

Supplementary Table S2 – Loci tested in the present study, annealing temperature, primers used, length of the aligned sequences, note about the detected sequence polymorphisms and reference for the source of the primers. n.a. – not analysed due to unsuccessful amplification; SNP – single nucleotide polymorphism.

| Locus | TA [°C] | Primers | Length [bp] | Polymorphism |
|--------------------------------|---------|---------------------------------------------------------------|-------------|-----------------------------|
| Nuclear | | | | |
| ITS1-5.8S-ITS2 ⁸ | 56 | ITS1, ITS4 | 617 | 1 ambiguous position |
| <i>ppc</i> ¹ | 55 | <i>PPCX4F</i> , <i>PPCX5R</i> | n.a. | unspecific amplification |
| <i>topo6</i> ² | 59 | <i>top6_2F_305</i> , <i>Top6_3F_464</i> , <i>Top6_8R_1680</i> | n.a. | n.a. |
| <i>isi</i> ³ | 55 | <i>isi-ex3F</i> , <i>isi-ex5R</i> | n.a. | unspecific amplification |
| Chloroplast | | | | |
| <i>psbM-ycf6</i> ⁴ | 54 | <i>ycf6F</i> , <i>psbMR</i> | 917 | 1 SNP (A/G) |
| <i>trnC-ycf6</i> ⁴ | 54 | <i>trnC</i> ^{GCAF} , <i>ycf6R</i> | 795 | 2 SNP (T/G; polyT) |
| <i>trnQ-rps16</i> ⁵ | 54 | <i>trnQ</i> ^{UUG} , <i>rpS16x1</i> | 448 | 7 bp insert + 1 SNP (polyT) |
| <i>rps16</i> ⁴ | 52 | <i>rpS16F</i> , <i>rpS16R</i> | 738 | 1 SNP (polyT) |
| <i>trnT-trnF</i> ⁹ | 52 | <i>a</i> , <i>f</i> | 1581 | 2 SNP (A/T; polyA) |
| <i>trnK-matK</i> ¹⁰ | 52 | <i>3914F</i> , <i>2R</i> , <i>trnK 3R</i> | 1082 | 1 SNP (polyT) |
| <i>trnD-trnT</i> ⁴ | 54 | <i>trnD</i> ^{GUCF} , <i>trnT</i> ^{GGU} | 827 | 0 |
| <i>trnD-psbM</i> ⁴ | 54 | <i>trnD</i> ^{GUCR} , <i>psbMF</i> | 590 | 0 |
| <i>trnS-trnM</i> ⁴ | 55 | <i>trnS</i> ^{UGA} , <i>trnM</i> ^{CAU} | 978 | 0 |
| <i>trnH-psbA</i> ⁶ | 54 | <i>psbA</i> , <i>trnH</i> : | 300 | 0 |
| <i>ndhF</i> ⁷ | 50 | <i>ndhF-913_F</i> , <i>ndhF_R</i> | 913 | 0 |
| <i>rpoB-trnC</i> ⁴ | 54 | <i>rpoB</i> , <i>trnC</i> ^{GCAR} | n.a. | n.a. |
| <i>trnS-trnL</i> ⁴ | 50 | <i>trnS</i> ^{GGA} , <i>trnL</i> ^{UAA} | n.a. | n.a. |
| <i>rpl16</i> ⁴ | 50 | <i>rpL16F71</i> , <i>rpL16R1516</i> | n.a. | n.a. |
| <i>petL-psbE</i> ⁵ | 54 | <i>petL</i> , <i>psbE</i> | n.a. | n.a. |

¹ Olson M. E. (2002) Combining Data from DNA Sequences and Morphology for a Phylogeny of Moringaceae (Brassicales). – Systematic Botany 27: 55–73.

² Blattner F. R. (2016) TOPO6: a nuclear single-copy gene for plant phylogenetic inference. – Plant Systematics and Evolution 302: 239–244.

³ Franck A. R., Cochrane B. J. & Garey J. R. (2012) Low copy nuclear primers and *ycf1* primers in Cactaceae. – American Journal of Botany 99: 405–407.

⁴ Shaw J., Lickey E. B., Beck J. T., Farmer S. B., Liu W., Miller J., Siripun K. C., Winder C. T., Schilling E. E. & Small R. L. (2005) The tortoise and the hare II: relative utility of 21 noncoding chloroplast DNA sequences for phylogenetic analysis. – American Journal of Botany 92: 142–166.

⁵ Shaw J., Lickey E. B., Schilling E. E. & Small R. L. (2007) Comparison of whole chloroplast genome sequences to choose noncoding regions for phylogenetic studies in angiosperms: the tortoise and the hare III. – American Journal of Botany 94: 275–288.

⁶ Tate J. A. (2002) Systematics and evolution of *Tarasa* (Malvaceae): an enigmatic Andean polyploid genus. Ph.D. dissertation. The University of Texas at Austin

⁷ Karis P. O., Eldenäs P. & Källersjö M. (2001) New evidence for the systematic position of *Gundelia* L. with notes on delimitation of Arctoteae (Asteraceae). – Taxon 50: 105–114.

⁸ White T. J., Bruns T. D., Lee S. & Taylor J. W. (1990) Amplification and direct sequencing of fungal ribosomal RNA genes for phylogenetics. In: Innis MA, Gelfand DH, Sninsky JJ (eds) PCR protocols: A guide to methods and amplification. Pp 315–322. Academic Press, San Diego.

⁹ Taberlet P., Gielly L., Pautou G. & Bouvet J. (1991) Universal primers for amplification of three non-coding regions of chloroplast DNA. – Plant Molecular Biology 17: 1105–1109.

¹⁰ Cieslak T., Santosh Polepalli J., White A., Müller K., Borsch T., Barthlott W., Steiger J., Marchant A. & Legendre L. (2005) Phylogenetic analysis of *Pinguicula* (Lentibulariaceae): chloroplast DNA sequences and morphology support several geographically distinct radiations. – American Journal of Botany 92: 1723–1736.