

This is the supplementary material of an Accepted Manuscript of an article published in *Taxon* on 1 August 2017, available online: <https://doi.org/10.12705/664.8>

Appendix 1 Information on subgeneric taxonomical assignation, subgenus, voucher information (for species sequenced for the current study): Location, voucher No./barcode, date of collection, herbarium, Genbank accession numbers and the original publication source of the nuclear DNA sequences included in the *Artemisia* dataset. Superscripts denote the previously published data source (^aTorrell & al. 1999; ^bVallès & al., 2003; ^cSanz & al., 2008; ^dTkach & al., 2008b; ^eMasuda & al., 2009; ^{f1}Pellicer & al., 2010a; ^{f2}2010b; ^g2011; ^h2014; ⁱGarcia & al., 2011; ^jSarikhan & al., 2014; ^kHobbs & Baldwin, 2013). *Indicates species sequenced for the current study where LE denotes Komarov Botanical Institute and Herbarium University of Barcelona is symbolized as BCN.

**Artemisia aralensis* Krasch., *Seriphidium*, Kazakhstan, LE-Seriph-140, 16/09/1927, LE, KU641541, KU641511, KU641526; **A. badhysi* Krasch. & Lincz. ex Poljakov, *Seriphidium*, Turkmenistan, LE-Seriph-143, 27/05/1962, LE, KU641543, KU641513, KU641528; **A. camolorum* Krasch., *Seriphidium*, Kazakhstan, LE-Seriph-141, 11/07/1960, LE, KU641542, KU641512, KU641527; **A. ciniformis* Krasch. & Popov ex Poljakov, *Seriphidium*, Turkmenistan, LE-Seriph-147, 06/05/1977, LE, KU641544, KU641514, KU641529; **A. densiflora* Viv., *Seriphidium*, Italy: Sardegna island La Maddalena archipelago, Caprera island: Stagnali gulf, near Stagnali town, BCN 126584, 17/11/2015, BCN, KY006165, K006163, K006164; **A. glanduligera* Krasch. ex Poljakov, *Seriphidium*, Tajikistan, LE-Seriph-155, 28/08/1951, LE, KU641546, KU641516, KU641531; **A. gurganica* (Krasch.) Filat., *Seriphidium*, Kazakhstan, LE-Seriph-156, 28/08/1989, LE, KU641547, KU641517, KU641532; **A. halophila* Krasch., *Seriphidium*, Kazakhstan, LE-Seriph-151, 24/08/1935, LE, KU641545, KU641515, KU641530; **A. issykkulensis* Poljakov, *Seriphidium*, Kyrgyzstan, LE-Seriph-157, 02/09/1952, LE, KU641548, KU641518, KU641533; **A. juncea* Kar. & Kir., *Seriphidium*, Kazakhstan: Almatynskaya oblast, Chilitsky. Sogeti mountains, 1000 m, BCN 130813, 22/08/2000, BCN, KU641550, KU641520, KU641535; **A. pauciflora* Weber, *Seriphidium*, Russia, LE-Seriph-168, 09/10/1949, LE, KU641549, KU641519, KU641534; *A. absinthium* L., *Absinthium*, DQ028850^c, AF045394^a, AF079946^a; *A. adamsii* Besser, *Artemisia*, AM397953^d, AM398844^d; *A. afra* Jacq. ex Willd., *Artemisia*, JX069431^k, JX051743^k; *A. alaskana* Rydb., *Absinthium*, AM397954^d, AM398845^d; *A. alba* Turra, *Artemisia*, JX069395^k, JX051695^k; *A. albicans* S. Garcia, Garnatje, McArthur, Pellicer, S. C. Sand. & Vallès-Xirau, *Artemisia* (*Sphaeromeria*), JX069459^k, JX051705^k; *A. albicerata* Krasch., *Dracunculus*, JF326587^e, JF326531^e; *A. androsacea* Seem., *Absinthium*, AM397955^d, AM398846^d; *A. anethifolia* Weber ex Stechm., *Absinthium*, LK391718^h, LK391723^h; *A. anethoides* Mattf., *Absinthium*, LK391719^h, LK391724^h; *A. annua* L., *Artemisia*, AM397956^d, AM398847^d; *A. anomala* S. Moore, *Artemisia*, JX069377^k, JX051674^k; *A. apiacea* Hance, *Artemisia*, AM398033^d, AM398848^d; *A. araxina* Takht., *Seriphidium*, DQ028870^c, AF045408^a, AF079959^a; *A. arborescens* (Vaill.) L., *Absinthium*, FJ642934^f, AF045393^a, AF079945^a; *A. arbuscula* Nutt. ssp. *arbuscula*, *Tridentatae*, HQ018992ⁱ, HQ019034ⁱ; *A. arbuscula* ssp. *longicaulis* Winward, *Tridentatae*, HQ018993ⁱ, HQ019035ⁱ; *A. arbuscula* ssp. *longiloba* (Osterh.) L. M. Shultz, *Tridentatae*, HQ019005ⁱ, HQ019047ⁱ; *A. arbuscula* ssp. *thermopola* Beetle, *Tridentatae*, HQ018994ⁱ, HQ019036ⁱ; *A. arctica* (Besser) Leonova, *Artemisia*, AM397958^d, AM398849^d; *A. arenaria* DC., *Dracunculus*, JF326588^e, JF326532^e; *A. argentea* L' Hér., *Absinthium*, JX069396^k, JX051696^k; *A. argilosa* Beetle, *Tridentatae*, HQ018995ⁱ, HQ019037ⁱ; *A. argyi* H. Lévl. & Vaniot, *Artemisia*, FJ642936^{f1}, FJ642972^{f1}, FJ643008^{f1}; *A. armeniaca* Lam., *Artemisia*, JX069393^k, JX051693^k; *A. aschurbajewii* C. Winkl., *Absinthium*, DQ028838^c, AF504170^b, AF504143^b; *A. atrata* Lam., *Artemisia*, FJ642937^{f1}, FJ642973^{f1}, FJ643009^{f1}; *A. aucheri* Boiss., *Seriphidium*, JX445067^j, JX445011^j, JX445039^j; *A. australis* Less., *Pacifica*, JX069435^k, JX051753^k; *A. austriaca* Jacq., *Absinthium*, DQ028844^c, AF504171^b, AF504144^b; *A. bargusinensis* Spreng., *Dracunculus*, JF326589^e, JF326533^e; *A. barrelieri* Besser, *Seriphidium*, DQ028875^c, AF045410^a, AF079961^a; *A. biennis* Willd., *Artemisia*, GU902841^{f2}, GU902817^{f2}, GU902829^{f2}; *A. bigelovii* A.Gray, *Tridentatae*, HQ018996ⁱ, HQ019038ⁱ; *A. blepharolepis* Bunge, *Artemisia*, LK391720^h, LK391725^h; *A. borealis* Pall., *Dracunculus*, JF326534^e, JF326590^e; *A. borealis* ssp. *mertensii* (Besser ex Besser) Amel'jcz., *Dracunculus*, AM397962^d, AM398853^d; *A. borealis* ssp. *richardsoniana* (Besser) Korobkov, *Dracunculus*, AM397960^d, AM398854^d; *A. caeruleascens* L., *Seriphidium*, DQ028872^c, AF045409^a, AF07996^a; *A. caespitosa* Ledeb., *Absinthium*, AM397957^d, AM398855^d; *A. californica* Less., *Tridentatae*, HQ018997ⁱ, HQ019039ⁱ; *A. campestris* L., *Dracunculus*, JX069426^k, JX051736^k; *A. campestris* ssp. *caudata* (Michx.) H. M. Hall & Clem., *Dracunculus*, JF326592^e, JF326536^e; *A. cana* Pursh, *Tridentatae*, DQ028882^c, AF045413^a, AF079965^a; *A. cana* Pursh ssp. *cana*, *Tridentatae*, HQ018999ⁱ, HQ019041ⁱ; *A. cana* Pursh ssp. *viscidula* (Osterh.) Beetle, *Tridentatae*, HQ019000ⁱ, HQ019042ⁱ; *A. cana* ssp. *bolanderi* (A. Gray) G. H. Ward, *Tridentatae*, AM397964^d, AM398857^d; *A. canadensis* Michx., *Dracunculus*, AM397963^d, AM398856^d; *A. canariensis* (Besser) Less., *Absinthium*, DQ028852^c, DQ028920^c, DQ028907^c; *A. capillaris* Thunb., *Dracunculus*, JF326591^e, JF326535^e; *A. capitata* (Nutt.) S. Garcia, Garnatje, McArthur, Pellicer, S.C.Sand. & Vallès-Xirau (*Sphaeromeria capitata*), *Artemisia* (*Sphaeromeria*), HQ019027ⁱ, HQ019069ⁱ; *A. carruthii* Alph. Wood ex Carruth., *Artemisia*, JX069416^k, JX051722^k; *A. chamaemelifolia* Vill., *Artemisia*, FJ642938^f, FJ642974^f, FJ643010^f; *A. chinensis* L., *Pacifica*, JX069438^k, JX051756^k; *A. ciniformis* Krasch. & Popov

ex Poljakov, *Seriphidium*, JX445071, JX445015¹, JX445043¹; *A. comata* Rydb., *Artemisia*, AM397966^d, AM398859^d; *A. commutata* Besser, *Dracunculus*, JF326594^g, JF326538^g; *A. compacta* Fisch. ex DC., *Seriphidium*, AM397968^d, AM398861^d; *A. copa* Phil., *Artemisia*, GU902831^{f2}, GU902807^{f2}, GU902819^{f2}; *A. cretacea* (Fiori) Pignatti, *Seriphidium*, FJ642939^{f1}, FJ642975^{f1}, FJ643011^{f1}; *A. crithmifolia* L., *Dracunculus*, DQ028856^c, AF045399^a, AF079962^a; *A. czezanowskiana* Trautv., *Absinthium*, AM397969^d, AM398862^d; *A. demissa* Krasch., *Dracunculus*, JF326595^g, JF326539^g; *A. depauperata* Krasch., *Dracunculus*, JF326596^g, JF326540^g; *A. deserti* Krasch., *Seriphidium*, HQ019001ⁱ, HQ019043ⁱ; *A. desertorum* Spreng., *Dracunculus*, FJ642940^{f1}, FJ642976^{f1}, FJ643012^{f1}; *A. diffusa* Krasch. ex Poljakov, *Seriphidium*, JX069362^k, JX051653^k; *A. dimoana* Popov, *Dracunculus*, JF326598^g, JF326542^g; *A. dolosa* Krasch., *Dracunculus*, JF326599^g, JF326543^g; *A. douglasiana* Besser ex Besser, *Artemisia*, JX069417^k, JX051723^k; *A. dracunculiformis* Krasch., *Dracunculus*, AM397972^d, AM398865^d; *A. dracunculoides* Pursh, *Dracunculus*, JF326600^g, JF326544^g; *A. dracunculus* L., *Dracunculus*, JF326601^g, JF326545^g; *A. dracunculus* var. *changaica* (Krasch.) Y. R. Ling, *Dracunculus*, JF326593^g, JF326537^g; *A. dracunculus* var. *glauca* (Pall. ex Willd.) H.M. Hall & Clem., *Dracunculus*, JF326606^g, JF326550^g; *A. duthreuil-de-rhinsii* Krasch., *Dracunculus*, JF326602^g, JF326546^g; *A. echegarayi* Hieron., *Artemisia*, GU902833^{f2}, GU902811^{f2}, GU902823^{f2}; *A. edgeworthii* N. P. Balakr., *Dracunculus*, JF326603^g, JF326547^g; *A. elongata* Filatova & Ladygina, *Seriphidium*, JX069432^k, JX051746^k; *A. eriantha* Ten., *Absinthium*, DQ028842^c, DQ028919^c, DQ028906^c; *A. eriopoda* Bunge, *Dracunculus*, JF326604^g, JF326548^g; *A. feddei* H. Lév. & Vaniot, *Artemisia*, FJ642941^{f1}, FJ642977^{f1}, FJ643013^{f1}; *A. ferganensis* Krasch. ex Poljakov, *Seriphidium*, FJ642942^{f1}, FJ642978^{f1}, FJ643014^{f1}; *A. filifolia* Torr., *Tridentatae*, HQ019003ⁱ, HQ019045ⁱ; *A. flava* Jurtzev, *Artemisia*, AM397974^d, AM398867^d; *A. fragrans* Willd., *Seriphidium*, DQ028871^c, AF045406^a, AF079957^a; *A. freyniana* (Pamp.) Krasch., *Artemisia*, AM397975^d, AM398868^d; *A. frigida* Willd., *Absinthium*, HQ019004ⁱ, HQ019046ⁱ; *A. furcata* M. Bieb., *Artemisia*, AM397977^d, AM398870^d; *A. giraldii* Pamp., *Dracunculus*, JF326605^g, JF326549^g; *A. glacialis* L., *Absinthium*, DQ028840^c, DQ028921^c, DQ028908^c; *A. glauca* Pall. ex Willd., *Dracunculus*, AM397978^d, AM398871^d; *A. globosa* Krasch., *Dracunculus*, JF326607^g, JF326551^g; *A. globosoides* Ling & Y. R. Ling, *Dracunculus*, JF326608^g, JF326552^g; *A. globularia* Cham. ex Besser, *Tridentatae*, AM397979^d, AM398872^d; *A. glomerata* Ledeb., *Absinthium*, AM397980^d, AM398873^d; *A. gmelinii* Weber ex Stechm. ssp. *scheludjakoviae* Korobkov, *Artemisia*, AM397981^d, AM398874^d; *A. gmelinii* Weber ex Stechm., *Artemisia*, AM397982^d, AM398875^d; *A. gobica* (Krasch.) Grubov, *Seriphidium*, AM397983^d, AM398876^d; *A. gorgonum* Webb, *Absinthium*, AM397984^d, AM398877^d; *A. gracilescens* Krasch. & Iljin, *Seriphidium*, JX069421^k, JX051731^k; *A. granatensis* Boiss., *Absinthium*, DQ028841^c, AF045397^a, AF079949^a; *A. gypsacea* Krasch., Popov & Lincz. ex Poljakov, *Seriphidium*, JX445075^j, JX445019^j, JX445047^j; *A. haussknechtii* Boiss., *Absinthium*, DQ028837^c, AF504173^b, AF504146^b; *A. herba-alba* Asso, *Seriphidium*, DQ028874^c, AF045403^a, AF079954^a; *A. hultenii* M. M. Maximova, *Artemisia*, AM397985^d, AM398878^d; *A. hyperborea* Rydb., *Artemisia*, AM397986^d, AM398879^d; *A. inaequifolia* S. Garcia, Garnatje, McArthur, Pellicer, S. C. Sand. & Vallès-Xirau (*Sphaeromeria diversifolia*), *Artemisia* (*Sphaeromeria*); HQ019029ⁱ, HQ019071ⁱ; *A. incana* (L.) Druce, *Artemisia*, JX069455^k, JX051701^k; *A. inculta* Delile, *Seriphidium*, DQ028878^c, AF045405^a, AF079956^a; *A. indica* Willd., *Artemisia*, JX069379^k, JX051676^k; *A. integrifolia* Richards., *Artemisia*, AM397987^d, AM398880^d; *A. intramongolica* H. C. Fu, *Dracunculus*, JF326609^g, JF326553^g; *A. jacutica* Drobow, *Absinthium*, LK391721^h, LK391726^h; *A. jacutica* Drobow, *Absinthium*, AM397988^d, AM398881^d; *A. japonica* Thunb., *Dracunculus*, JF326610^g, JF326554^g; *A. jordanica* Thunb., *Dracunculus*, JF326611^g, JF326555^g; *A. judaica* L., *Artemisia*, DQ028848^c, AF504175^b, AF504148^b; *A. kauaiensis* (Skotts.) Skotts., *Pacifica*, JX069436^k, JX051754^k; *A. kawakamii* Hayata, *Artemisia*, FJ642946^{f1}, FJ642982^{f1}, FJ643018^{f1}; *A. keiskeana* Miq., *Artemisia*, JF326612^g, JF326556^g; *A. kelleri* Krasch., *Dracunculus*, JF326613^g, JF326557^g; *A. khorassanica* Podlech, *Seriphidium*, JX445077^j, JX445021^j, JX445049^j; *A. klementzae* Krasch., *Dracunculus*, JF326614^g, JF326558^g; *A. kochiiiformis* Krasch. & Lincz. ex Poljakov, *Seriphidium*, JX069433^k, JX051747^k; *A. koidzumii* Nakai, *Artemisia*, AM398035^d, AM398884^d; *A. kopetdaghensis* Poljakov, *Seriphidium*, JX445078^j, JX445022^j, JX445050^j; *A. kruhsiana* Besser, *Absinthium*, AM397990^d, AM398885^d; *A. kurramensis* Qazilb., *Seriphidium*, JX069469^k, JX051751^k; *A. kuschakewiczii* C. Winkl., *Dracunculus*, JF326615^g, JF326559^g; *A. laciniata* Willd., *Artemisia*, AM397991^d, AM398886^d; *A. laciniatiformis* Kom., *Artemisia*, AM397992^d, AM398887^d; *A. lactiflora* Wall. ex DC., *Artemisia*, FJ642948^{f1}, FJ642984^{f1}, FJ643020^{f1}; *A. lagocephala* (Fisch. ex Besser) DC., *Absinthium*, DQ028898^c, DQ028917^c, DQ028904^c; *A. lagopus* Fisch. ex Besser, *Absinthium*, AM397994^d, AM398889^d; *A. ledebouriana* Besser, *Dracunculus*, JF326616^g, JF326560^g; *A. leucodes* Schrenk, *Seriphidium*, DQ028893^c, AF504176^b, AF504149^b; *A. leucophylla* (Turcz. ex Besser) Turcz. ex C. B. Clarke, *Artemisia*, AM397995^d, AM398890^d; *A. limosa* Koidz., *Dracunculus*, JF326617^g, JF326561^g; *A. lithophila* Turcz., *Absinthium*, FJ642949^{f1}, FJ642985^{f1}, FJ643021^{f1}; *A. littorcola* Kitam., *Dracunculus*, JF326618^g, JF326562^g; *A. lucentica* O. Bolos, Vallès-Xirau & J. Vigo, *Artemisia*, DQ028846^c, AF045390^a, AF079943^a; *A. ludoviciana* Nutt., *Artemisia*, HQ019006ⁱ, HQ019048ⁱ; *A. macarthurii* S. Garcia, Garnatje, Pellicer, S. C. Sand. & Vallès-Xirau, *Artemisia* (*Sphaeromeria*), HQ019025ⁱ,

HQ019067ⁱ; *A. macilenta* (Maxim.) Krasch., *Dracunculus*, JF326619^g, JF326563^g; *A. macrantha* Ledeb., *Artemisia*, DQ028861^c, DQ059335^c, DQ059336^c; *A. macrocephala* Jacquem. ex Besser, *Absinthium*, LK391722^h, LK391727^h; *A. magellanica* Sch. Bip., *Artemisia*, GU902838^{f2}, GU902814^{f2}, GU902826^{f2}; *A. manshurica* (Kom.) Kom., *Dracunculus*, JF326620^g, JF326564^g; *A. maritima* L., *Seriphidium*, FJ642951^{fl}, FJ642987^{fl}, FJ643023^{fl}; *A. marschalliana* Spreng., *Dracunculus*, JF326621^g, AF504177^b, AF504150^b; *A. martirensis* (Wiggins) C. R. Hobbs & B. G. Baldwin, *Tridentatae*, JX069423^k, JX051734^k; *A. mauiensis* (A. Gray) Skottsb., *Pacifica*, JX069437^k, JX051755^k; *A. medioxima* Krasch. ex Poljakov, *Artemisia*, FJ642952^{fl}, FJ642988^{fl}, FJ643024^{fl}; *A. melanolepis* Boiss., *Absinthium*, JX069457^k, JX051703^k; *A. mendozana* DC. var. *mendozana*, *Artemisia*, GU902837^{f2}, GU902813^{f2}, GU902825^{f2}; *A. mendozana* DC. var. *paramilloensis* F. A. Roig & Ambrosetti, *Artemisia*, GU902834^{f2}, GU902808^{f2}, GU902820^{f2}; *A. mesatlantica* Maire, *Artemisia*, JX069474^k, JX051749^k; *A. messerschmidiana* Besser, *Artemisia*, AM397998^d, AM398894^d; *A. mexicana* Willd., *Artemisia*, DQ028892^c, AF045414^a, AF079966^a; *A. michauxiana* Besser, *Artemisia*, AM397999^d, AM398895^d; *A. molinieri* Quézel, M. Barbero & R. J. Loisel, *Artemisia*, DQ028888^c, AF045389^a, AF079941^a; *A. momiyamae* Kitam., *Artemisia*, FJ642953^{fl}, FJ642989^{fl}, FJ643025^{fl}; *A. mongolica* (Fisch. ex Besser) Fisch. ex Nakai, *Artemisia*, FJ642954^{fl}, FJ642990^{fl}, FJ643026^{fl}; *A. monosperma* Delile, *Dracunculus*, JF326622^g, JF326565^g; *A. monostachya* Bunge ex Maxim., *Dracunculus*, JF326623^g, JF326566^g; *A. montana* (Nakai) Pamp., *Artemisia*, FJ642955^{fl}, FJ642991^{fl}, FJ643027^{fl}; *A. nanshanica* Krasch., *Dracunculus*, JF326624^g, JF326567^g; *A. nesiotica* P. H. Raven, *Tridentatae*, HQ019007ⁱ, HQ019049ⁱ; *A. niitakayamensis* Hayata, *Dracunculus*, FJ642956^{fl}, FJ642992^{fl}, FJ643028^{fl}; *A. nitida* Bertol., *Absinthium*, JX069398^k, JX051698^k; *A. nitrosa* Weber ex Stechm., *Seriphidium*, JX069363^k, JX051654^k; *A. norvegica* var. *uralensis* Rupr., *Artemisia*, AM398001^d, AM398897^d; *A. norvegica* var. *villosula* Trautv. ex F. Schmidt, *Artemisia*, AM398002^d, AM398898^d; *A. nova* A. Nelson, *Tridentatae*, DQ028883^c, AF045412^a, AF079964^a; *A. nova* var. *duchesnicola* S. L. Welsh & Goodrich, *Tridentatae*, HQ019009ⁱ, HQ019051ⁱ; *A. nutans* Willd., *Seriphidium*, JX069445^k, JX051661^k; *A. obscura* Pamp., *Artemisia*, AM398003^d, AM398899^d; *A. obtusiloba* ssp. *altaiensis* (Krasch.) Krasnob., *Absinthium*, AM398004^d, AM398900^d; *A. oleandica* (Besser) Krasch., *Artemisia*, JX069392^k, JX051692^k; *A. oliveriana* J. Gay ex Besser, *Seriphidium*, JX445081^j, JX445025^j, JX445053^j; *A. opulenta* Pamp., *Artemisia*, AM398005^d, AM398901^d; *A. ordosica* Krasch., *Dracunculus*, JF326625^g, JF326568^g; *A. oxycephala* Kitag., *Dracunculus*, JF326626^g, JF326569^g; *A. palmeri* (A. Gray) Rydb., *Artemisia*, HQ019010ⁱ, HQ019052ⁱ; *A. palustris* L., *Artemisia*, JF326627^g, JF326570^g; *A. pamirica* C. Winkl., *Dracunculus*, JF326628^g, JF326571^g; *A. parviflora* D. Don, *Seriphidium*, AB359880^e, AB359697^e, AB359783^e; *A. pattersonii* A. Gray, *Absinthium*, JX069425^k, JX051737^k; *A. pedatifida* Nutt., *Tridentatae*, HQ019011ⁱ, HQ019053ⁱ; *A. pedemontana* Balb., *Absinthium*, JX069456^k, JX051702^k; *A. persica* Boiss., *Absinthium*, DQ028880^c, AF504179^b, AF504152^b; *A. pewzowii* C. Winkl., *Dracunculus*, JF326629^g, JF326572^g; *A. phaeolepis* Krasch., *Artemisia*, AM398009^d, AM398905^d; *A. pontica* L., *Artemisia*, FJ642957^{fl}, JX051663^k; *A. porteri* Cronquist, *Tridentatae*, HQ019012ⁱ, HQ019054ⁱ; *A. potentilloides* A. Gray, *Tridentatae*, JX069441^k, JX051760^k; *A. princeps* Pamp., *Artemisia*, AM398037^d, AM398906^d; *A. pubescens* Ledeb., *Dracunculus*, JF342552^g, JF342549^g; *A. punctigera* Krasch. ex Poljakov, *Artemisia*, AM398011^d, AM398908^d; *A. pycnocephala* (Less.) DC., *Dracunculus*, JF326630^g, JF326573^g; *A. pycnorhiza* Ledeb., *Dracunculus*, JF326631^g, JF326574^g; *A. pygmaea* A. Gray, *Tridentatae*, HQ019013ⁱ, HQ019055ⁱ; *A. quettensis* Podlech, *Seriphidium*, KM391978^l, KM391968^l, KM391973^l; *A. ramosa* C. Sm. ex Link, *Seriphidium*, FJ642958^{fl}, FJ642994^{fl}, FJ643030^{fl}; *A. reptans* Buch, *Artemisia*, DQ028847^c, AF045391^a, AF079944^a; *A. rigida* (Nutt.) A. Gray, *Tridentatae*, HQ019014ⁱ, HQ019056ⁱ; *A. rothrockii* A. Gray, *Tridentatae*, HQ019015ⁱ, HQ019057ⁱ; *A. roxburghiana* Wall. ex Besser, *Artemisia*, JX069384^k, JX051682^k; *A. rubripes* Nakai, *Artemisia*, FJ642959^{fl}, FJ642995^{fl}, FJ643031^{fl}; *A. rupestris* L., *Absinthium*, AM398013^d, AM398910^d; *A. ruthiae* (A. H. Holmgren, L. M. Shultz & Lowrey) S. Garcia, Garnatje, McArthur, Pellicer, S. C. Sand. & Vallès-Xirau (*Sphaeromeria ruthiae*), *Artemisia* (*Sphaeromeria*), DQ028886^c, AF504193^b, AF504166^b; *A. rutifolia* Stephan ex Spreng., *Absinthium*, DQ028849^c, AF504180^b, AF504153^b; *A. sacrorum* Ledeb., *Artemisia*, JX069422^k, JX051733^k; *A. salsoloides* Willd., *Dracunculus*, JF342553^g, JF342550^g; *A. samoiedorum* Pamp., *Absinthium*, AM398015^d, AM398912^d; *A. santolina* Schrenk, *Seriphidium*, DQ028873^c, AF504181^b, AF504154^b; *A. santolinifolia* Turcz. ex Krasch., *Artemisia*, DQ028836^c, AF504182^b, AF504155^b; *A. santonicum* L., *Seriphidium*, JX069364^k, JX051656^k; *A. saposhnikovii* Krasch. ex Poljakov, *Dracunculus*, JF326632^g, JF326575^g; *A. schmidiana* Maxim., *Absinthium*, FJ642960^{fl}, FJ642996^{fl}, FJ643032^{fl}; *A. schrenkiana* Ledeb., *Seriphidium*, FJ642961^{fl}, FJ642997^{fl}, FJ643033^{fl}; *A. scoparia* Waldst. & Kitam., *Dracunculus*, JF326633^g, JF326576^g; *A. scopulorum* A. Gray, *Absinthium*, JX069404^k, JX051709^k; *A. selengensis* Turcz. ex Besser, *Artemisia*, FJ642962^{fl}, FJ642998^{fl}, FJ643034^{fl}; *A. senjavinensis* Besser, *Absinthium*, AM398018^d, AM398915^d; *A. sericea* Weber ex Stechm., *Absinthium*, AM398019^d, AM398916^d; *A. serrata* Nutt., *Artemisia*, JX069401^k, JX051706^k; *A. sieberi* Besser, *Seriphidium*, DQ028876^c, AF045407^a, AF079958^a; *A. sieversiana* Ehrh., *Absinthium*, DQ028851^c, AF504183^b, AF504156^b; *A. simplex* (A. Nelson) S. Garcia, Garnatje, McArthur, Pellicer, S. C. Sand. & Vallès-Xirau, *Artemisia*, JX069471^k, JX051758^k; A.

sodiroid Hieron. ex Sodiro, *Artemisia*, JX069370^k, JX051667^k; *A. songarica* Schrenk, *Dracunculus*, JF326634^g, JF326577^g; *A. sosnovskyi* Krasch., *Dracunculus*, FJ642963^{fl}, FJ642999^{fl}, FJ643035^{fl}; *A. sphaerocephala* Krasch., *Dracunculus*, JF326636^g, JF326579^g; *A. spicigera* K. Koch, *Seriphidium*, JX445084^l, JX445028^l, JX445056^l; *A. splendens* Willd., *Absinthium*, DQ028845^c, AF045396^a, AF079948^a; *A. stelleriana* Besser, *Artemisia*, DQ028896^c, DQ028918^c, DQ028905^c; *A. stolonifera* (Maxim.) Kom., *Artemisia*, FJ642964^{fl}, FJ643000^{fl}, FJ643036^{fl}; *A. subarctica* Krasch., *Artemisia*, AM398023^d, AM398920^d; *A. subdigitata* Mattf., *Dracunculus*, JF326637^g, JF326580^g; *A. subulata* Willd. ex Steud., *Artemisia*, FJ642965^{fl}, FJ643001^{fl}, FJ643037^{fl}; *A. subviscosa* Turcz. ex Besser, *Absinthium*, AM398024^d, AM398921^d; *A. suksdorfii* Piper, *Artemisia*, JX069402^k, JX051707^k; *A. superba* Pamp., *Artemisia*, AM398025^d, AM398922^d; *A. sylvatica* Maxim., *Artemisia*, FJ642966^{fl}, FJ643002^{fl}, FJ643038^{fl}; *A. tanacetifolia* L., *Artemisia*, AM398026^d, AM398923^d; *A. tanaitica* Klokov, *Dracunculus*, JF342554^g, JF342551^g; *A. taurica* Willd., *Seriphidium*, FJ642967^{fl}, FJ643003^{fl}, FJ643039^{fl}; *A. thuscula* Cav., *Absinthium*, AM398038^d, AM398924^d; *A. tilesii* Ledeb., *Artemisia*, AM398027^d, AM398925^d; *A. tomentella* Trautv., *Dracunculus*, JF326638^g, JF326581^g; *A. tournefortiana* Rchb., *Artemisia*, JX069419^k, JX051729^k; *A. tridentata* Nutt., *Tridentatae*, DQ028884^c, AF045411^a, AF079963^a; *A. tripartita* (Nutt.) Rydb., *Tridentatae*, JX069367^k, JX051664^k; *A. tripartita* ssp. *rupicola* Beetle, *Tridentatae*, HQ019022^l, HQ019064^l; *A. tripartita* ssp. *tripartita*, *Tridentatae*, HQ019023^l, HQ019065^l; *A. turanica* Krasch., *Seriphidium*, JX445087^l, JX445031^l, JX445059^l; *A. turcomanica* Gand., *Seriphidium*, JX445088^l, JX445032^l, JX445060^l; *A. umbelliformis* Lam., *Absinthium*, DQ028843^c, AF045395^a, AF079947^a; *A. umbrosa* (Besser) Turcz., *Artemisia*, FJ642968^{fl}, FJ643004^{fl}, FJ643040^{fl}; *A. unalaskensis* Rydb., *Artemisia*, AM398028^d, AM398926^d; *A. vallesiaca* All., *Seriphidium*, FJ642969^{fl}, FJ643005^{fl}, FJ643041^{fl}; *A. verlotiorum* Lamotte, *Artemisia*, DQ028891^c, AF045387^a, AF079939^a; *A. vulgaris* L., *Artemisia*, AM398029^d, AM398927^d; *A. waltonii* J. R. Drumm. ex Pamp., *Dracunculus*, JF326639^g, JF326582^g; *A. wellbyi* Hemsl. & H. Pearson, *Dracunculus*, JF326640^g, JF326583^g; *A. xanthochroa* Krasch., *Dracunculus*, JF326641^g, JF326584^g; *A. xerophytica* Krasch., *Absinthium*, AM398031^d, AM398929^d; *A. xylorhiza* Krasch. ex Filatova, *Dracunculus*, JF326642^g, JF326585^g; *A. abrotanum* L., *Artemisia*, JX069394^k, JX051694^k; *Brachanthemum titovii* Krasch., *Brachanthemum*, DQ028867^c, AF504185^b, AF504158^b; *Lepidolopsis turkestanica* (Regel & Schmalh.) Poljakov, *Lepidolopsis*, DQ028835^c, AF504190^b, AF504163^b; *Tanacetum parthenium* (L.) Sch. Bip., *Tanacetum*, DQ028833^c, AF504167^b, AF504194^b.

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Appendix 2 Enlists all the herbarium samples and already published data examined during the investigation (taxa, location, voucher No. / barcode, date of collection, herbarium*, Genbank accession No. *rpl32-trnL*, *ndhC-trnV*). (-) indicates missing information. *Botanical Institute of Barcelona (IBB-CSIC-ICUB), BC; Herbarium University of Barcelona, BCN; Museum of Natural History of Vienna (W); Komarov Botanical Institute (LE); Royal Botanic Garden Edinburgh, (E). Superscripts denote the previously published data source (^aLee & al., 2016; ^bKang & al., 2016; ^cChoi & Park, 2014; ^dRiggins & Seigler, 2012; ^eLiu & al., 2013; ^fLi & al., 2013).

Artemisia absinthium L., Spain: Catalonia, Setcases, near Pont Nou, BCN 58749, 08/2008, BCN, KX572331, KX775217; *A. annua* L., People's Republic of China: Inner Mongolia, Bayannur province, E slopes of Helan Shan, N Temple of Helan Shan, BCN 130815, 04-09/2007, BCN, KX572330, KX775216; *A. alaskana* Rydb., JN861990^d, JN861985^d; *A. aralensis* Krasch., Kazakhstan, LE-Seriph-140, 16/09/1927, LE, KU356951, KX636086; *A. araxina* Takht., Armenia, BCN12488, 20/08/1995, BCN, KX572226, KX650361; *A. arenicola* Krasch. ex Poljakov [1], Iran, 1956-108, (-), W, KX572306, KX775192; *A. arctica* (Besser) Leonova, JN862116^d, JN861986^d; *A. arenicola* Krasch. ex Poljakov [2], Iran, 2000-06472, 15/11/1996, W, KX572311, KX775197; *A. argyi* H.Lév. & Vaniot, KM386991^b; *A. aucheri* Boiss., Iran: Tehran, BCN 11554, 13/08/1996, BCN, KX572232, KX650367; *A. badhysi* Krasch. & Lincz. ex Poljakov [1], Turkmenistan, LE-Seriph-143, 27/05/1962, LE, KX572249, KX775133; *A. badhysi* Krasch. & Lincz. ex Poljakov [2], Afghanistan, 1972-10292, 04/08/1962, W, KX572297, KX775183; *A. balchanorum* Krasch., Turkmenistan, LE-Seriph-146, 07/06/1928, LE, KX572252, KX775136; *A. baldshuanica* Krasch. & Zaprjag., USSR, BCN-Seriph-20, (-), BCN, KX572221, KX650356; *A. barrelieri* Besser [1], Spain: Catalonia, Oriola, BCN 12561, (-), BCN, KX572216, KX636090; *A. barrelieri* Besser [2], Spain: Almeria, BCN 86954, 14/04/2005, BCN, KX572227, KX650362; *A. bicolor* Rech.f. & Wagenitz, Afghanistan: Paktia, 1971-6665, 13/09/1970, W, KX572284, KX775170; *A. borealis* Pall., JN862121^d, JN861987^d; *A. caerulescens* L. ssp. *gallica* (Willd.) [1], Spain: Catalonia, Colera, BCN-Seriph-25, 2014, BCN, KX572225, KX650360; *A. caerulescens* L. ssp. *gallica* (Willd.) K.Perss. [2], Spain: Catalonia, Cardona, BCN32017, (-), BCN, KX572318, KX775204; *A. caerulescens* L. ssp. *gargantae* Vallès-Xirau & Seoane-Camba, Spain: El Poyo BC 12998, (-), BCN, KX572324, KX775210; *A. camelorum* Krasch., Kazakhstan, LE-Seriph-141, 11/07/1960, LE, KU356952, KX636087; *A. capillaris* Thunb., KU736963^a; *A. chitralensis* Podlech, Afghanistan, 1956-80, 09/08/1937, W, KX572285, KX775171; *A. cina* Berg ex Poljakov, Kazakhstan, LE-Seriph-144, 26/07/1966, LE, KX572250, KX775134; *A. ciniformis* Krasch. & Popov ex Poljakov, Turkmenistan, LE-Seriph-147, 06/05/1977, LE, KU356953, KX636088; *A. compacta* Fisch. ex DC. [1], Russia: Altai, LE-Seriph-142, 22/09/1999, LE, KX572248, KX775132; *A. compacta* Fisch. ex DC. [2], Russia, LE-Seriph-145, 18/09/1997, LE, KX572251, KX775135; *A. densiflora* Viv., Italy: Sardegna island, La Maddalena archipelago, Caprera island: Stagnali gulf, near Stagnali town, BCN 126584, 17/11/2015, BCN, KX572334, KX775220; *A. deserti* Krasch., Iran: Tehran, BCN 13322, 02/08/1996, BCN, KX572327, KX775213; *A. deserticola* (Podlech) Podlech (*A. sieberi* Besser ssp. *deserticola* Podlech), Afghanistan, 1972-10325, 07/08/1967, W, KX572294, KX775180; *A. diffusa* Krasch. ex Poljakov, Uzbekistan, E00574957, 08/10/1983, E, KX572246, KX775130; *A. dubjanskyana* Krasch. ex Poljakov, Russia, E00313048, 09/08/1979, E, KX572247, KX775131; *A. dzevanovskyi* Leonova, Ukraine, E00574364, 19/10/1966, E, KX572241, KX775125; *A. eremophila* Krasch. & Butkov ex Poljakov [1], Tajikistan, E00574966, 19/9/1982, E, KX572236, KX775122; *A. eremophila* Krasch. & Butkov ex Poljakov [2], Tajikistan, 1988-5466, 19/09/1982, W, KX572289, KX775175; *A. ferganensis* Krasch. ex Poljakov, USSR, BCN-Seriph-21, (-), BCN, KX572222, KX650357; *A. fragrans* Willd., Armenia, BCN 13272, 1995, BCN, KU356950, KX636085; *A. frigida* Willd., JX293720^e; *A. freitagii* Podlech, Afghanistan, 1986-05839, 22/8/1967, W, KX572286, KX775172; *A. ghazniensis* Podlech, Afghanistan, 1986-05845, 21/07/1968, W, KX572287, KX775173; *A. ghoratensis* Podlech, Afghanistan, E00573702, 03/8/1962, E, KX572239, KX7751242; *A. glanduligera* Krasch. ex Poljakov, Tajikistan, LE-Seriph-155, 28/08/1951, LE, KX572257, KX775143; *A. glanduligera* ssp. *kotgaiensis* Podlech, Afghanistan, 2003-01672, 05/09/1971, W, KX572288, KX775174; *A. gmelinii* Weber ex Stechm., KU736962^a; *A. gracilescens* Krasch. & Iljin, Russia: Altai, LE-Seriph-150, 16/09/2003, LE, KX572253, KX775137; *A. gurganica* (Krasch.) Filat. [1], Kazakhstan, LE-Seriph-153, 31/05/1926, LE, KX572255, KX775139; *A. gurganica* (Krasch.) Filat. [2], Kazakhstan, LE-Seriph-156, 28/08/1989, LE, KX572258, KX775144; *A. gypsacea* Krasch., Popov & Lincz. ex Poljakov, Iran, BCN 11560, 14/08/1996, BCN, KX572230, KX650365; *A. halophila* Krasch., Kazakhstan, LE-Seriph-151, 24/08/1935, LE, KX572254, KX775138; *A. heptapotamica* Poljakov, Kazakhstan, LE-Seriph-154, 13/09/1952, LE, KX572256, KX775140; *A. herba-alba* Asso [1], Spain; Huesca, BCN 13373, (-), BCN, KX572228, KX650363; *A. herba-alba* Asso [2],

Spain: Benifallet, BCN 31211, 23/05/2005, BCN, KX572229, KX650364; *A. ifranensis* J. Didier, Ifrane Morocco, BC 13925, 10/07/1990, BC, KX572319, KX775205; *A. inculta* Delile [1], Egypt: Sinai, BCN 13932, 7/04/1995, BCN, KU324882, KX636083; *A. inculta* Delile [2], Egypt: Wadi Habis, BCN-Seriph-8, (-), BCN, KX572234, KX669260; *A. issykkulensis* Poljakov [1], Kyrgyzstan, LE-Seriph-157, 02/09/1952, LE, KX572259, KX775145; *A. issykkulensis* Poljakov [2], Kyrgyzstan, LE-Seriph-158, 20/08/1983, LE, KX572260, KX775146; *A. jaggiana* Wolf, Switzerland, 1929-1308, 03/10/1990, W, KX572312, KX775198; *A. juncea* Kar. & Kir. [1], Kazakhstan, LE-Seriph-161, 11/10/1949, LE, KX572328, KX775214; *A. juncea* Kar. & Kir. [2], Kazakhstan: Almatynskaya oblast, Chilitsky. Sogeti mountains, 1000 m, BCN 130813, 22/08/2000, BCN, KX572329, KX775215; *A. kandaharensis* Podlech, Afghanistan, 1983-07758, 11/10/1978, W, KX572314, KX775200; *A. karatavica* Krasch. & Abolin ex Poljakov, Kazakhstan, E00574991, 09/9/1962, E, KX572237, KX775123; *A. kaschgarica* Krasch., Kazakhstan, LE-Seriph-164, 15/09/1930, LE, KX572263, KX775149; *A. kermanensis* Podlech, Iran, 1982-07462, 25/04/1977, W, KX572290, KX775176; *A. khorassanica* Podlech (*A. cf. serotina*), Iran, 1966-4841, 26/09/1940, W, KX572304, KX775190; *A. knorringiana* Krasch., Kyrgyzstan, LE-Seriph-162, 03/08/1976, LE, KX572261, KX775147; *A. kochiiformis* Krasch. & Lincz. ex Poljakov, Tajikistan, LE-Seriph-165, 15/07/1953, LE, KX572264, KX775150; *A. kopetdaghensis* Poljakov, Iran, E00574703, 27/5/1977, E, KX572243, KX775127; *A. korovinii* Poljakov, Russia, E00274592, 22/08/1979, E, KX572244, KX775128; *A. korshinskyi* Krasch. ex Poljakov, Tajikistan, E00574995, 02/9/1959, E, KX572240, KX775124; *A. kurramensis* Qazilb., Pakistan, (-), 2014, (-), KX572231, KX650366; *A. lehmanniana* Bunge, Afghanistan, E00574707, 13/7/1962, E, KX572235, KX669261; *A. lerchiana* Weber, Azerbaijan, 2007-21968, 25/08/2006, W, KX572298, KX775184; *A. lessingiana* Besser, Russia, LE-Seriph-163, 07/09/2006, LE, KX572262, KX775148; *A. leucodes* Schrenk, Kazakhstan, LE-Seriph-166, 03/06/1960, LE, KX572326, KX775212; *A. leucotricha* Krasch. ex Ladygina, Tajikistan, E00574454, 17/08/1959, E, KX572245, KX775129; *A. macarthurii* S.Garcia, Garnatje, McArthur, Pellicer, S.C.Sand. & Vallès-Xirau (*Sphaeromeria argentea*), JN862180^d, JN861988^d; *A. maritima* L. ssp. *gmeliniana* (Besser) Krasch., Russia, 1940-17499, 19/08/1901, W, KX572316, KX775202; *A. maritima* ssp. *humifusa* (C.Hartm.) K.M.Perss., Sweden, 1950-9954, 04/09/1927, W, KX572291, KX775177; *A. maritima* L. ssp. *maritima*, Denmark, 1966-146, 10/09/1964, W, KX572292, KX775178; *A. maritima* ssp. *salina* (Willd.) Nyman [1], Germany, 1971-18550, 17/09/1969, W, KX572299, KX775185; *A. maritima* ssp. *salina* (Willd.) Nyman [2], Germany, 2006-03132, 29/08/1975, W, KX572301, KX775187; *A. maritima* var. *incana*, Russia, 1987-03713, 12/09/1925, W, KX572315, KX775201; *A. meyeriana* Besser, Azerbaijan, 1984-08388, 06/08/1983, W, KX572300, KX775186; *A. monogyna* Waldst. & Kit., Uzbekistan, 2001-08118, 03/06/1968, W, KX572303, KX775189; *A. montana* (Nakai) Pamp., KF887960^c; *A. namanganica* Poljakov, Uzbekistan, 1988-5468, 07/09/1982, W, KX572302, KX775188; *A. nitrosa* Weber [1], Russia: Altai, LE-Seriph-167, 24/09/1995, LE, KX572265, KX775151; *A. nitrosa* Weber [2], Russia: Altai, LE-Seriph-170, 21/09/1995, LE, KX572267, KX775153; *A. nutans* Willd., Ukraine, LE-Seriph-173, 20/08/1970, LE, KX572218, KX650353; *A. oliveriana* J.Gay ex Besser, Iran: Tehran, BCN 14111, 02/08/1996, BCN, KX572220, KX650355; *A. oranensis* (Deb.) Filatova, Hassi Berkane, Morocco, 1933-5270, 31/12/1930, W, KX572322, KX775208; *A. pauciflora* Weber, Russia, LE-Seriph-168, 09/10/1949, LE, KX572217, KX650352; *A. porrecta* Krasch. ex Poljakov [1], Tajikistan, 1967-19492, 19/09/1962, W, KX572296, KX775182; *A. porrecta* Krasch. ex Poljakov [2], Kazakhstan, 1969-7762, 18/09/1965, W, KX572313, KX775199; *A. quettensis* Podlech, Pakistan, 2000-00522, 14/05/1997, W, KX572293, KX775179; *A. ramosa* C. Sm. ex Link, Canary Islands, BCN 97832, 10/11/2011, BCN, KX572325, KX775218; *A. rhodantha* Rupr., Tajikistan: Pamir, LE-Seriph-171, 27/07/1962, LE, KX572268, KX775154; *A. santolina* Schrenk [1], Uzbekistan, BCN 14169, (-), BCN, KX572223, KX650358; *A. santolina* Schrenk [2], Iran: Semnan, BCN 1416, 13/08/1996, BCN, KX572321, KX775207; *A. santonica* L. [1], Russia, LE-Seriph-169, 13/10/2000, LE, KX572266, KX775152; *A. santonica* L. [2], Russia: Altai, LE-Seriph-174, 11/09/1930, LE, KX572270, KX775156; *A. santonicum* L. [1], Turkey: Ahiboz, BC 871663, 8/1/1990, BC, KX572320, KX775206; *A. santonicum* L. [2], Hungary, 1916-736, 09/1911, W, KX572323, KX775209; *A. schischkinii* Krasch., Russia: Altai, LE-Seriph-172, 22/09/1999, LE, KX572269, KX775155; *A. schrenkiana* Ledeb. [1], Kazakhstan, LE-Seriph-175, 14/09/2001, LE, KX572271, KX775157; *A. schrenkiana* Ledeb. [2], Russia, LE-Seriph-176, 03/10/1999, LE, KX572272, KX775158; *A. scotina* Nevski, Uzbekistan, 1988-5471, 5/10/1982, W, KX572308, KX775194; *A. semiarida* (Krasch. & Lavrenko) Filatova, Kazakhstan, LE-Seriph-179, 29/07/1955, LE, KX572275, KX775161; *A. serotina* Bunge [1], USSR, BCN-Seriph-19, (-), BCN, KX572219, KX650354; *A. serotina* Bunge [2], Kazakhstan, (-), 25/09/2000, W, KX572295, KX775181; *A. serotina* Bunge [3], Kazakhstan, 1967-19493, 06/09/1962, W, KX572309, KX775195; *A. serotina* Bunge [4], Russia, BCN-Seriph-24, (-), BCN, KX572317, KX775203; *A. sieberi* Besser, Iran: Tehran,

BCN 14176, 02/08/1996, BC, KU356954, KX636089; *A. sogdiana* Bunge, Uzbekistan: Aiki, LE-Seriph-182, 28/09/1982, LE, KX572278, KX775164; *A. spicigera* K.Koch, Azarbayjan: Gharbi, BCN 14177, 09/08/1996, BCN, KX572233, KX669259; *A. stenocephala* Krasch. ex Poljakov, Uzbekistan, LE-Seriph-177, 10/10/1970, LE, KX572273, KX775159; *A. sublessingiana* Krasch. ex Poljakov, Russia: Altai, LE-Seriph-180, 14/09/2003, LE, KX572276, KX775162; *A. taurica* Willd. [1], Russia, LE-Seriph-178, 02/07/1993, LE, KX572274, KX775160; *A. taurica* Willd. [2], Russia, LE-Seriph-184, 25/09/1997, LE, KX572279, KX775165; *A. tecti-mundi* Podlech [1], Afghanistan, 1965-18954, 8/1964, W, KX572305, KX775191; *A. tecti-mundi* Podlech [2], Afghanistan, 1971-104, 17/08/1970, W, KX572307, KX775193; *A. tenuisecta* Nevski, USSR, BCN-Seriph-23, (-), BCN, KX572224, KX650359; *A. terrae-albae* Krasch., Kazakhstan: Almatynskaya oblast, Chilitsky, Sogeti mountains, 1200 m, BCN 130814, 22/08/2000, BCN, KX572333, KX775219; *A. thomsoniana* (C.B.Clarke) Filatova, Pakistan, E00616536, 05/9/1953, E, KX572242, KX775126; *A. tianschanica* Krasch. ex Poljakov, Kyrgyzstan, 2002-14419, 03/08/1972, W, KX572310, KX775196; *A. transiliensis* Poljakov, Kazakhstan, LE-Seriph-181, 13/09/1952, LE, KX572277, KX775163; *A. tridentata* Nutt., JN862188^d, JN861989^d; *A. turanica* Krasch., Tajikistan, LE-Seriph-185, (-), LE, KX572280, KX775166; *A. turcomanica* Gand., Turkmenistan, LE-Seriph-187, (-), LE, KX572282, KX775168; *A. vachanica* Krasch. ex Poljakov [1], Pakistan, E00575872, 21/8/1941, E, KX572238, KX775141; *A. vachanica* Krasch. ex Poljakov [2], Tajikistan, LE-Seriph-188, (-), LE, KX572283, KX775169; *A. valida* Krasch. ex Poljakov, Kazakhstan, LE-Seriph-186, (-), LE, KX572281, KX775167; *A. vallsiaca* All., Switzerland, BC-Seriph-122, 2014, BC, KU356949, KX636084; *Chrysanthemum indicum* L., JN867592^f.

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Table S1. Primers, references and PCR conditions of the DNA regions employed in the study.

Region	Primer	Primer sequence	Reference	PCR conditions	
nrDNA	ITS	ITS1	TCCGTAGGTGAACCTGCGG	White & al., 1990	95 °C, 2 min; 29x (94 °C, 1:30 min; 55 °C, 2 min; 72 °C, 3 m); 72 °C, 15 m
		ITS4	TCCTCCGCTTATTGATATGC		
	ETS	ETS1F	GCTCTTTGCTTGCGCAACAAC	Baldwin & Markos,1998 Linder & al., 2000 Markos & Baldwin, 2001; Baldwin & Markos,1998	95 °C, 5 min; 30x (94 °C, 45 s; 48 °C, 45 s; 72 °C, 40 s), 72 °C, 10 min
		18S-2L	TGACTACTGGCAGGATCAACCAG		
		AST1F	CGTAAAGGTGCATGAGTGGTGT		
	18S-ETS	ACTTACACATGCATGGCTTAATCT			
cpDNA	<i>rpl32-trnL</i>	rpL32-F	CAGTTCCAAAAAACGTACTTC	Shaw & al., 2007	80°C, 5 min ; 30x (95°C, 1 min; 50°C, 1 min ; 65°C, 4 min) ; 65°C, 5 min
		trnL ^{UAG}	CTGCTTCCTAAGAGCAGCGT		
		rpL32_int_f	CCGTGTTAAAGATTTTTGGATAAC	Designed for present work	
		rpL32_int_r	GTTATCCAAAAATCTTTAACACGG		
	<i>ndhF-rpl32</i>	rpL32-R	CCAATATCCCTTYTTTTCCAA	Shaw & al., 2007	
		ndhF	GAAAGGTATKATCCAYGMATATT		
	<i>3'trnV-ndhC</i>	ndhC	TATTATTAGAAATGYCCARAAAATATCATATTC	Designed for present work	
		trnV ^{UAC} _{x2}	GTCTACGGTTCGARTCCGTA		
		ndhC_int1_r	GATGTCAATTTTGACCAATTCC		
		ndhC_int2_f	GGAATTGGTCAAAAATTGACATC		
	<i>3'rps16-5'trnK</i>	ndhC_int3_r	CATTGTAAACATTGTCAACAACG	Shaw & al., 2007	80°C, 5 min; 35x (94°C, 30 s; 52°C, 30 s; 72°C, 1 min); 72°C, 5 min
		ndhC_int4_f	CGTTGTTGACAATGTTTACAATG		
rpS16x2F2		AAAGTGGGTTTTTATGATCC			
trnK ^{UUU} _{x1}		TTAAAAGCCGAGTACTCTACC			
<i>accD</i>	accD1f	AGTATGGGATCCGTAGTAGG	Kress & Erickson, 2007	94°C, 1 min; 35x (94°C, 30 s; 53°C, 40 s; 72°C, 40 s); 72°C, 5 min	
	accD4r	TCTTTTACCCGCAAATGCAAT			
<i>rpoB</i>	rpoB2f	ATGCAACGTCAAGCAGTTCC			
	rpoB4r	GATCCCAGCATCACAATTCC			
<i>rpoC</i>	rpoC11f	GTGGATACACTTCTTGATAATGG		94°C, 1 min; 35x (94°C, 30 s; 51°C, 40 s; 72°C, 40 s); 72°C, 5 min	
	3r	TGAGAAAACATAAGTAAACGGGG			
<i>ycf5</i>	ycf51f	GGATTATTAGTCACTCGTTGG			
	4r	CCCAATACCATCATACTTAC			
<i>ndhJ</i>	ndhJ2F	TTGGGCTTCGATTACCAAGG			
	ndh4R	TCAATGAGCATCTTGTATTTTC			

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Table S2. Matrix of dispersal probabilities among the nine regions defined for BioGeoBears analysis at the four time periods proposed to divide the evolutionary history of *Artemisia* (see the main text and Fig. S4 for more information). Codes of the regions: N, North America; S, South America; E, Europe; A, Africa; R, Russia; C, Central Asia; M, Middle East; P, Asian Pacific; I, Indo Malaysia.

Time slice 1: 0.5-10 Ma

N	S	E	A	R	C	M	P	I
1	1	0.5	0.01	1	0.01	0.01	0.01	0.01
1	1	0.01	0.01	0.01	0.01	0.01	0.01	0.01
0.5	0.01	1	1	1	1	1	0.5	0.5
0.01	0.01	1	1	0.5	0.5	1	0.5	0.5
1	0.01	1	0.5	1	1	0.5	1	0.5
0.01	0.01	1	0.5	1	1	1	1	0.5
0.01	0.01	1	1	0.5	1	1	0.5	1
0.01	0.01	0.5	0.5	1	1	0.5	1	1
0.01	0.01	0.5	0.5	0.5	0.5	1	1	1

Time slice 2: 10-20 Ma

N	S	E	A	R	C	M	P	I
1	0.5	0.5	0.01	1	0.01	0.01	0.01	0.01
0.5	1	0.01	0.01	0.01	0.01	0.01	0.01	0.01
0.5	0.01	1	1	1	1	0.5	0.5	0.5
0.01	0.01	1	1	0.5	0.5	1	0.5	0.5
1	0.01	1	0.5	1	1	0.5	1	0.5
0.01	0.01	1	0.5	1	1	1	1	0.5
0.01	0.01	0.5	1	0.5	1	1	0.5	1
0.01	0.01	0.5	0.5	1	1	0.5	1	1
0.01	0.01	0.5	0.5	0.5	0.5	1	1	1

Time slice 3: 20-50 Ma

N	S	E	A	R	C	M	P	I
1	0.5	0.5	0.01	1	0.01	0.01	0.01	0.01
0.5	1	0.01	0.01	0.01	0.01	0.01	0.01	0.01
0.5	0.01	1	0.5	1	0.5	0.5	0.01	0.01
0.01	0.01	0.5	1	0.5	0.01	1	0.5	0.5
1	0.01	1	0.5	1	1	0.5	1	0.5
0.01	0.01	0.5	0.01	1	1	1	1	1
0.01	0.01	0.5	1	0.5	1	1	0.5	0.5
0.01	0.01	0.01	0.5	1	1	0.5	1	1
0.01	0.01	0.01	0.5	0.5	1	0.5	1	1

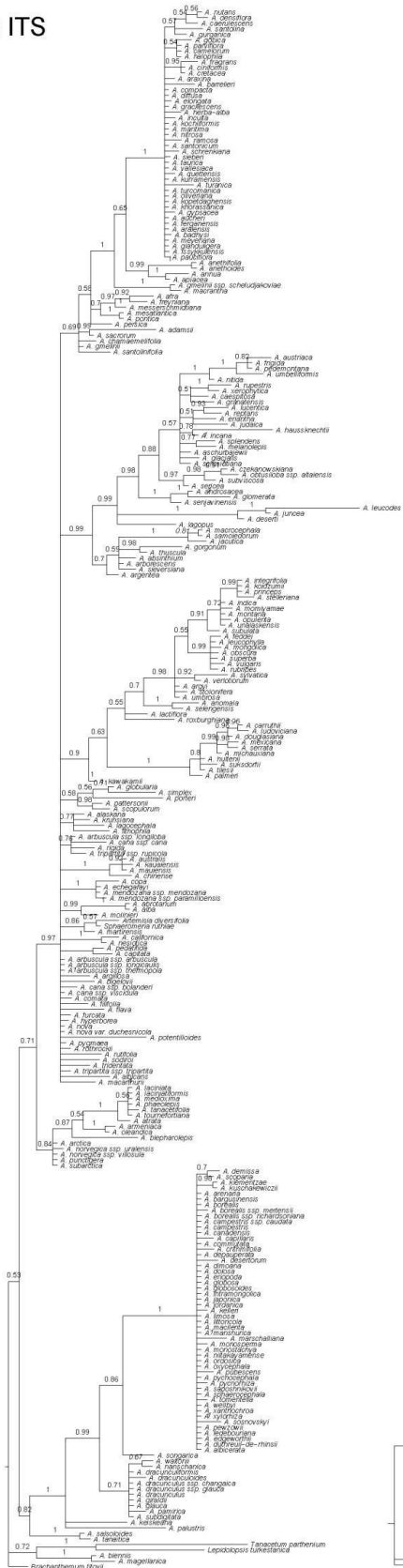
Time slice 4: before 50 Ma

N	S	E	A	R	C	M	P	I
1	0.01	0.5	0.01	1	0.01	0.01	0.01	0.01
0.01	1	0.01	0.01	0.01	0.01	0.01	0.01	0.01
0.5	0.01	1	0.5	0.5	0.5	0.5	0.01	0.01
0.01	0.01	0.5	1	0.5	0.01	1	0.5	0.5
1	0.01	0.5	0.5	1	1	0.01	1	0.5
0.01	0.01	0.5	0.01	1	1	0.5	1	1
0.01	0.01	0.5	1	0.01	0.5	1	0.5	0.5
0.01	0.01	0.01	0.5	1	1	0.5	1	1
0.01	0.01	0.01	0.5	0.5	1	0.5	1	1

Table S3. Likelihoods and AIC scores of the six models of geographic range evolution tested in BioGeoBEARS.

Model	LnL	Degrees of freedom	AIC
DEC	-721.65	2	1447.30
DEC+J	-707.80	3	1421.59
DIVALIKE	-757.09	2	1482.97
DIVALIKE+J	-739.48	3	1520.19
BAYAREALIKE	-752.29	2	1455.65
BAYAREALIKE+J	-725.82	3	1510.57

A) ITS



B) ETS



Fig. S1. Consensus trees (50% majority-rule) from Bayesian inference of the ITS (A) and 3'ETS (B) regions of *Artemisia* analysed separately. Posterior probability values (PP) are indicated along branches (values below 0.50 are not shown).

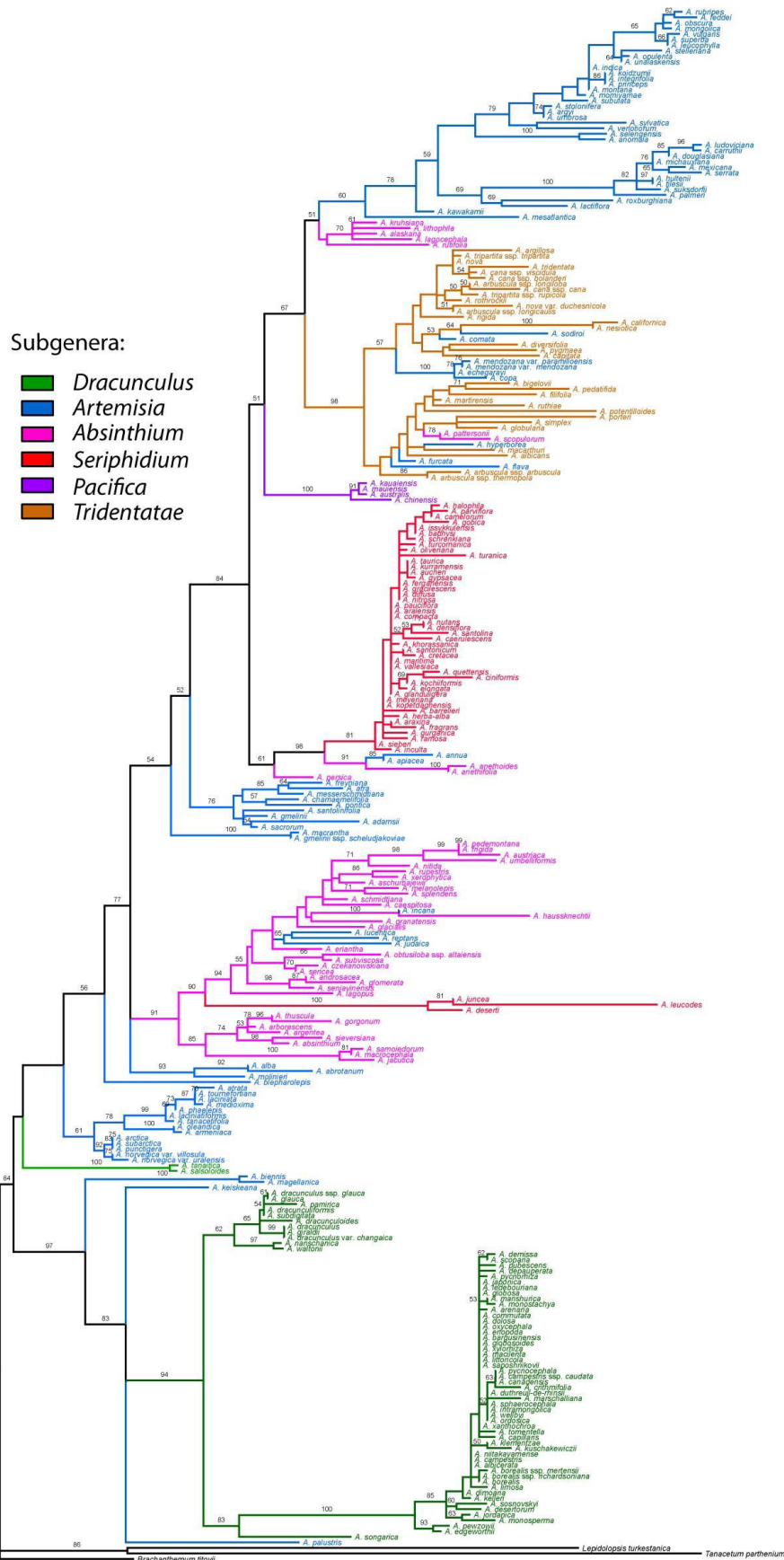


Fig. S2. Maximum likelihood tree of *Artemisia* inferred from nrDNA sequence data. Bootstrap support values, expressed as percentages, are given along branches. Colours of branches indicate the traditional subgeneric classification of *Artemisia*.

Subgenera:

- *Dracunculus* (green)
- *Artemisia* (blue)
- *Absinthium* (magenta)
- *Seriphidium* (red)
- *Pacifica* (purple)
- *Tridentatae* (orange)

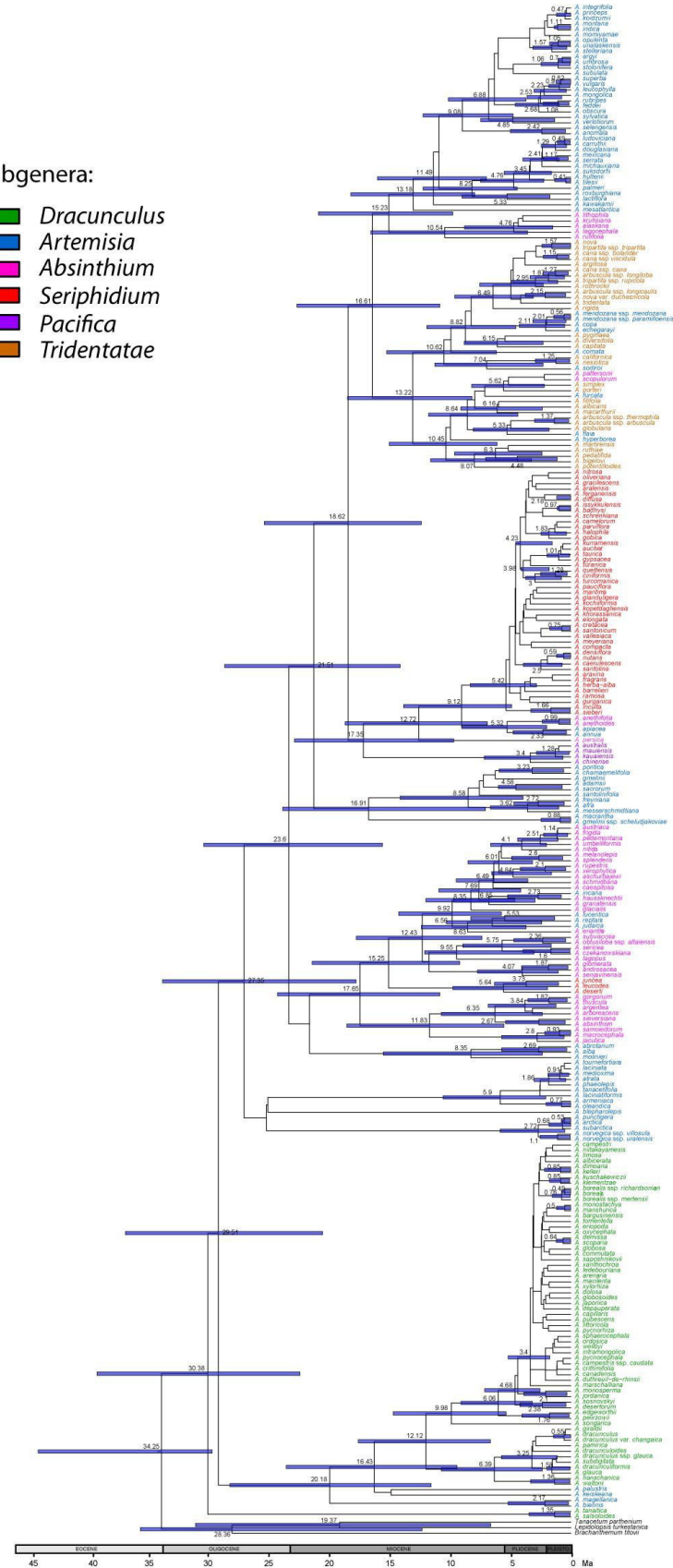


Fig. S3. Divergence time chronogram of *Artemisia* based on nrDNA sequences analysed with BEAST. Mean age estimates and 95% highest posterior density intervals are shown for nodes with posterior probability > 0.5. Colours of taxon names indicate the traditional subgeneric classification of *Artemisia*.

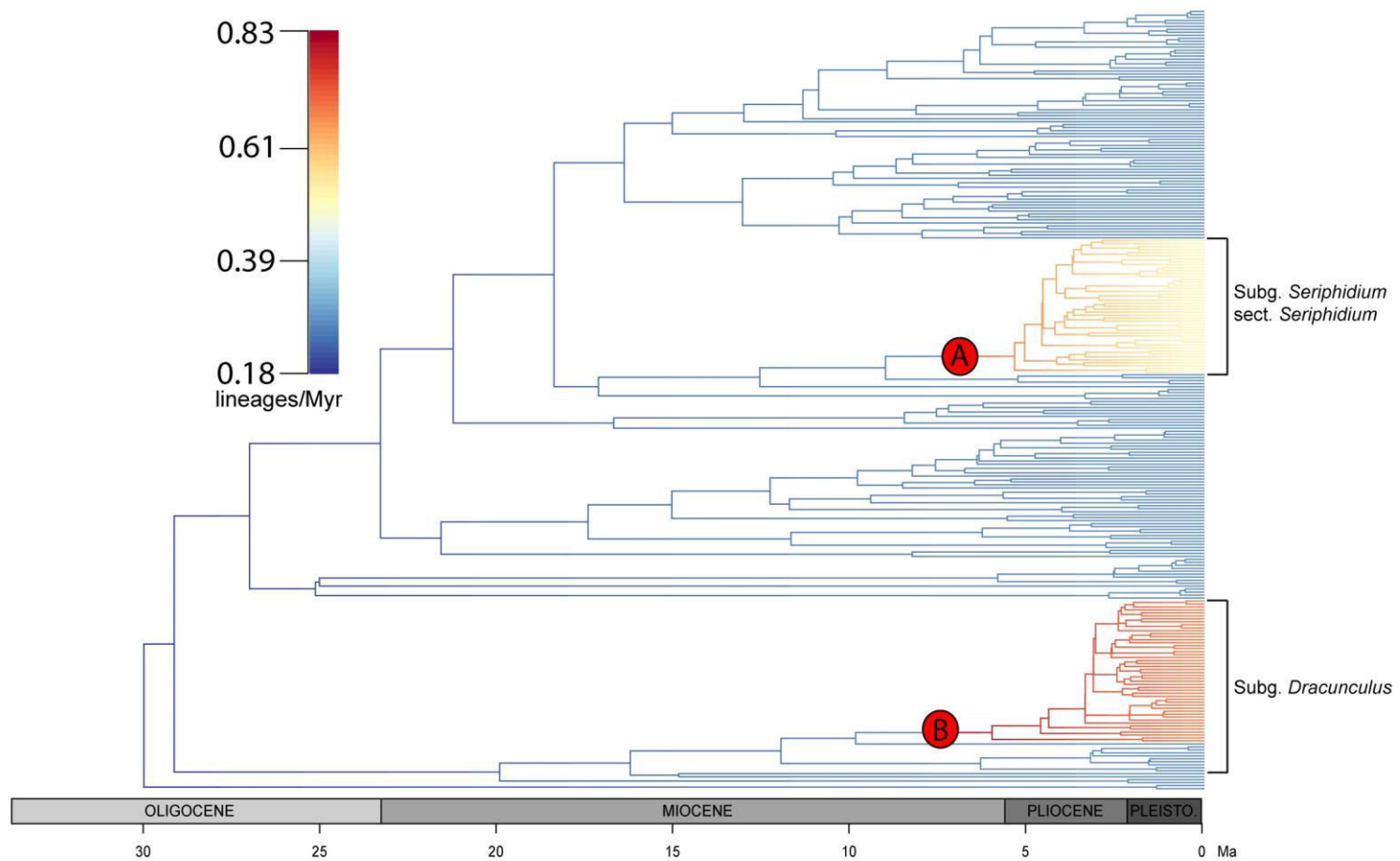


Fig. S4. Phylorate plot showing rates of diversification (cool colours = slow rates, warm colours = fast rates) along each branch of the *Artemisia* phylogeny inferred using BAMM. Red circles indicate the two branches with the highest probability of rate shifts.

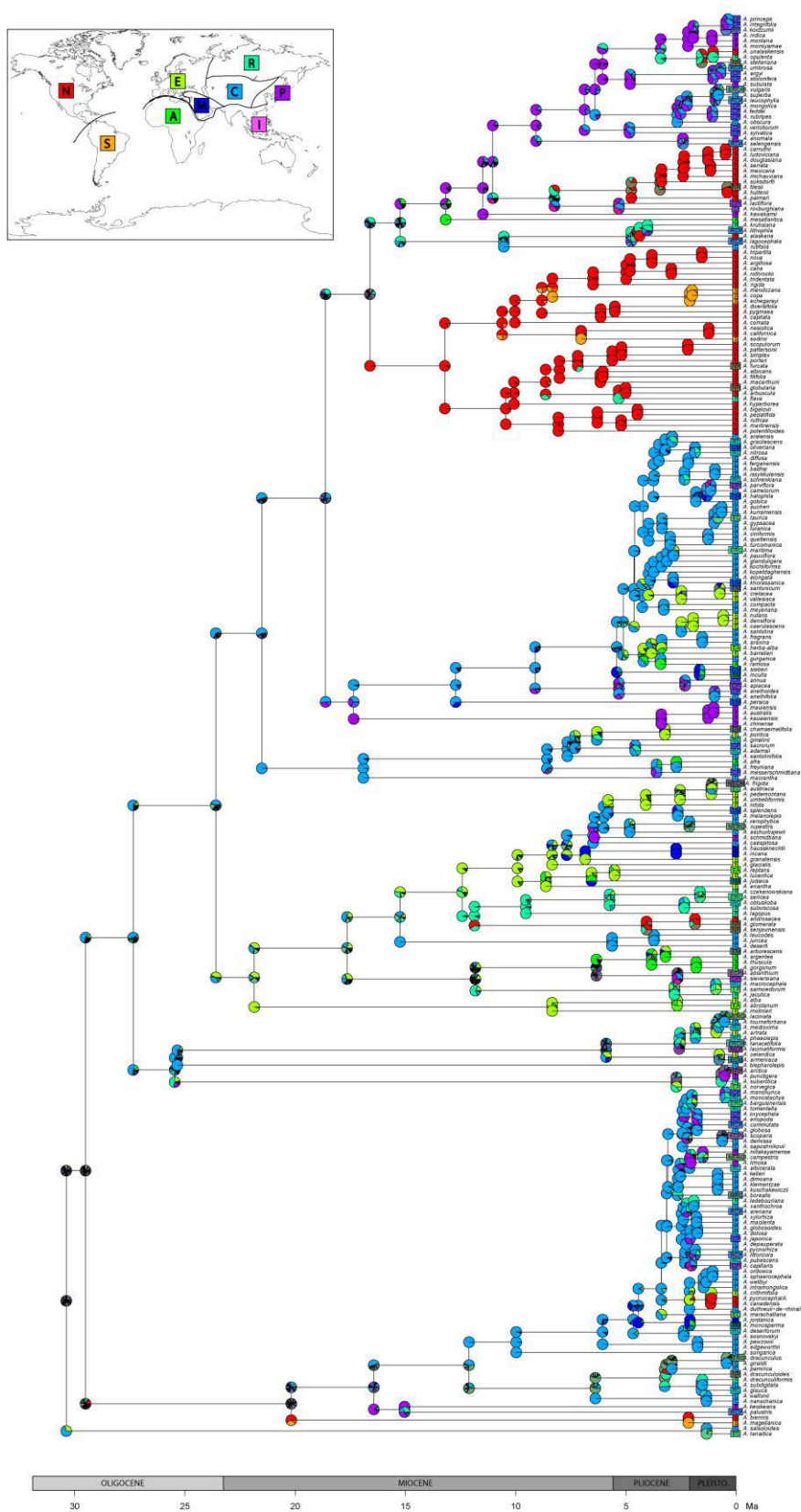


Fig. S5. Ancestral area reconstruction of *Artemisia* as inferred by BioGeoBEARS (DEC + J model). Areas of tip species are shown left of taxon names, colour-coded for the nine biogeographical areas shown in the map inset. Pie charts at each node and corner are colour coded for the area (or combined area) with the highest ML probability.

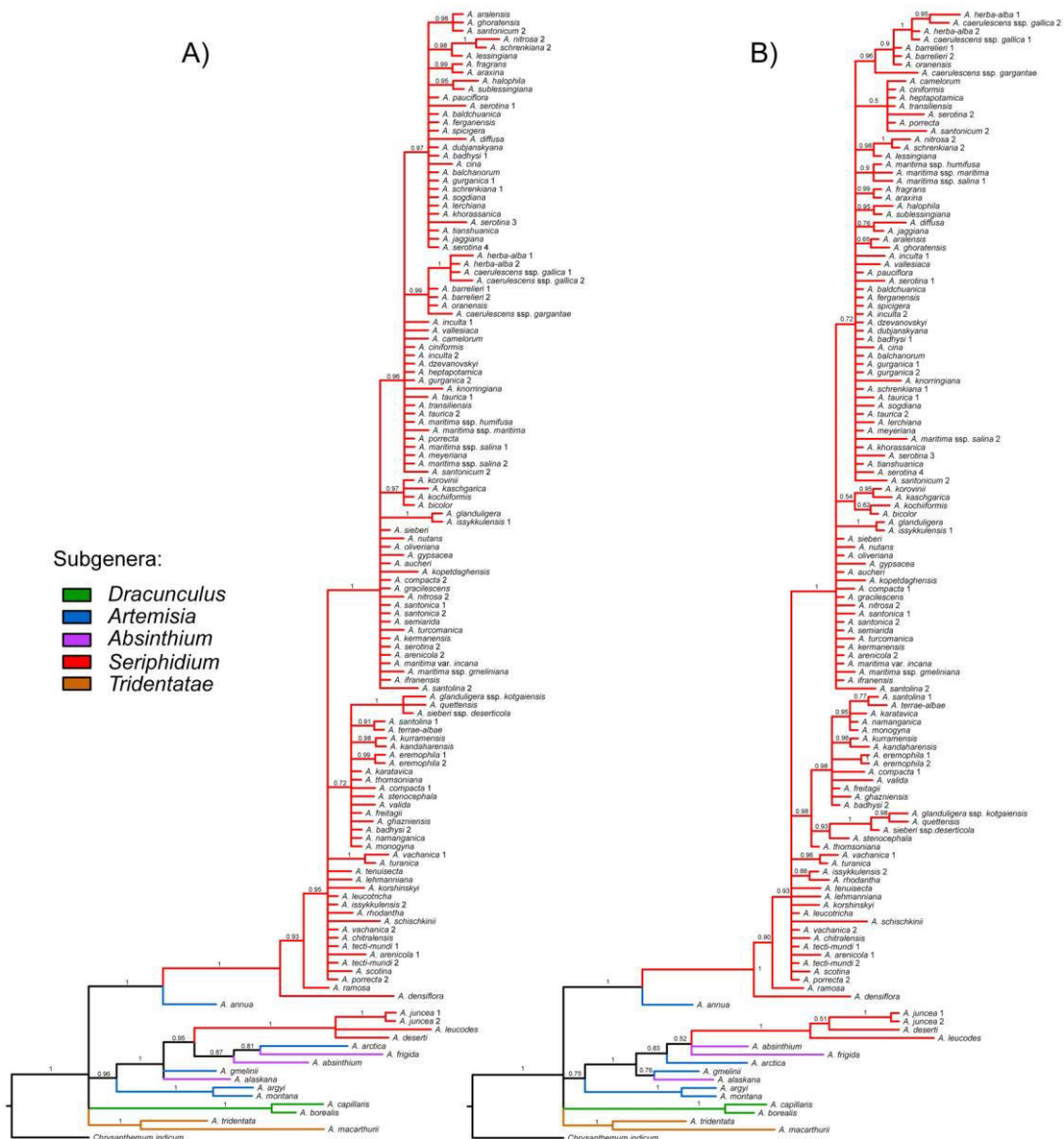


Fig. S6. Consensus trees (50% majority-rule) from Bayesian inference of the cpDNA regions excluding **(A)** and including **(B)** the codified indels. Posterior probability values (PP) are indicated along branches (values below 0.50 are not shown).

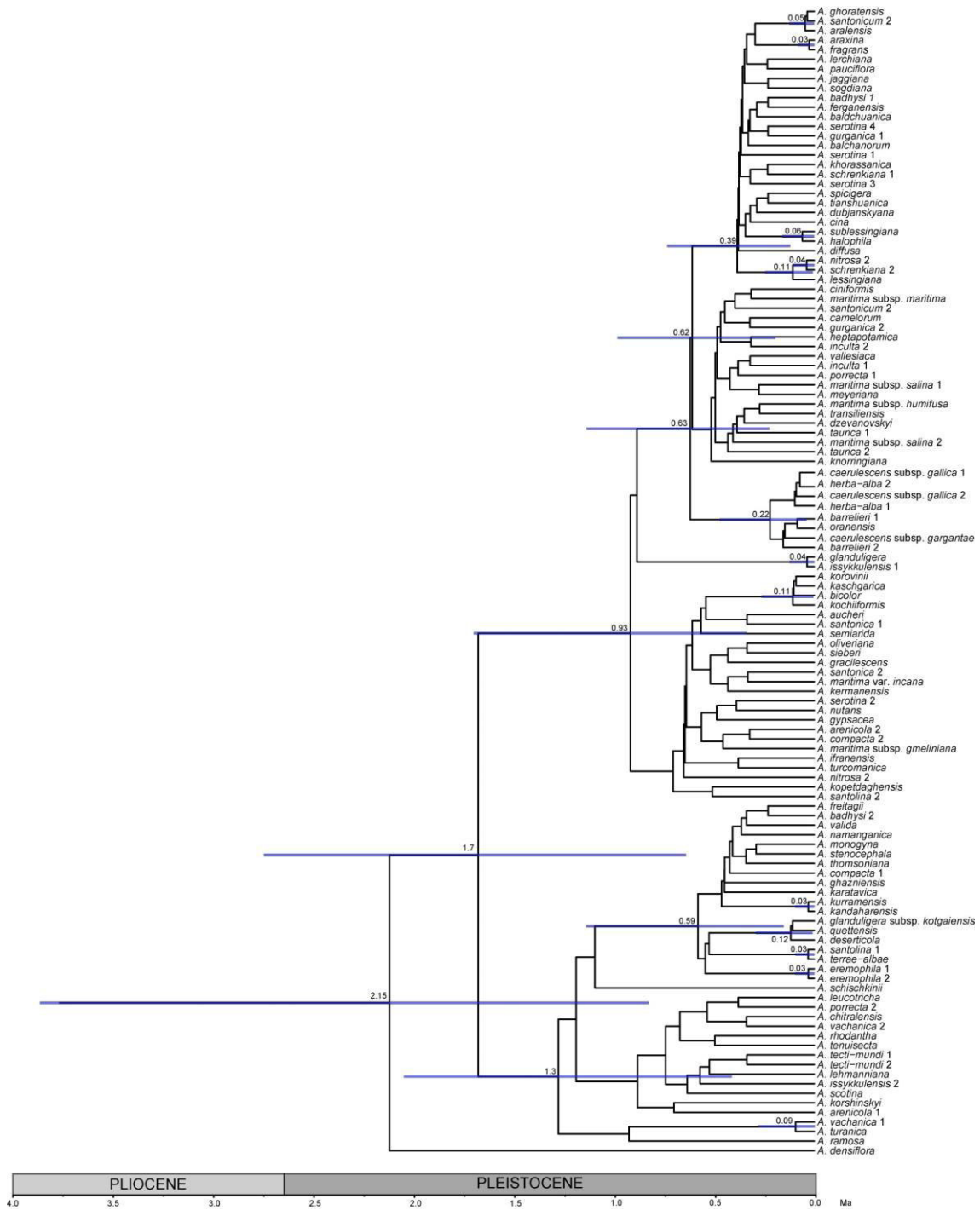


Fig. S7. Divergence time chronogram of *Artemisia* subg. *Seriphidium* sect. *Seriphidium* based on cpDNA sequences analysed with BEAST under a strict clock model. Mean age estimates and 95% high posterior density intervals are shown for nodes with posterior probability > 0.5.