

附录1 64种蕨类经手工校正后 *rpoC1* CDS序列

Appendix 1 The *rpoC1* CDS sequence of 64 ferns after manual correction

>*Adiantum shastense*

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  CTACCGATCTGTCAGTGGCGAAGGGGAATATTCAAATTTTGCAAGCATTGCGG
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>*Alsophila podophylla*

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>*Alsophila spinulosa*

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>*Ampelopteris prolifera*

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>*Angiopteris angustifolia*

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>*Angiopteris evecta*

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>*Asplenium pekinense*

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>*Asplenium prolongatum*

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>*Athyrium anisopterum*

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>*Athyrium opacum*

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>*Athyrium shearerii*

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>*Athyrium sinense*

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>*Austroblechnum melanocaulon*

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>*Botrychium ternatum*

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>*Callistopteris apiifolia*

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>*Ceratopteris richardii*

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>*Christella appendiculata*

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>*Cibotium barometz*

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>*Cyrtomium devexiscapulae*

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>*Cyrtomium falcatum*

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>*Cyrtomium fortunei*

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>*Cystopteris chinensis*

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>*Deparia lancea*

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>*Deparia pycnosora*

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>*Diplaziopsis cavaleriana*

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>*Diplazium bellum*

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>*Diplazium dushanense*

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>*Diplazium striatum*

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>*Diplazium unilobum*

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>*Dryopteris decipiens*

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>*Dryopteris fragrans*

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>*Equisetum arvense*

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>*Equisetum hyemale*

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>*Helminthostachys zeylanica*

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>*Homalosorus pycnocarpus*

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>*Hymenasplenium unilaterale*

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>*Hymenophyllum holochilum*

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>*Hypodematum crenatum*

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>*Lepisorus clathratus*

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>*Lygodium japonicum*

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>*Lygodium microphyllum*

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>*Macrothelypteris torresiana*

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>*Mankyua chejuensis*

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> *Marsilea crenata*

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>Matteuccia struthiopteris

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>*Myriopteris lindheimeri*

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>*Onoclea sensibilis*

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> *Osmundastrum cinnamomeum*

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>*Pilularia americana*

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>*Polypodium glycyrrhiza*

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>*Pseudophegopteris aurita*

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>*Psilotum nudum*

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>*Pteridium aquilinum*

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>*Rhachidosorus consimilis*

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>*Schizaea elegans*

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>*Schizaea pectinata*

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>*Stegnogramma sagittifolia*

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> *Vandenboschia speciosa*

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> *Woodsia macrochlaena*

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GGGTATACAGGCATTTCAACCCATTTAATAGAAGGACGTGCTATTCGCTTGCA
TCCATTGGTTTCGTGGGGGGTTTAAACGCAGATCTCGACGGAGATCAGATGGCCG
TTCATGTGCCCTATCTCTCGAAGCTCAGATTGAAGCTCGTCTCCCGATGTTTT
CGCACATAAATTTGTTATCCCCCGCTACGGGCGATTCTATATGTATCCCGAGTC
AAGACATGCTTCTCGGTCTCTATGTAACAATTGAAAATAAGCAAGGAATCTA
CGGAAAC---AGACATTCCGTTTTTCGTGAGA-----GGGGGTGATTTCCAC-----CC
TGCCAGAATACCCTGTTTCGGTAGTTACCACGACATACTCAGGGCCAAGGAATC
AAATCAAATTGATTTTTGTAGTTTCTTGTGGCTTCGGTGGGAAACTAATTTGGAA
ATGATTAGTTCAAAAATTCGTGAATTACCTGTTGAATCTCAATATGAATCATTGG
GAACCTCTTCACTCTTATGATAATTACCAGATTAGAAAGTGTAGGAAGGGATA
TATCTCAGGTATATATGTAATTACCACGGCTGGTCGCATCTTGTTTAATCAACAA
TTGAAGGAAGCGATACAGGGTGTATCAAAAAGCCTCT---TTGTGTGCTACTTCGT
CCGTACCAGATATGGTAACACAAGACGAAATGCCTACATCTAGCCGCAAAAATG
AAGAA

>*Woodsia polystichoides*

ATGATTCATCGAGCTAATTATCAACAGCTTCGGATTGGACTGGCTTCCCCTGAACAG
ATTCGCGGTTGGGCTGAGAGGGAGTTACCCAATGGAGATGTCGTCGGGCAAGT
CGATCAACCTTACACGTTGCATCACAAGACTCACAAACCAGAGAGAGATGGCTC
ATTTTCGTGAAAGGATACTCGGGCCATAAAAAGCGGTGTCTGCGCGTGTGGAA
ACTATCGATCTGTCGATAACGGAGAGGAGTATTCCAATTTTTGCAAACATTGCG
GAGTCGAATTTACCGATTCCCGGGTTCGAAGATACCGAATGGGATACATTAAC
TCGCGTGTCCGGTAACCCATGTGTGGTTTTCAAAAAGAATCCCTAGTTATATTG
CAAATCCACTCGCCAAACCTCTTAAAGAAGTAAAGAGCCAGTATATTGCGATA
CC---TATCCCAATCTTTTTCTTGCTAGGCCCGTGGCCAAAAGGCCAACCTATTA
AGATTGCGGGGTTTGTTCATTACGAAGAC-----CGATCCTGGAGAAACAT
GCTTCCCCTATTCTTTTCCACTCGAAATTATGAAACGCTTCAAAGAAACGAAATC
GCCACTGGGGGAGATGCCGTCAAAAAGGGATTAAGTACTAGTTTGGATCTAGAAAG
TGTTATGGATCGCGCACATTTGGAGTGGCAGGCGCCAGCGAAGCAAAGGCCT
GTTGGGAATGAATGGGAAGACCGAACAATCAAAGAAGGAAAGATCTTTTGGTC
AGACGGATGAAATTAGCCAAGGATTTCTTACGGACGAATCTAAAACCAGAATGG
ATGGTTCTAGACCTCCTGCCAGTTCTACCACCTGAATTGAGACCGATAGTTGAA
TCGTATGAAGGCGAATTAGTTACTTCCGACCTAACGAGCTCTACAGAAAGGTA
ATTCATCGAAATAATACTCTTGTGCAATTCTTATCGGGGAGTGAATTCACGCCG
GAGGGATTAATCGTTTGTGAGAAAAGACTTATTCAAGAAGCTGTAGACGCTCCC
ATTGATAATGGTATACGCGGGCAACCAATGAGGGATATCAATAACAGACCCTAC
AAGTCATTTTCAGAGGTTATTGAGGGCAAAGAGGGACGATTTTCGTGAGAATTTG
CTCGGAAAACGGGTTGACTACTCGGGCCGTTTTCGTTATTGTCGTAGGCCCATC
TCTTTCATTACATCAATGTGGATTACCCCGAGAAATGTCAATTGAACTTTTCCAA
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GCTAAAAGTATGATACGAAAAGAAGATCCCATTATATGGGAAGTTCTTCGGGAA
GTTATGCGTGGTCACCCCATATTGCTGAATCGGGCACCTACTTTGCATAGGTTG
GGTATACAGGCATTTCAACCCATTTTAATAGAAGGACGTGCTATTTCGCTTGCAT
CCATTGGTTTCGTGGGGGGTTAACGCAGATCTCGACGGAGATCAGATGGCTGT
TCATGTGCCCTATCTCTCGAAGCTCAGATTGAAGCTCGTCTCCTGATGTTTTC
GCACATAAATTTGTTATCCCCCGCTACGGGCGATTCTATATGTATCCCGAGTCA
AGACATGCTTCTCGGTCTCTATGTAACAATTGAAAATAAACAAGGAATCTAC
GGAAAC---AGACATTCCGTTTTCTGTTGGA-----GGGGGTGATTTTCAC-----CCT
GCCAGAATACCCTGTTTTGGTAGTTACCACGACATACTCAGGGCTAAGGAATCA
AATCAAATTGATTTTTGTAGTTTCTTGTGGCTTCGGTGGGAAACTAATTTGGAAA
TGATTAGTTCGAAAATTTCGTGAATTACCTGTTGAATCTCAATATGAATCATTGGG
AACTTCTCTTCACTCTTATGATAATTACCAGATTAGAAAGTGTAGGAAGGGATAT
ATCTCAGGTATATATGTAATTACCACGGCTGGTCGCATCTTGTTTAATCAACAAT
TGAAGGAAGCGATACAGGGTGTGTCAAAAGCCTCT---TTGTGTGCTACTTCTTC
CGTACCAGATATAGTAACACAAGACGAAATGCCTAAGTCTAGTCGCAAAAATGA
AGAA

>*Woodwardia unigemmata*

ATGACTCATCGAGCTAATTATCAACAGCTTCGGATTGGACTGGCTTCCCCGAACAG
ATTCGCGGCTGGGCTGAAAGGGAGTTACCCAATGGAGACGTTGTGCGGGCAAGT
TGATCAACCTTATACGTTGCATCATAAAACCCATAAACCAGGAGAGAGATGGCTC
ATTTTCGTGAAAGGATACTCGGGCCATAAAAAGCGGCGTCTGCGCGTGTGGAA
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GCAAATCCACTTGCCAAACCTCTTAAAGAACCAGAAAGGCCAGTATATTGCGAT
ACC---TATCCCAATCTTTTTCTTGCTAGGCCCGTGGCCGAAAGGCCGAACCTAT
TGAGACTGCGGGGCTTGTTCATTACGAAGAT-----CGATCCTGGAGAAA
CAAGCTTCCCCTTTATTTCTTACTCGAAATTATGAAACGCTTCAGGGGAACGA
AATCGCCACTGGGGGAGATGCCGTCAAGAAAGGATTAAGTACTAGTTTATAGTCTGC
AAAGTGTATGGATCGTGCATATCTGGAGTGGCAAGCGCCGGCGAAGCAAAGG
CCTGCTGGGAATGAATGGGAAGACCGAACAATCAAAGAAGGAAAGATCTTTT
GTCAGACGGATGAAATTAGCCAAGGATTTCTTACGGACGAATCTAAAACCGGAA

TGGATGGTCTTAGATCTCTTGCCGGTTCTTCCACCTGAATTAAGACCAATAGTT
GAGTCGTATGAAGGCGAATTAGTAACTTCCGACCTTAATGAGCTTTACAGAAAG
GTAATTCATCGAAATAATACTCCTGCTGAATTTTCGTCGGGGAGTGAATTCACG
CCGGAGGGATTAATCGTTTGTGAGAAAAGACTTATTCAAGAAGCTGTAGACGCT
CCCATCGATAATGGTATACGCGGGCAACCGATGAGGGATATTAATAACAGACC
CTACAAGTCATTTTCAGAGGTTATTGAGGGCAAAGAAGGACGATTTTCGTGAGAA
TTTGCTCGGAAAACGGGTTGATTACCCAGGTCGTTTCGTTATTGTTGTAGGTC
GTCCCTTTCATTACATCAATGTGGATTACCCCGAGAAATGTCAATCGAACCTTTC
CAAGTATTTGTAATTCGTAACCTTGATCGGACGACATCTCGCTTGTAACTACGAG
CGGCTAAAAGTATGATACGAAAAGAAGATCCCGTTATATGGGAAGTTCCTCGGG
AAGTTATGCGGGGTCACCCCATACTGCTGAATCGAGCACCTACTTCGCACAGG
CTGGGTATCCAGGCATTTCAACCCATTTTAGTAGAAGGACGTGCTACTCGTTTG
CATCCATTGGTTCGTGGGGGGTTTAAACGCAGATCTCGACGGAGATCAGATGGC
TGTTTCATGTGCCCTATCTCTCGAAGCTCAGATTGAAGCTCGTCTTCCGACGTT
TTCACACATAAATTTGTTATCCCCAGCTACGGGCGATTCTGTATCTGTCCCGAG
TCAAGACATGCTTCTCGGTCTTTATGTACTAACAATTGAGAACAAGCAAGGAAT
CTATGAAAAC---AGACACTCCATTTCCGTGGGG-----GGGGGTGACGCATAC---
---CCTGCCGGAATACCCTGTTTCGGTAGTTACCACGACATACTCAGGGCCAAGG
AATCAAATCAAATTGATTCCTTCAGTTTCTTGTGGCTTCGATGGGAACTAATTT
GAAAATGATTAGTTTCGAAAATTCGTGAATTCCTCGAATCTCAATATGAATCC
TTGGGAACCTCTTCACTCTTATGATAATTACCAAATTAGGAAGTGTAGGAAG
GGATATATCTCAAGTATATATGTACTTACCACGGCTGGTCGCATTTTGCTTAATC
AACAGTTAAGGGAAGCGATGCAAGGTGTGTCAAAGCCTCT---TCATGTGCTAC
TTCGTCCGTACCGGATGTGGTAACACAAGACGAAATGCCTAAATCTAACTGCAA
AAACGAAGAG

附录2 jModelTest2.1.10基于AIC得到的*matK*和*rbcL*串联集核苷酸模型参数

Appendix 2 Nucleotide model parameters of *matK* and *rbcL* tandem set based on AIC of jModelTest2.1.10

Model selected:

Model = TVM+I+G
partition = 012314
-lnL = 58974.2978
K = 135
freqA = 0.3131
freqC = 0.1823
freqG = 0.1637
freqT = 0.3409
R(a) [AC] = 1.5378
R(b) [AG] = 8.1389
R(c) [AT] = 0.3907
R(d) [CG] = 1.4105
R(e) [CT] = 8.1389
R(f) [GT] = 1.0000
p-inv = 0.2860
gamma shape = 1.8660