|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Species | APG IV classification system | Collection site | longitude and latitude | Voucher specimen number |
| *Argentina lineata* (Trevir.) Soják | Tr. Potentilleae, Subtr. Argentininae, Argentina | Gyirong County, Shigatse City | 28°23'N, 85°18'E | JXZY413 |
| *Cotoneaster adpressus* Bois | Tr. Maleae, Subtr. Malinae, Cotoneaster | Nyalam County, Shigatse City | 28°19'N,86°2'E | JXZY266 |
| *Cotoneaster multiflorus* Bunge. | Tr. Maleae, Subtr. Malinae, Cotoneaster | Gyirong County, Shigatse City | 28°22'N,85°19'E | JXZY519 |
| *Cotoneaster wardii* W. W. Smith | Tr. Maleae, Subtr. Malinae, Cotoneaster | Gyirong County, Shigatse City | 28°30'N,85°13'E | JXZY334 |
| *Dasiphora arbuscula*(D. Don) Soják | Tr. Potentilleae, Subtr. Fragariinae, Dasiphora | Yadong County, Shigatse City | 27°48′N,88°90′E | JXZY191 |
| *Fragaria moupinensis* (Franch.) Card. | Tr. Potentilleae, Subtr. Fragariinae, Fragaria | Gyirong County, Shigatse City | 28°23'N,85°18'E | JXZY396 |
| *Fragariastrum eriocarpum* (Wall. ex Lehm.) Kechaykin & Shmakov | Tr. Potentilleae, Subtr. Potentillinae, Fragariastrum | Bomi County, Nyingchi City | 29°85′N,95°76′E | JXZY050 |
| *Prunus trichostoma (*Koehne) Yü et Li | Tr. Amygdaleae, Prunus | Bomi County, Nyingchi City | 30°05′N,96°.91′E | JXZY036 |
| *Rosa graciliflora* Rehd. et Wils | Tr. Roseae, Rosa | Bomi County, Nyingchi City | 30°05′N,96°91′E | JXZY043 |
| *Rosa macrophylla* Lindl. var. *glandulifera* Yü et Ku | Tr. Roseae, Rosa | Gyirong County, Shigatse City | 28°30'N,85°13'E | JXZY337 |
| *Rosa omeiensis* Rolfe | Tr. Roseae, Rosa | Yadong County, Shigatse City | 89°0'N, 27°33'E | JXZY172 |
| *Rosa omeiensis* Rolfe f. *pteracantha* Rehd. et Wils. | Tr. Roseae, Rosa | Gyirong County, Shigatse City | 28°30'N,85°13'E | JXZY336 |
| *Rosa sericea* Lindl. | Tr. Roseae, Rosa | Baxoi County, Qamdo City | 30°05′N,96°91′E | JXZY029 |
| *Rosa sericea* Lindl. f. *glabrescens* Franch. | Tr. Roseae, Rosa | Baxoi County, Qamdo City | 30°05′N,96°.91′E | JXZY028 |
| *Rosa sweginzowii* Koehne var. *glandulosa* Card. | Tr. Roseae, Rosa | Yadong County, Shigatse City | 27°33'N，89°0′E | JXZY222 |
| *Rubus biflorus* Buch.-Ham. ex Smith | Tr. Rubeae, Rubus | Gyirong County, Shigatse City | 28°23'N,85°19'E | JXZY376 |
| *Rubus pedunculosus* D. Don | Tr. Rubeae, Rubus | Gyirong County, Shigatse City | 28°22'N, 85°19'E | JXZY528 |
| *Sanguisorba diandra* Wall. ex Hoedb. | Tr. Agrimonieae, Subtr. Sanguisorbinae, Sanguisorba | Nyalam County, Shigatse City | 28°19'N,86°2'E | JXZY289 |
| *Sorbus koehneana* Schneid. | Tr. Maleae, Subtr. Malinae, Sorbus | Gyirong County, Shigatse City | 28°22'N, 85°19'E | JXZY531 |

**Table S1:** Collection information for 19 species

**Table S2** 110 species downloaded from NCBI

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Species | accession number | Species | accession number | Species | accession number |
| Cotoneaster horizontalis | KY419917 | Prunus armeniaca | KY420025 | Sorbus setschwanensis | NC\_046777 |
| Cotoneaster integerrimus | OP494722 | Prunus mume | KF765450 | Sorbus aucuparia | OP613257 |
| Cotoneaster dammeri | MK650059 | Prunus salicina | KY420002 | Sorbus amabilis | MT357029 |
| Cotoneaster perpusillus | MK638994 | Prunus persica | HQ336405 | Sorbus koehneana | NC\_063569 |
| Cotoneaster franchetii | MK650050 | Prunus andersonii | KY419981 | Sorbus multijuga | NC\_068724 |
| Cotoneaster coriaceus | MK605517 | Prunus conradinae | KY419991 | Sorbus discolor | NC\_068723 |
| Cotoneaster rosiflorus | NC\_069634 | Prunus undulata | KY420035 | Sorbus reducta | NC\_068722 |
| Cotoneaster tenuipes | NC\_060856 | Prunus napaulensis | KY419939 | Sorbus hupehensis | NC\_068721 |
| Cotoneaster submultiflorus | NC\_060855 | Prunus yedoensis | KU985054 | Sorbus tianschanica | NC\_068599 |
| Cotoneaster multiflorus | NC\_060854 | Prunus matuurae | NC\_045230 | Sorbus helenae | NC\_068536 |
| Cotoneaster mongolicus | NC\_060853 | Prunus apetala | NC053693 | Sorbus hypoglauca | NC\_068535 |
| Cotoneaster schantungensis | NC\_045840 | Rosa acicularis | MK714016 | Sorbus albopilosa | NC\_068534 |
| Cotoneaster insolitus | OP494721 | Rosa praelucens | NC\_037492 | Sorbus filipes | NC\_068533 |
| Cotoneaster hebephyllus | MZ475334 | Rosa banksiae | MK361034 | Sorbus cibagouensis | NC\_068532 |
| Cotoneaster tenuipes | MZ475333 | Rosa laevigata | NC\_046824 | Sorbus wilsoniana | NC\_068531 |
| Cotoneaster microphyllus | NC\_045339 | Rosa canina | MN661140 | Fragaria mandshurica | JQ396172 |
| Cotoneaster astrophoros | MK650065 | Rosa chinensis | MH332770 | Fragaria viridis | NC\_048474 |
| [Argentina] phanerophlebia | NC\_050936 | Rosa berberifolia | NC\_045126 | Fragaria nilgerrensis | MK560340 |
| Potentilla (Argentina) lineata | KY419949 | Rosa xanthina | MT547539 | Fragaria moschata | MZ702811 |
| Potentilla(Argentina) micropetala | KY420021 | Rosa rugosa | NC\_044094 | Fragaria tibetica | MZ702810 |
| Potentilla saundersiana | NC\_072931 | Rosa hybrid cultivar | NC\_044126 | Fragaria nubicola | MZ702809 |
| Potentilla kleiniana | NC\_068636 | Rosa roxburghii | NC\_032038 | Fragaria gracilis | MZ702807 |
| Potentilla anserina | NC\_060513 | Rosa persica | KY419918 | Fragaria iinumae | KC507759 |
| Potentilla glabra | NC\_056926 | Sanguisorba filiformis | NC\_044693 | Rubus sachalinensis | MW085086 |
| Potentilla parvifolia | NC\_053696 | Sanguisorba alpina | NC\_072253 | Rubus phoenicolasius | MW115432 |
| Potentilla stolonifera | NC\_044418 | Sanguisorba stipulata | NC\_056805 | Rubus amabilis | NC\_047211 |
| Potentilla freyniana | NC\_041210 | Sanguisorba hakusanensis | NC\_056804 | Rubus leucanthus | MK105853 |
| Potentilla centigrana | NC\_041209 | Sanguisorba officinalis | NC\_044694 | Rubus eucalyptus | MN013402 |
| Potentilla hebiichigo | NC\_041199 | Sanguisorba tenuifolia | NC\_044692 | Rubus takesimensis | NC037991 |
| Potentilla indica | NC\_041178 | Sanguisorba sitchensis | NC\_044691 | Rubus crataegifolius | NC039704 |
| Potentilla gageodoensis | OK267273 | Rubus incanus | MT274119 | Rubus boninensis | NC\_046015 |
| Dasiphora fruticosa | KY420016 | Rubus taitoensis | MT274124 | Rubus trifidus | NC\_046585 |
| Fragaria chiloensis | NC\_019601 | Rubus parviaraliifolius | MT274122 | Rubus glandulosopunctatus | MT274118 |
| Fragaria virginiana | NC\_019602 | Rubus niveus | MZ352079 | Rubus rubroangustifolius | MT274123 |
| Fragaria orientalis | NC\_035501 | Rubus coreanus | NC\_042715 | Rubus taiwanicola | MT274125 |
| Fragaria nipponica | NC\_035500 | Rubus cochinchinensis | MN913339 | Rubus kawakamii | MT274120 |
| Fragaria pentaphylla | NC\_034347 | Rubus laciniatostipulatus | MT274121 |  |  |

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Species | Size (bp) | PCGs | tRNAs | rRNAs | Gene numbers | GC% | LSC Size (bp) | SSC Size (bp) | IR Size (bp) | GC% (LSC) | GC% (SSC) | GC% (IR) |
| *A. lineata* | 157,093 | 87 | 37 | 8 | 132 | 36.62% | 86,350 | 18,773 | 25,985 | 34.35 | 30.44 | 42.64 |
| *C. adpressus* | 159,603 | 88 | 37 | 8 | 133 | 36.60% | 87,590 | 19,259 | 26,377 | 34.33 | 30.35 | 42.65 |
| *C. multiflorus* | 159,863 | 88 | 37 | 8 | 133 | 36.57% | 87,879 | 19,254 | 26,365 | 34.25 | 30.47 | 42.66 |
| *C. wardii* | 159,607 | 88 | 37 | 8 | 133 | 36.61% | 87,597 | 19,246 | 26,382 | 34.33 | 30.39 | 42.67 |
| *D. arbuscula* | 153,366 | 87 | 37 | 8 | 132 | 37.24% | 84,545 | 18,201 | 25,310 | 35.18 | 31.07 | 42.9 |
| *F. eriocarpum* | 155,769 | 87 | 37 | 8 | 132 | 37.03% | 85,206 | 18,391 | 26,086 | 34.91 | 30.84 | 42.67 |
| *F. moupinensis* | 155,597 | 88 | 37 | 8 | 133 | 37.24% | 85,501 | 18,174 | 25,961 | 35.17 | 31.08 | 42.82 |
| *P. trichostoma* | 157,846 | 88 | 37 | 8 | 133 | 36.72% | 85,971 | 19,083 | 26,396 | 34.58 | 30.25 | 42.54 |
| *R. graciliflora* | 156,597 | 93 | 37 | 8 | 138 | 37.25% | 85,832 | 18,735 | 26,015 | 35.22 | 31.35 | 42.73 |
| *R. macrophylla* | 157,233 | 91 | 37 | 8 | 136 | 37.23% | 86,303 | 18,812 | 26,059 | 35.23 | 31.21 | 42.73 |
| *R. omeiensis* | 156,925 | 93 | 37 | 8 | 138 | 37.24% | 86,094 | 18,677 | 26,077 | 35.22 | 31.15 | 42.74 |
| *R. f.pteracantha* | 157,052 | 93 | 37 | 8 | 138 | 37.24% | 86,223 | 18,673 | 26,078 | 35.22 | 31.21 | 42.74 |
| *R. sericea* | 157,141 | 93 | 37 | 8 | 138 | 37.22% | 86,334 | 18,651 | 26,078 | 35.18 | 31.22 | 42.73 |
| *R. f.glabrescens* | 157,141 | 93 | 37 | 8 | 138 | 37.22% | 86,334 | 18,651 | 26,078 | 35.18 | 31.22 | 42.73 |
| *R. sweginzowii* | 157,233 | 91 | 37 | 8 | 136 | 37.23% | 86,318 | 18,821 | 26,047 | 35.22 | 31.2 | 42.75 |
| *R. biflorus* | 155,810 | 88 | 37 | 8 | 133 | 37.27% | 85,079 | 18,711 | 26,010 | 35.23 | 31.23 | 42.79 |
| *R. pedunculosus* | 155,144 | 88 | 37 | 8 | 133 | 37.31% | 84,618 | 18,580 | 25,973 | 35.23 | 31.45 | 42.81 |
| *S. diandra* | 154,839 | 88 | 37 | 8 | 133 | 37.32% | 84,995 | 18,702 | 25,571 | 35.33 | 31.35 | 42.81 |
| *S. koehneana* | 159,895 | 88 | 37 | 8 | 133 | 36.58% | 87,883 | 19,256 | 26,378 | 34.3 | 30.32 | 42.66 |

**Table S3:** Characterization of cp genomes of 19 Rosaceae species