**Table S1.**Passport data of plant material used in this study

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Number** | **Accession** | **Species** | **Country** | **Province** | **Locality** | **Altitude(m)** |
| C1 | ECU-1148 | *A. x. var. xanthorrhiza* | Ecuador | Pichincha | Palmito | 1500 |
| C2 | ECU-1154 | *A. x. var. xanthorrhiza* | Ecuador | Bolívar | Negroyaco | 2760 |
| C4 | ECU-1157 | *A. x. var. xanthorrhiza* | Ecuador | Cañar | Biblian | 2700 |
| C5 | ECU-1158 | *A. x. var. xanthorrhiza* | Ecuador | Cañar | Biblian | 2800 |
| C6 | ECU-1161 | *A. x. var. xanthorrhiza* | Ecuador | Imbabura | Santa Clara | 2400 |
| C7 | ECU-1162 | *A. x. var. xanthorrhiza* | Ecuador | Cañar | Biblian | 2750 |
| C9 | ECU-1173 | *A. x. var. xanthorrhiza* | Ecuador | Azuay  | Cofrada | 2300 |
| C12 | ECU-1179 | *A. x. var. xanthorrhiza* | Ecuador | Azuay  | Giron | 2110 |
| C13 | ECU-1180 | *A. x. var. xanthorrhiza* | Ecuador | Pichincha  | Palogillo | 2575 |
| C16 | ECU-1188 | *A. x. var. xanthorrhiza* | Ecuador | Chimborazo  | Sasapui | 2990 |
| C17 | ECU-1193 | *A. x. var. xanthorrhiza* | Ecuador | Pichincha | Cayambe | 3400 |
| C27 | ECU-1226 | *A. x. var. xanthorrhiza* | Ecuador | Azuay | Sigsig | 2600 |
| C28 | ECU-1229 | *A. x. var. xanthorrhiza* | Ecuador | Cotopaxi  | Fliguilo | 2700 |
| C32 | ECU-6660 | *A. x. var. xanthorrhiza* | Ecuador | Loja | Shalshi | 2400 |
| C35 | ECU-8758 | *A. x. var. xanthorrhiza* | Ecuador | Bolívar | N.A | 2900 |
| C37 | JEE-041 | *A. x. var. xanthorrhiza* | Ecuador | N.A. | N.A | N.A. |
| C46 | MST-020 | *A. x. var. xanthorrhiza* | Ecuador | Zamora  | Zumba | 950 |
| C52 | MST-030 | *A. x. var. xanthorrhiza* | Ecuador | Zamora  | Timbara | 2000 |
| C55 | MST-047 | *A. x. var. xanthorrhiza* | Ecuador | Pichincha  | San José de Minas | 1960 |
| C62 | A | *A. x. var. xanthorrhiza* | Peru | Cajamarca  | Minas | 2200 |
| C63 | NA | *A. x. var. xanthorrhiza* | Peru | Cajamarca  | Minas | 2470 |
| C67 | UNC-120 | *A. x. var. xanthorrhiza* | Peru | Cajamarca | N.A | N.A. |
| C68 | UNC-171 | *A. x. var. xanthorrhiza* | Peru | Cajamarca | N.A | N.A. |
| C69 | UNC-123 | *A. x. var. xanthorrhiza* | Peru | Cajamarca | Huañambra | 2780 |
| C74 | MTC 7-8 | *A. x. var. xanthorrhiza* | Peru | Cajamarca | Minas | 2470 |
| C75 | ECU-1196 | *A. x. var. xanthorrhiza* | Ecuador | Loja | Celica | 1990 |
| C76 | ECU-3295 | *A. x. var. xanthorrhiza* | Ecuador | Loja | N.A | 2060 |
| S1 | MST-006 | *A. x. var. andina* | Ecuador | Loja | Saraguro | 2400 |
| S2 | MST-011 | *A. x. var. andina* | Ecuador | Loja | Gualel | 2000 |
| S3 | MST-025 | *A. x. var. andina* | Ecuador | Loja | Loja | 2600 |
| S4 | MST-039 | *A. x. var. andina* | Ecuador | Cañar | Tambo | 2950 |
| S5 | MST-041 | *A. x. var. andina* | Ecuador | Cañar | Alausí | 2400 |
| S6a | MST-042 | *A. x. var. andina* | Ecuador | Cañar | Huigra | 2330 |
| S6b | MST-042 | *A. x. var. andina* | Ecuador | Cañar | Huigra | 2330 |
| S7 | MST-044 | *A. x. var. andina* | Ecuador | Tungurahua  | Ambato | N.A. |
| S8 | MST-045 | *A. x. var. andina* | Ecuador | Cotopaxi | Pujilí | N.A. |
| S9 | MST-057 | *A. x. var. andina* | Ecuador | Bolívar  | Jatunpamba | 3050 |
| S11 | MST-070 | *A. x. var. andina* | Ecuador | Loja | Oña | 2900 |
| S12 | MST-072 | *A. x. var. andina* | Ecuador | Loja | Saraguro | 2500 |
| S13 | MST-074 | *A. x. var. monocarpa* | Ecuador | Loja | Manu | 2350 |
| S14 | MST-075 | *A. x. var. monocarpa* | Ecuador | Loja | Loja | 2600 |
| S15 | MST-076 | *A. x. var. monocarpa* | Ecuador | Loja | Payanchi | 2600 |
| S16 | MST-083 | *A. x. var. andina* | Ecuador | Loja | Calvas | 2000 |
| S17 | MST-085 | *A. x. var. andina* | Ecuador | Loja | Calvas | 2050 |
| S39a | MST-081 | *A. x. var. monocarpa* | Ecuador | Loja | Gimbura | 1600 |
| S39b | MST-081 | *A. x. var. monocarpa* | Ecuador | Loja | Gimbura | 1600 |
| S40 | MST-082 | *A. x. var. monocarpa* | Ecuador | Loja | Gimbura | 2000 |
| S42 | SRK-183 | *A. x. var. monocarpa* | Peru | Cajamarca | N.A. | N.A. |
| S43 | SRK-500 | *A. x. var. monocarpa* | Peru | Cajamarca | N.A. | N.A. |
| S44 | SRK-510 | *A. x. var. monocarpa* | Peru | Cajamarca | N.A. | N.A. |
| S45 | 75-1 | *A. x. var. monocarpa* | Peru | Cuzco  | N.A. | N.A. |
| S47 | 31-2 | *A. x. var. monocarpa* | Peru | Amazonas | N.A. | N.A. |
| S48 | RBS-001 | *A. incisa* | Peru | N.A. | N.A. | N.A. |
| S49 | MST-015 | *A. acuminata* | Ecuador | Loja | Yangana | 2520 |
| S51 | MST-036 | *A. elata* | Ecuador | Azuay  | Cuenca | 3050 |
| S53 | MST-050 | *A. acuminata* | Ecuador | Imbabura | Otavalo | 3000 |
| S54 | MST-051 | *A. moschata* | Ecuador | Carchi | El Angel | 3400 |

N.A: Not available data