclides da Cunha, Sucupira do Galo, 10°21′00″ S, 38°41′20″ W, 11 Jun 2013, *D.D. Vieira 447* (HUNEB) [Fig. 7B].

Cordia trichotoma (Vell.) Arráb. ex Steud.
2*n* = ca. 72, CHN. Brazil, Bahia, Jeremoabo, APA Serra Branca, 09°57′48″ S, 38°26′13″ W, 3 Sep 2012, *D.D. Vieira 380* (HUNEB) [Fig. 7C].

Varronia curassavica Jacq.
2*n* = 18, CHN. Brazil, Bahia, Jeremoabo, APA Serra Branca, 09°58′18″ S, 38°56′08″ W, 9 Jul 2012, *J.V. Santos 33 & al.* (HUNEB) [Fig. 7D].

Varronia globosa Jacq.
* 2*n* = 18, CHN. Brazil, Bahia, Jeremoabo, APA Serra Branca, 09°52′43″ S, 38°39′12″ W, 10 Jul 2012, *A.F.S. Brito 95* (HUNEB) [Fig. 7E].

Varronia leucocephala (Moric.) J.S.Mill.
*+ 2*n* = 18, CHN. Brazil, Bahia, Jeremoabo, APA Serra Branca, 09°54′32″ S, 38°41′27″ W, 27 Mar 2012, *L.R. Silva 64* (HUNEB) [Fig. 7F].

HELIOTROPIACEAE

Euploca procumbens (Mill.) Diane & Hilger
2*n* = 28, CHN. Brazil, Bahia, Paulo Afonso, Caminho dos Lagos, 09°23′56″ S, 38°13′59″ W, 11 Feb 2012, *D.D. Vieira 212* (HUNEB) [Fig. 8A].

Heliotropium angiospermum Murray
2*n* = 26, CHN. Brazil, Bahia, Paulo Afonso, Balneário da Chesf, 09°23′58″ S, 38°12′50″ W, 28 May 2012, *D.D. Vieira 306 & al.* (HUNEB) [Fig. 8B].

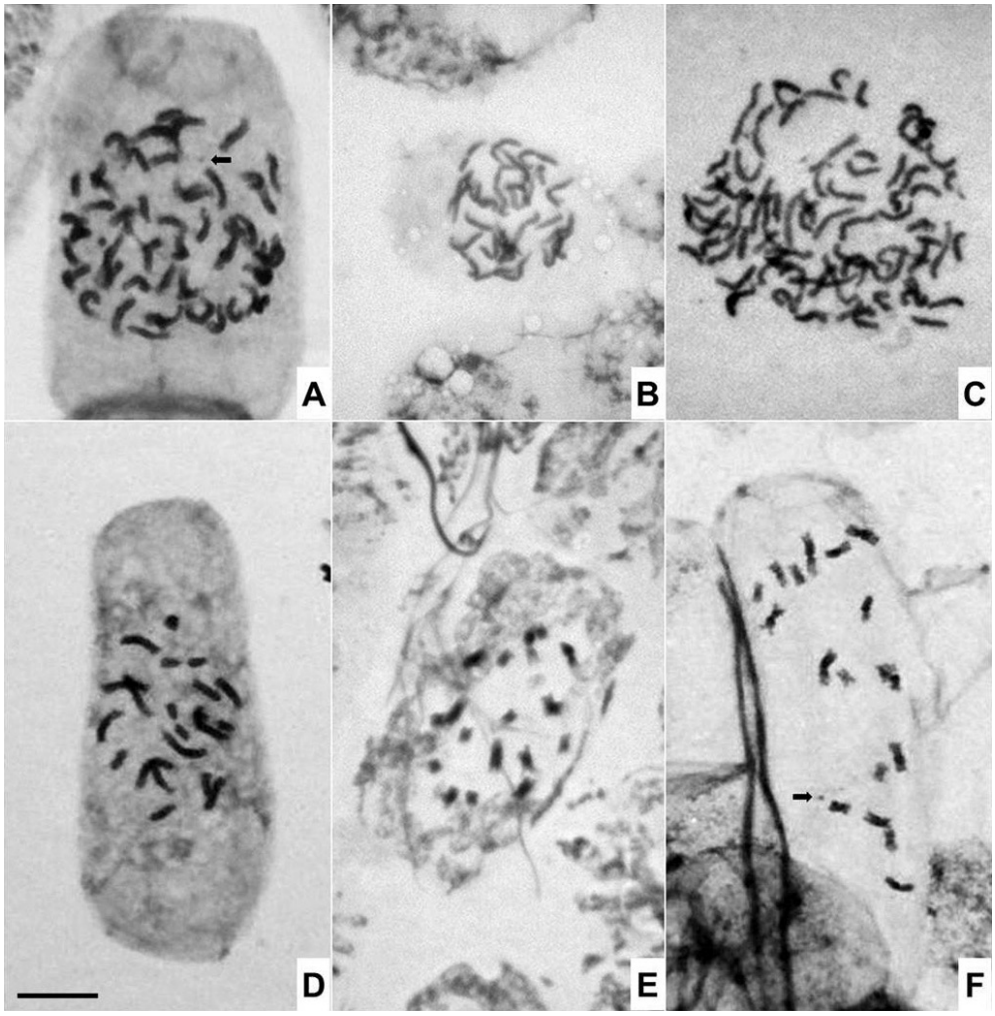

Fig. 7. Cordiaceae (Boraginales). **A,** *Cordia glabrata*, 2*n* = 52 (chromosome sizes varying from 2.13 to 5.46 µm); **B,** *C. rufescens*, 2*n* = ca. 28 (2.19 to 6.04 µm); **C,** *C. trichotoma*, 2*n* = ca. 72 (2.50 to 8.06 µm); **D,** *Varronia curassavica*, 2*n* = 18 (1.56 to 5.04 µm); **E,** *V. globosa*, 2*n* = 18 (1.42 to 4.97 µm); **F,** *V. leucocephala*, 2*n* = 18 (2.17 to 6.00 µm). — Scale bar = 10 µm. Arrows in A and F indicate satellites.

Heliotropium elongatum (Lehm.) I.M.Johnst.
* 2*n* = 48, CHN. Brazil, Bahia, Canudos, Estação Biológica de Canudos, 09°56′16″ S, 38°58′55″ W, 12 Jul 2012, *A.S. Conceição 1921* (HUNEB) [Fig. 8C].

Heliotropium indicum L.
2*n* = 26, CHN. Brazil, Bahia, Ribeira do Pombal, RPPN Fazenda Flor de Lis, 10°50′28″ S, 38°31′57″ W, 11 Jun 2013, *D.D. Vieira 441* (HUNEB) [Fig. 8D].

Myriopus candidulus (Miers) Feuillet
* 2*n* = 24, CHN. Brazil, Bahia, Euclides da Cunha, Sucupira do Galo, 10°21′00″ S, 38°41′20″ W, 11 Jun 2013, *D.D. Vieira 454* (HUNEB) [Fig. 8E].

Myriopus rubicundus (Salzm. ex DC.) Luebert
* 2*n* = 48, CHN. Brazil, Bahia, Paulo Afonso, UNEB Campus VIII, 09°24′12″ S, 38°12′57″ W, 20 Mar 2013, *D.D. Vieira 427* (HUNEB) [Fig. 8F].

Myriopus salzmannii (DC.) Diane & Hilger
* 2*n* = 48, CHN. Brazil, Bahia, Canudos, Estação Biológica de Canudos, 09°57′11″ S, 39°00′41″ W, 12 Jul 2012, *A.S. Conceição 1896* (HUNEB) [Fig. 8G].

Chromosomal counts are available for approximately 15% of the species of the family Cordiaceae, with the genus *Cordia* L. being the most studied. In spite of the fact that a number of species have been reported to have more than one chromosome number, basic numbers are available for some of the subclades of *Cordia* s.str.: *x* = 7 in the subclade Collococcus, which includes *C.* sect. *Superbiflorae* Taroda, and *x* = 8 in the subclade Sebestena which includes *C.* sect. *Gerascanthus* (P. Browne) G.Don. Species of the subclade Sebestena also showed *n* = 15, which can be interpreted as derived from *x* = 7 or *x* = 8 through dysploid and polyploidy associated events (Heubl & al., 1990; Gottschling, 2003).

Chromosome number counts for species of *Cordia* sect. *Gerascanthus* showed two different counts for *C. alliodora* (Ruiz & Pav.) Cham.: 2*n* = 30 and 2*n* = 72 (Britton, 1951; Heubl & al., 1990). Among

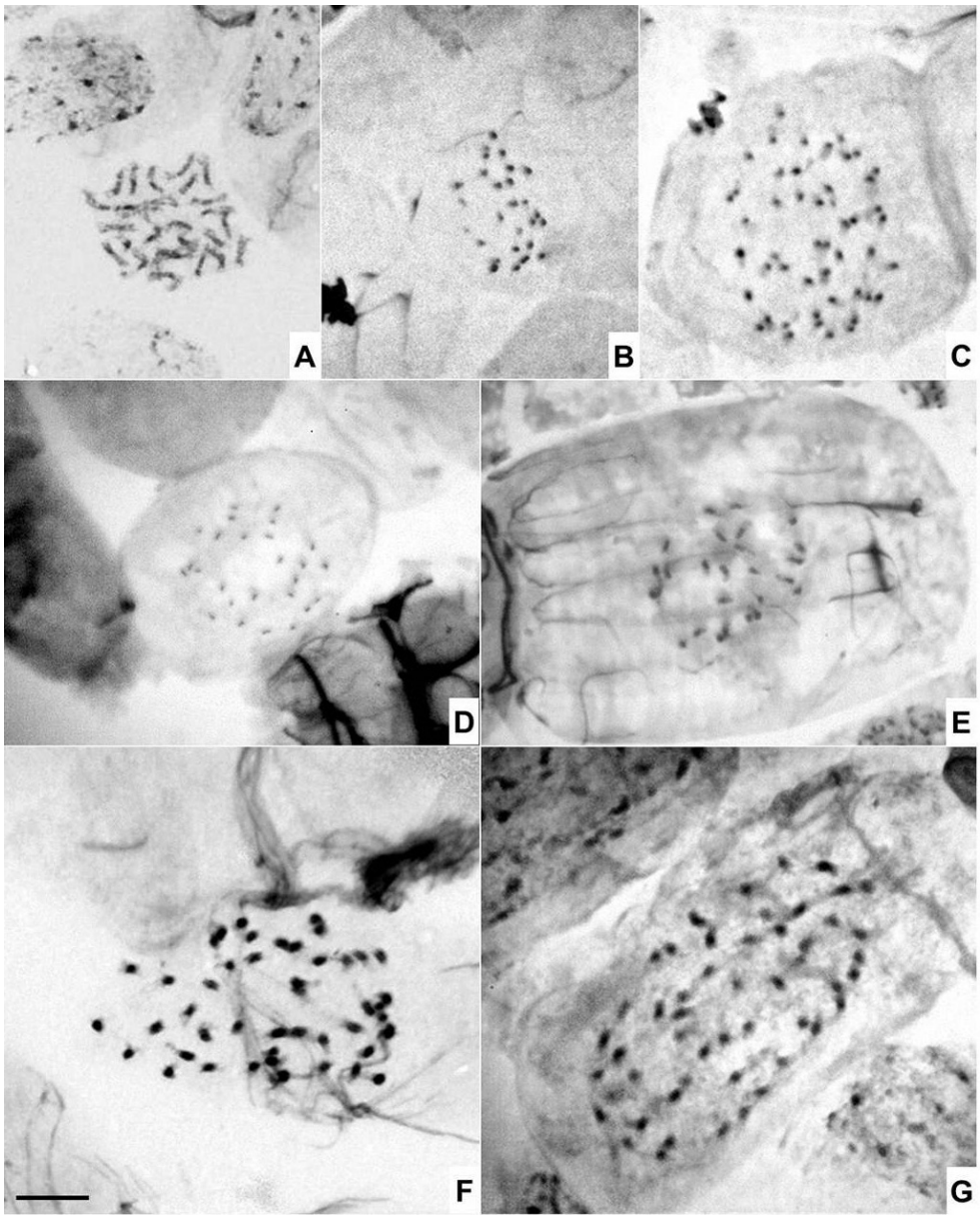

Fig. 8. Heliotropiaceae (Boraginales). **A,** *Euploca procumbens*, 2*n* = 28 (chromosome sizes vary from 1.20 to 3.21 µm); **B,** *Heliotropium angiospermum*, 2*n* = 26 (1.12 to 1.57 µm); **C,** *H. elongatum*, 2*n* = 48 (1.07 to 2.06 µm); **D,** *H. indicum*, 2*n* = 26 (0.71 to 1.21 µm); **E,** *Myriopus candidulus*, 2*n* = 24 (0.85 to 2.19 µm); **F,** *M. rubicundus*, 2*n* = 48 (1.17 to 2.79 µm); **G,** *M. salzmannii*, 2*n* = 48 (1.50 to 2.91 µm). — Scale bar = 10 µm.

the species analyzed here, the only previous record for *Cordia trichotoma* is $2n = 104$ (Las Peñas, 2003). *Cordia rufescens*, assigned to *C.* sect. *Superbiflorae*, showed $2n =$ ca. 28, but there are no records for other species of this section. Analyses of New World species of *C.* sect. *Myxa* (Endl.) DC. (subclade Collococcus), however, showed $n = 14$ for both *C. collococca* L. and *C. panamensis* L.Riley (Moore, 1977), suggesting $x = 14$ as its basic number – although it is probably a secondary basic number from $x = 7$. Counts undertaken with three species of *Varronia* P.Browne confirmed $x = 9$ as the basic number for this genus (Heubl & al., 1990; Gottschling, 2003).

Chromosome counts are available for approximately 20% of the species of Heliotropiaceae, mostly focusing on the genera *Euploca* Nutt. and *Heliotropium* L. (Diane & al., 2004). Euploca shows $x = 7$ as its basic number, with ploidy levels varying from $2x$, $3x$, $4x$, $6x$ to $8x$ (Faruqi, 1961; Di Fulvio, 1969; Fedorov, 1969; Moore, 1973; Frohlich & Ferrone, 1984; Goldblatt, 1988). The counts undertaken here corroborated the above-mentioned basic number, as well as counts previously published by Frohlich & Ferrone (1984).

The chromosome number reported here for *Heliotropium angiospermum* confirmed the single previous count for the species made by Frohlich & Ferrone (1984), likewise corroborating one of the basic numbers proposed for the New World species of the genus ($x = 13$) (Diane & al., 2004). The observed chromosome number for *H. elongatum*, on the other hand, suggests that this species is a tetraploid based on $x = 12$. Previous counts for *H. indicum* gave $n = 11$ and $n = 12$ (Moore, 1973; Goldblatt & Johnson, 2000), $2n = 22$ (Britton, 1951; Goldblatt, 1988) and $2n = 64$ (Fedorov, 1969), differing from the number obtained in the present study and indicating that these wide variations in chromosome numbers resulted from dysploid and polyploidy events.

The three species of *Myriopus* Small analyzed in the present work belong to an older section, *Cyphocyema* I.M.Johnst. (*Tournefortia* L.), and the only current record in the literature for that group is $n = 12$ for *T. paniculata* var. *austrina* I.M.Johnst. (as reported by Di Fulvio, 1967). As such, $x = 12$ can be considered the basic number for the group, with *M. candidulus* being a diploid and *M. rubicundus* and *M. salzmannii* tetraploids.

In general, the chromosomes of the species studied here varied in size from small to medium, with the smallest (0.71 µm) being observed in *H. indicum* and the largest (8.06 µm) in *C. trichotoma*. We also observed satellites in the species *C. glabrata* and *V. leucocephala* (Fig. 7A, F). Regarding symmetry, the species of Cordiaceae (Fig. 7A–F) showed karyotypes with variable chromosome sizes, with Heliotropiaceae (Fig. 8A–G) having the most symmetrical chromosomes. The species of *Myriopus* analyzed here demonstrated one or two chromosome pairs slightly larger than the others (Fig. 8E–G).

The basic numbers of the two families presented variations within the different genera analyzed, with $x = 7$, 8, 9, 12 and 13 probably being due to dysploid events associated with polyploidy. Tetraploidy was observed in *E. procumbens*, *H. elongatum*, *M. rubicundus*, and *M. salzmannii*, and high chromosome numbers were observed in species of *Cordia*. Based on the literature, and the species studied here, dysploidy and polyploidy appear to be common events in the chromosomal evolution of Cordiaceae and Heliotropiaceae. Additionally, our karyological data corroborate phylogenetic studies undertaken with Heliotropiaceae and Cordiaceae by Hilger & Diane (2003) and Gottschling & al. (2005), respectively, and this study presents important (although incipient) data concerning the cytogenetics of Cordiaceae and Heliotropiaceae (Boraginales), focusing especially on their Brazilian representatives.

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