**Supplementary table 1.** List of *D. glomerata* accessions, used in the present study with some basic information

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **No.** | **Sample Code** | **Locality** | **Latitude****(N)** | **Longitude****(E)** | **Elevation (m)** | **AAT****(℃)** | **AAP****(mm)** | **Geographic group** | **Ploidy** |
| 1 | PI 632580 | Kazakhstan | 50°18′0″ | 57°38′0″ | 278 | 4.06 | 313 | CA | 4X |
| 2 | PI 659885 | Kyrgyzstan | 42°52′18″ | 76°6′15″ | 2332 | 6.71 | 623 | CA | 2X |
| 3 | PI 659894 | Kyrgyzstan | 42°48′1″ | 75°55′30″ | 1536 | 0.64 | 273 | CA | 2X |
| 4 | PI 659896 | Kyrgyzstan | 42°39′50″ | 77°13′34″ | 1611 | 5.02 | 248 | CA | 2X |
| 5 | PI 659908 | Kyrgyzstan | 42°44′7″ | 77°58′33″ | 1654 | 5.30 | 314 | CA | 2X |
| 6 | PI 659911 | Kyrgyzstan | 42°19′31″ | 78°14′45″ | 2550 | 5.39 | 390 | CA | 2X |
| 7 | PI 659935 | Kyrgyzstan | 41°9′5″ | 76°2′45″ | 2653 | 1.08 | 344 | CA | 2X |
| 8 | PI 659939 | Kyrgyzstan | 41°14′15″ | 76°21′35″ | 2765 | 0.63 | 258 | CA | 2X |
| 9 | PI 659869 | Tajikistan | 39°49′19″ | 70°38′2″ | 1990 | 0.07 | 245 | CA | 2X |
| 10 | W6 25205 | Tajikistan | 38°40′17″ | 70°44′16″ | 2576 | 4.60 | 721 | CA | 4X |
| 11 | W6 25249 | Tajikistan | 37°26′26″ | 71°36′30″ | 2642 | 6.26 | 348 | CA | 4X |
| 12 | W6 26252 | Tajikistan | 37°53′49″ | 70°1′44″ | 1962 | 4.94 | 542 | CA | 2X |
| 13 | W6 26306 | Tajikistan | 38°21′45″ | 69°14′29″ | 1167 | 12.80 | 656 | CA | 4X |
| 14 | D14X-01 | Tekes,Xinjiang,China | 43°20′31″ | 81°49′1″ | 2039 | 1.61 | 394 | XJC | 2X |
| 15 | D14X-02 | Huocheng,Xinjiang,China | 44°13′10″ | 81°9′30″ | 1048 | 6.33 | 306 | XJC | 2X |
| 16 | D14X-03 | Yili,Xinjiang,China | 43°27′28″ | 81°5′31″ | 2125 | 1.48 | 489 | XJC | 2X |
| 17 | D14X-04 | Zhaosu,Xinjiang,China | 43°11′36″ | 81°7′4″ | 2037 | 2.38 | 484 | XJC | 2X |
| 18 | D14X-05 | Zhaosu,Xinjiang,China | 43°9′24″ | 80°51′8″ | 2105 | 2.19 | 475 | XJC | 2X |
| 19 | D14X-06 | Zhaosu,Xinjiang,China | 42°44′43″ | 81°1′40″ | 2323 | 1.41 | 410 | XJC | 2X |
| 20 | D14X-07 | Zhaosu,Xinjiang,China | 42°45′59″ | 80°57′55″ | 1912 | 3.81 | 394 | XJC | 2X |
| 21 | D14X-08 | Tekes,Xinjiang,China | 43°9′52″ | 81°37′12″ | 1702 | 4.10 | 367 | XJC | 2X |
| 22 | D14X-09 | Fukang,Xinjiang,China | 44°7′0″ | 87°58′0″ | 728 | 7.24 | 199 | XJC | 2X |
| 23 | D14X-10 | Jimsar,Xinjiang,China | 43°41′0″ | 89°18′0″ | 2105 | 1.18 | 204 | XJC | 2X |
| 24 | D01-101 | Bijie,Guizhou,China | 27°7′25″ | 105°23′15″ | 1866 | 12.11 | 1072 | SWC | 4X |
| 25 | D02-105 | Dazhou,Sichuan,China | 30°50′53″ | 107°8′1″ | 867 | 14.91 | 1239 | SWC | 4X |
| 26 | D02-106 | Baoxin,Sichuan,China | 30°19′43″ | 102°48′58″ | 1465 | 14.03 | 1123 | SWC | 2X |
| 27 | D02-107 | Baoxin,Sichuan,China | 30°21′17″ | 102°46′4″ | 1985 | 11.47 | 1033 | SWC | 2X |
| 28 | D02-109 | Baoxin,Sichuan,China | 30°29′23″ | 102°47′12″ | 2625 | 8.26 | 985 | SWC | 2X |
| 29 | D02-113 | Deqin,Yunnan,China | 28°2′8″ | 99°12′26″ | 3295 | 7.43 | 798 | SWC | 2X |
| 30 | D02-114 | Qujing,Yunnan,China | 25°29′10″ | 103°45′29″ | 1943 | 15.76 | 947 | SWC | 2X |
| 31 | D02-115 | Deqin,Yunnan,China | 28°14′36″ | 99°17′25″ | 2772 | 10.61 | 827 | SWC | 2X |
| 32 | D02-116 | Kunming,Yunnan,China | 24°44′33″ | 102°54′47″ | 2183 | 14.32 | 1052 | SWC | 4X |
| 33 | D91-7 | Hanyuan,Sichuan,China | 29°25′1″ | 102°40′2″ | 2044 | 11.53 | 1083 | SWC | 4X |
| 34 | D91-103 | Yuexi,Sichuan,China | 28°38′6″ | 102°29′14″ | 2097 | 12.91 | 1024 | SWC | 2X |
| 35 | D-BX01 | Baoxin,Sichuan,China | 30°22′1″ | 102°51′41″ | 2118 | 10.73 | 1024 | SWC | 4X |
| 36 | D-DZ01 | Dazhou,Sichuan,China | 31°16′40″ | 107°48′28″ | 874 | 14.72 | 1291 | SWC | 4X |
| 37 | D-GL01 | Gulin,Sichuan,China | 28°5′53″ | 105°49′5″ | 1317 | 13.31 | 1083 | SWC | 4X |
| 38 | D90-130 | Maoxian,Sichuan,China | 31°40′60″ | 103°52′45″ | 2191 | 9.38 | 919 | SWC | 4X |
| 39 | D90-70 | Kangding,Sichuan,China | 30°1′38″ | 101°58′3″ | 3513 | 4.18 | 937 | SWC | 4X |
| 40 | D14-C01 | Kangding,Sichuan,China | 29°59′35″ | 101°53′1″ | 3583 | 4.09 | 930 | SWC | 4X |
| 41 | D14-C02 | Kangding,Sichuan,China | 29°59′0″ | 101°57′25″ | 3320 | 5.26 | 905 | SWC | 4X |

CA, Central Asia; XJ, Xinjiang of China; SWC, Southwest China; AAT, Average annual temperature; AAP, Average annual precipitation