

**Online Resource 1** Voucher and sequence information for high throughput sequencing (top) and Sanger sequencing (followed)

| Material ID | Species names                           | Vouchers of sequences, (herbarium) | Collection site (country)                   | nrITS    | Plastid sequence ID | Genome size (bp) | Matched reads | Mean coverage |
|-------------|-----------------------------------------|------------------------------------|---------------------------------------------|----------|---------------------|------------------|---------------|---------------|
| 102         | <i>G. gnemon</i> L.                     | Hou & Pan CXS019 (S)               | Yunnan (China)                              | ---      | KX385188            | 114,238          | 1,086,929     | 1164          |
| 101         | <i>G. gnemon</i> L.                     | Hou & Pan CXS006 (S)               | Yunnan (China)                              | KX234171 | KX385189            | 114,393          | 812,792       | 878           |
| 110         | <i>G. hainanense</i> C.Y.Cheng          | Hou CHK015 (S)                     | Hong Kong (China)                           | KX234186 | KX385194            | 114,946          | 627,195       | 671           |
| 107         | <i>G. hainanense</i> C.Y.Cheng          | Hou CHK006 (S)                     | Hong Kong (China)                           | KX234187 | KX385193            | 114,954          | 572,729       | 614           |
| 106         | <i>G. montanum</i> Markgr.              | Hou & Pan CXS034 (S)               | Guangxi (China)                             | ---      | KX385196            | 114,953          | 877, 928      | 943           |
| 105         | <i>G. montanum</i> Markgr.              | Hou & Pan CXS036 (S)               | Guangxi (China)                             | ---      | KX385195            | 114,922          | 643, 968      | 688           |
| C50         | <i>G. parvifolium</i> (Warb.) W.C.Cheng | Pang PCC49 (S)                     | Hong Kong (China)                           | KP256675 | KX385191            | 114,868          | 190, 899      | 298           |
| 108         | <i>G. parvifolium</i> (Warb.) W.C.Cheng | Hou & Lau CHK023 (S)               | Hong Kong (China)                           | KX234176 | KX385190            | 114,922          | 2,003,005     | 2156          |
| 109         | <i>G. parvifolium</i> (Warb.) W.C.Cheng | Hou & Lau CHK030 (S)               | Hong Kong (China)                           | KX234177 | KX385192            | 114,983          | 1,464,749     | 1571          |
| 104         | <i>G. pendulum</i> C.Y.Cheng            | Hou & Pan CXS030 (S)               | Guangxi (China)                             | ---      | KX385198            | 114,917          | 557,925       | 598           |
| 103         | <i>G. pendulum</i> C.Y.Cheng            | Hou & Pan CXS027 (S)               | Guangxi (China)                             | ---      | KX385197            | 114,917          | 702,722       | 753           |
|             |                                         |                                    |                                             |          |                     |                  |               |               |
| Material ID | Species names                           | Vouchers of sequences, (herbarium) | Collection site (country)                   | nrITS    | matK                | rpoC1            | psbB-rps12    | trnV-trnF     |
| C41         | <i>G. africanum</i> Welw.               | Luke 10375Z (BR)                   | Équateur (Democratic Republic of the Congo) | KP256642 | KP256681            | KX234262         | ---           | ---           |
| 24          | <i>G. catasphaericum</i> H.Shao         | Phan 109642 (S)                    | Vietnam                                     | KX234206 | KX234250            | KX234304         | KX234352      | KX234382      |
| 31          | <i>G. catasphaericum</i> H.Shao         | Dickson & Alexander 19275 (E)      | Yunnan (China)                              | KX234205 | KX234249            | KX234303         | KX234351      | KX234381      |
| 32          | <i>G. catasphaericum</i> H.Shao         | Hou & Deng GXSW001 (S)             | Guangxi (China)                             | KX234203 | KX234247            | KX234301         | KX234349      | KX234379      |
| 33          | <i>G. catasphaericum</i> H.Shao         | Hou & Deng GXSW006 (S)             | Guangxi (China)                             | KX234204 | KX234248            | KX234302         | KX234350      | KX234380      |
| 44          | <i>G. catasphaericum</i> H.Shao         | Hou & Deng GXDQ001 (S)             | Guangxi (China)                             | KX234202 | KX234246            | KX234300         | KX234348      | ---           |
| 20          | <i>G. cuspidatum</i> Blume              | Li et al. LWWK082 (S)              | Pakse (Laos)                                | KX234174 | KX234222            | KX234274         | KX234325      | ---           |

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|------|-------------------------------------------------------------------------|---------------------------------|------------------------|----------|----------|----------|----------|----------|
| C52  | <i>G. cuspidatum</i><br>Blume                                           | Won 551 (KRB)                   | Java<br>(Indonesia)    | KP256660 | KP256698 | KX234273 | KX234324 | ---      |
| C101 | <i>G. diminutum</i><br>Markgr.                                          | Poster & Won SAN<br>151128 (MO) | Sandakan<br>(Malaysia) | KP256664 | KP256702 | KX234275 | ---      | ---      |
| C4   | <i>G. edule</i> (Willd.)<br>Blume                                       | Maheshwari 63-0192<br>(UC)      | India                  | KP256658 | KP256696 | KX234268 | KX234322 | ---      |
| 14   | <i>G. formosum</i><br>Markgr.                                           | Hou HNYC001 (S)                 | Hainan<br>(China)      | KX234200 | KX234230 | KX234298 | KX234346 | KX234377 |
| 21   | <i>G. formosum</i><br>Markgr.                                           | Li et al. 0832<br>(HITBC)       | Pakse (Laos)           | KX234201 | KX234231 | KX234299 | KX234347 | KX234378 |
| 37   | <i>G. giganteum</i><br>H.Shao                                           | Hou & Deng<br>GXSW012 (S)       | Guangxi<br>(China)     | KX234209 | KX234252 | KX234307 | KX234354 | KX234384 |
| 8    | <i>G. giganteum</i><br>H.Shao                                           | Hou GDHN001 (S)                 | cult.                  | KX234211 | KX234254 | KX234309 | KX234356 | KX234386 |
| 41   | <i>G. giganteum</i><br>H.Shao                                           | Hou & Deng<br>GXSW029 (S)       | Guangxi<br>(China)     | KX234213 | KX234256 | KX234311 | KX234358 | KX234388 |
| 1    | <i>G. gnemon</i> L.                                                     | Hou & Pan CXS014<br>(S)         | Yunnan<br>(China)      | KX234173 | KX234221 | KX234265 | KX234319 | ---      |
| 2    | <i>G. gnemon</i> L.                                                     | Hou & Pan CXS008<br>(S)         | Yunnan<br>(China)      | KX234170 | KX234219 | KX234263 | KX234317 | ---      |
| 23   | <i>G. gnemon</i> L.                                                     | Phan P10976 (S)                 | Vietnam                | KX234172 | KX234220 | KX234264 | KX234318 | ---      |
| C51  | <i>G. gnemonoides</i><br>Brongn.                                        | Won 553(KRB)                    | Java<br>(Indonesia)    | KP256656 | KP256694 | KX234266 | KX234320 | ---      |
| 39   | <i>G. gracilipes</i><br>C.Y.Cheng                                       | Hou & Deng<br>GXSW018 (S)       | Guangxi<br>(China)     | KX234210 | KX234253 | KX234308 | KX234355 | KX234385 |
| 42   | <i>G. gracilipes</i><br>C.Y.Cheng                                       | Hou & Deng<br>GXSW030 (S)       | Guangxi<br>(China)     | KX234214 | KX234257 | KX234312 | KX234359 | ---      |
| 10   | <i>G. hainanense</i><br>C.Y.Cheng ex<br>L.K.Fu, Y.F.Yu &<br>M.G.Gilbert | Hou & Zeng<br>GDHL001 (S)       | Guangdong<br>(China)   | KX234195 | KX234241 | KX234293 | KX234341 | KX234373 |
| 11   | <i>G. hainanense</i><br>C.Y.Cheng ex<br>L.K.Fu, Y.F.Yu &<br>M.G.Gilbert | Hou SZDH004 (S)                 | Guangdong<br>(China)   | KX234193 | KX234238 | KX234290 | KX234338 | KX234370 |
| 12   | <i>G. hainanense</i><br>C.Y.Cheng ex<br>L.K.Fu, Y.F.Yu &<br>M.G.Gilbert | Hou JFL001 (S)                  | Hainan<br>(China)      | KX234194 | KX234239 | KX234291 | KX234339 | KX234371 |
| 13   | <i>G. hainanense</i><br>C.Y.Cheng ex<br>L.K.Fu, Y.F.Yu &<br>M.G.Gilbert | Hou JFL004 (S)                  | Hainan<br>(China)      | KX234198 | KX234244 | KX234296 | KX234344 | KX234375 |
| 16   | <i>G. hainanense</i><br>C.Y.Cheng ex<br>L.K.Fu, Y.F.Yu &<br>M.G.Gilbert | Hou HMFHL003 (S)                | Hainan<br>(China)      | KX234199 | KX234245 | KX234297 | KX234345 | KX234376 |
| 18   | <i>G. hainanense</i><br>C.Y.Cheng ex<br>L.K.Fu, Y.F.Yu &<br>M.G.Gilbert | Hou HNBWL002 (S)                | Hainan<br>(China)      | KX234196 | KX234242 | KX234294 | KX234342 | ---      |
| 25   | <i>G. hainanense</i><br>C.Y.Cheng ex<br>L.K.Fu, Y.F.Yu &                | Lau 5256 (S)                    | Hainan<br>(China)      | ---      | KX234240 | KX234292 | KX234340 | KX234372 |

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|------|-------------------------------------------------------------------------|---------------------------------|--------------------------|----------|----------|----------|----------|----------|
|      | M.G.Gilbert                                                             |                                 |                          |          |          |          |          |          |
| 5    | <i>G. hainanense</i><br>C.Y.Cheng ex<br>L.K.Fu, Y.F.Yu &<br>M.G.Gilbert | Hou HNBWL001 (S)                | Hainan<br>(China)        | KX234197 | KX234243 | KX234295 | KX234343 | KX234374 |
| 9    | <i>G. hainanense</i><br>C.Y.Cheng ex<br>L.K.Fu, Y.F.Yu &<br>M.G.Gilbert | Hou SZXH001 (S)                 | Hainan<br>(China)        | KX234192 | KX234237 | KX234289 | KX234337 | KX234369 |
| 15   | <i>G. hainanense</i><br>C.Y.Cheng ex<br>L.K.Fu, Y.F.Yu &<br>M.G.Gilbert | Hou NDNC001 (S)                 | Hainan<br>(China)        | KX234184 | KX234232 | KX234283 | KX234333 | KX234364 |
| C15  | <i>G. latifolium</i><br>Blume                                           | Maxwell 780-227<br>(U)          | Malaysia                 | KP256661 | ---      | KX234269 | ---      | ---      |
| C102 | <i>G. leptostachyum</i><br>Blume                                        | Poster & Won SAN<br>151114 (MO) | Sabah<br>(Malaysia)      | KP256665 | KP256703 | KX234271 | ---      | ---      |
| C61  | <i>G. luofuense</i><br>C.Y.Cheng                                        | Rydin s.n. (S)                  | cult.                    | KX234191 | KP256710 | KX234288 | ---      | KX234368 |
| 19   | <i>G. luofuense</i><br>C.Y.Cheng                                        | Hou GDDH003 (S)                 | Guangdong<br>(China)     | KX234190 | KX234236 | KX234287 | KX234336 | KX234367 |
| 27   | <i>G. luofuense</i><br>C.Y.Cheng                                        | Zhang 0712 (PE)                 | Guangxi<br>(China)       | KX234189 | KX234235 | KX234286 |          |          |
| 28   | <i>G. luofuense</i><br>C.Y.Cheng                                        | Hou ShenZS1059 (S)              | Guangdong<br>(China)     | KX234185 | KX234233 | KX234284 | KX234334 | KX234365 |
| 6    | <i>G. luofuense</i><br>C.Y.Cheng                                        | Hou GDND001 (S)                 | Guangdong<br>(China)     | KX234188 | KX234234 | KX234285 | KX234335 | KX234366 |
| 17   | <i>G. montanum</i><br>Markgr.                                           | Roeder & Hou<br>MXS017 (HITBC)  | Yunnan<br>(China)        | KX234208 | KX234251 | KX234306 | KX234353 | KX234383 |
| 29   | <i>G. montanum</i><br>Markgr.                                           | Beusekom &<br>Phengkai 2614 (E) | Chiang Mai<br>(Thailand) | KX234207 | ---      | KX234305 | ---      | ---      |
| C19  | <i>G. neglectum</i><br>Blume                                            | van Niel s.n. (U)               | Borneo<br>(Malaysia)     | KP256667 | KP256705 | KX234270 | ---      | ---      |
| 35   | <i>G. parvifolium</i><br>(Warb.)<br>W.C.Cheng                           | Hou & Deng<br>GXSW010 (S)       | Guangxi<br>(China)       | KX234178 | KX234224 | KX234277 | KX234327 | ---      |
| 22   | <i>G. parvifolium</i><br>(Warb.)<br>W.C.Cheng                           | Rydin s.n. (S)                  | Fujian<br>(China)        | KX234181 | KX234227 | KX234280 | KX234330 | ---      |
| 26   | <i>G. parvifolium</i><br>(Warb.)<br>W.C.Cheng                           | Liu 0734 (PE)                   | Guangxi<br>(China)       | KX234180 | KX234226 | KX234279 | KX234329 | ---      |
| 34   | <i>G. parvifolium</i><br>(Warb.)<br>W.C.Cheng                           | Hou & Deng<br>GXSW008 (S)       | Guangxi<br>(China)       | KX234179 | KX234225 | KX234278 | KX234328 | ---      |
| 36   | <i>G. parvifolium</i><br>(Warb.)<br>W.C.Cheng                           | Hou & Deng<br>GXSW011 (S)       | Guangxi<br>(China)       | KX234175 | KX234223 | KX234276 | KX234326 | ---      |
| 40   | <i>G. parvifolium</i><br>(Warb.)<br>W.C.Cheng                           | Hou & Deng<br>GXSW022 (S)       | Guangxi<br>(China)       | KX234182 | KX234228 | KX234281 | KX234331 | ---      |
| 43   | <i>G. parvifolium</i><br>(Warb.)<br>W.C.Cheng                           | Hou & Deng<br>GXSW032 (S)       | Guangxi<br>(China)       | KX234183 | KX234229 | KX234282 | KX234332 | ---      |
| 38   | <i>G. pendulum</i><br>C.Y.Cheng                                         | Hou & Deng<br>GXSW013 (S)       | Guangxi<br>(China)       | KX234212 | KX234255 | KX234310 | KX234357 | KX234387 |

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| 4   | <i>G. pendulum</i><br>C.Y.Cheng | Roeder & Hou<br>MXS012 (HITBC) | Yunnan<br>(China)        | KX234217 | KX234260 | KX234315 | KX234362 | KX234391 |
| 45  | <i>G. pendulum</i><br>C.Y.Cheng | Hou & Deng<br>GXDQ003 (S)      | Guangxi<br>(China)       | KX234216 | KX234259 | KX234314 | KX234361 | KX234390 |
| 47  | <i>G. pendulum</i><br>C.Y.Cheng | Li et al 1849 (S)              | Guangxi<br>(China)       | KX234218 | KX234261 | KX234316 | KX234363 | ---      |
| 46  | <i>G. pendulum</i><br>C.Y.Cheng | Hou & Deng<br>GXDQ005 (S)      | Guangxi<br>(China)       | KX234215 | KX234258 | KX234313 | KX234360 | KX234389 |
| C11 | <i>G. raya</i> Markgr.          | Kessler 624 (U)                | Kalimantan<br>(Malaysia) | KP256657 | ---      | KX234267 | KX234321 | ---      |
| C18 | <i>G. tenuifolium</i><br>Ridl.  | Carlquist 8087 (U)             | Gombak<br>(Malaysia)     | KP256662 | KP256700 | KX234272 | KX234323 | ---      |