

1   **TITLE**  
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3   Phylogenetic analysis and development of molecular markers for five medicinal  
4   *Alpinia* species based on complete plastome sequences  
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30 **Supplementary tables**

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51 **Table S11.** SSR identified in the plastome of *A. nigra*. P1 = Mononucleotide; P2 = Di nucleotide;  
52 P3 = Tri nucleotide; P4 = Tetra nucleotide; P5 = Penta nucleotide; 6 = Hexa nucleotide repeats  
53 and c = Compound repeat microsatellites.

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55 nucleotide; P3 = Tri nucleotide; P4 = Tetra nucleotide; P5 = Penta nucleotide; 6 = Hexa  
56 nucleotide repeats and c = Compound repeat microsatellites.

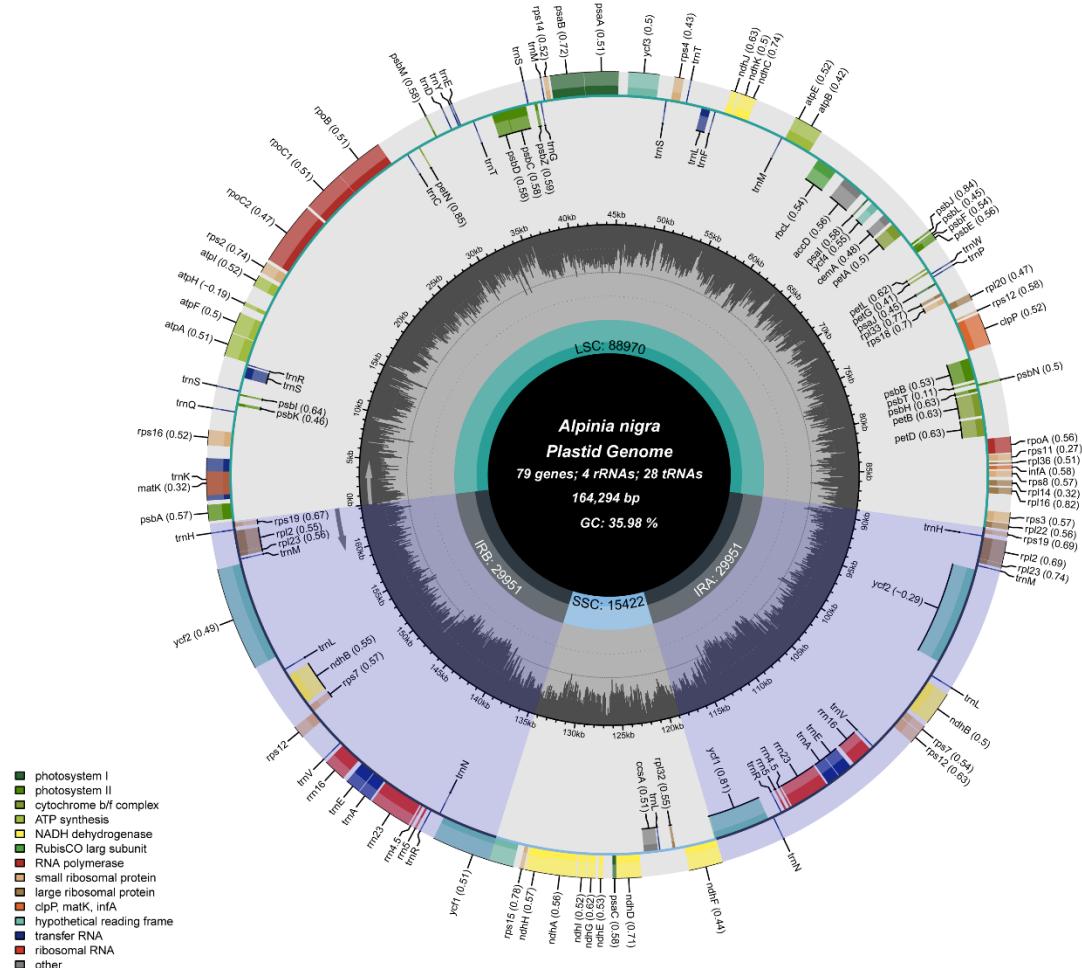
57 **Table S13.** SSR identified in the plastome of *A. oxyphylla*. P1 = Mononucleotide; P2 = Di  
58 nucleotide; P3 = Tri nucleotide; P4 = Tetra nucleotide; P5 = Penta nucleotide; 6 = Hexa  
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85

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108 primers in silico.

109 **Figure S1. Schematic representation of the *A. nigra* plastome features.**  
 110 From the center going outward, the first circle shows the species name and specific information  
 111 regarding the genome (length, GC content, and the number of genes). The optional GC content is  
 112 depicted as the proportion of the shaded parts of each section and the length of the corresponding  
 113 single short copy (SSC), inverted repeat (IRa and IRb), and large single-copy (LSC) regions are also  
 114 given in this circle. The outer circle shows the gene names and their optional codon usage bias. The  
 115 genes are colored based on their functional categories. Genes inside and outside of the circle are  
 116 transcribed in clockwise and counterclockwise directions, represented with arrows. The optional  
 117 shaded area stretching from the inner sphere toward the outer circle marks the IR regions.

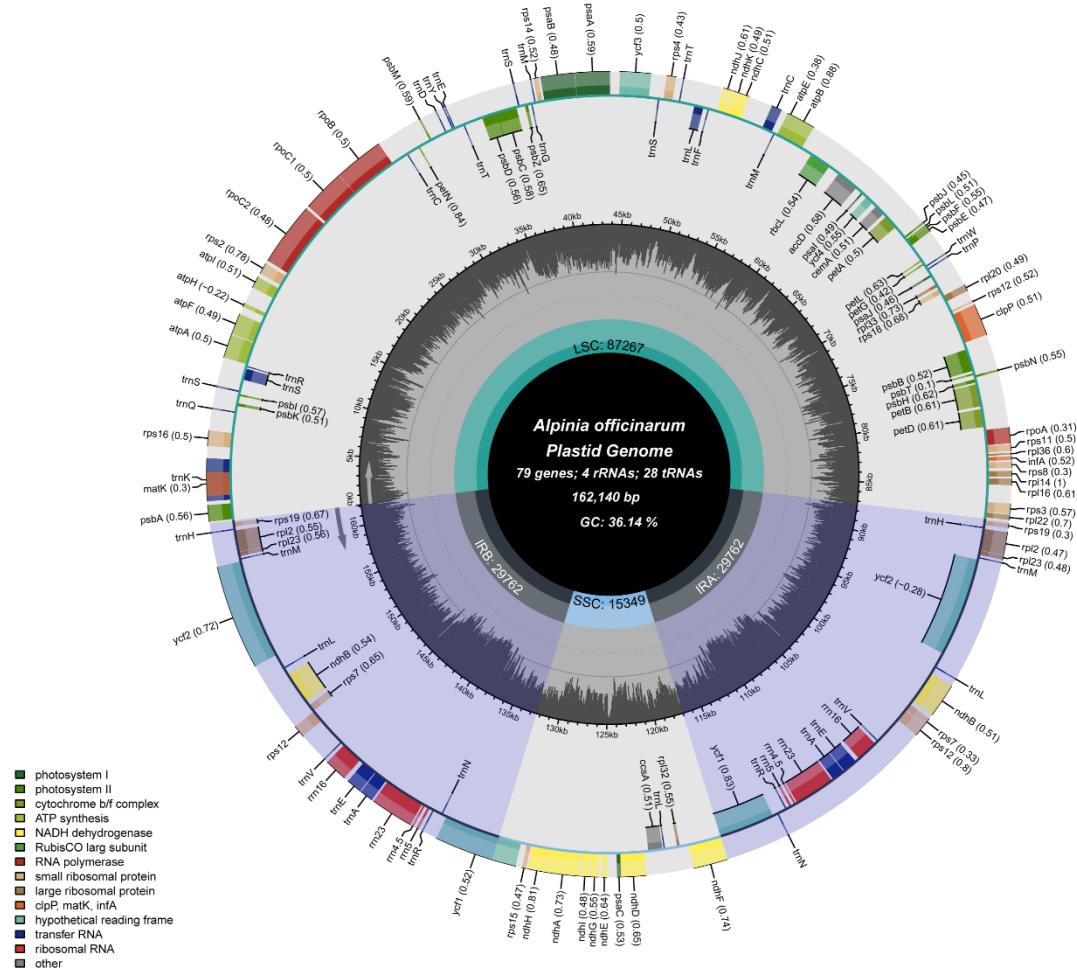


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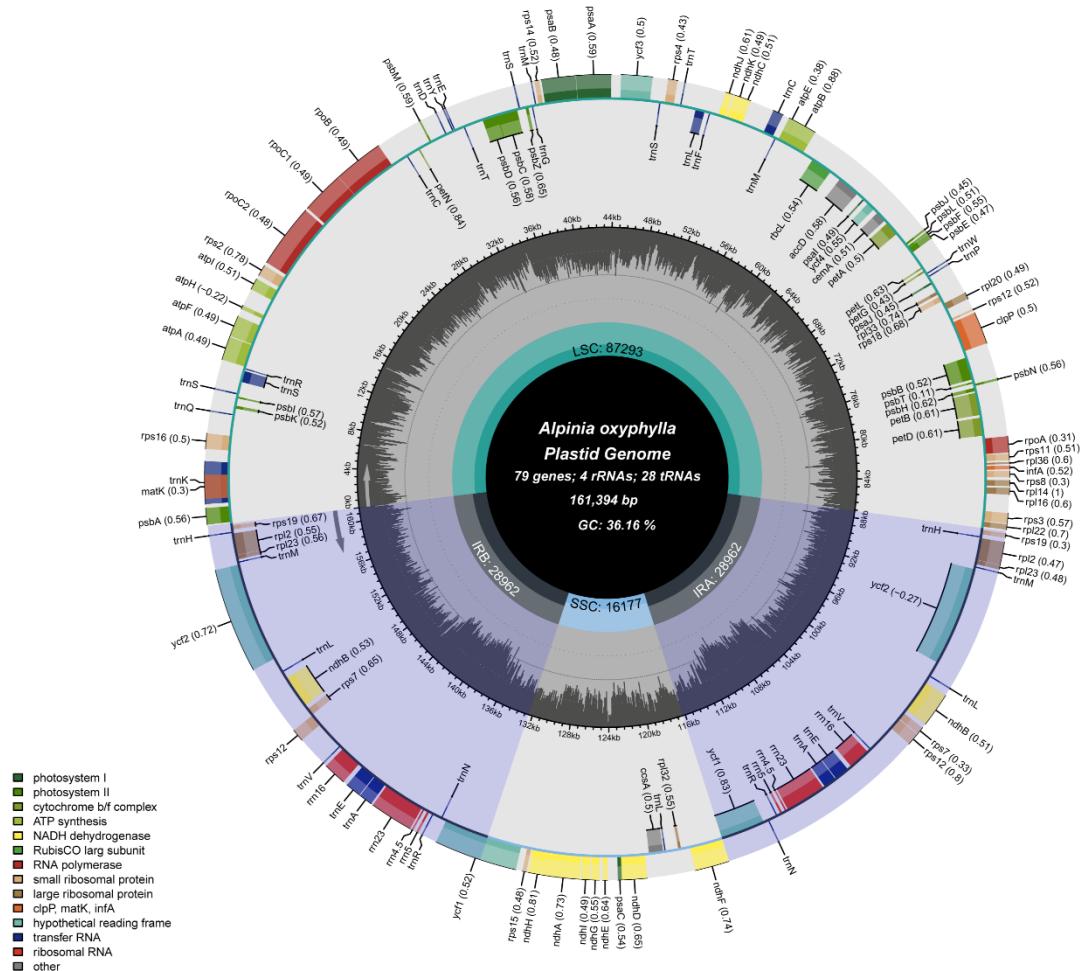
## Figure S2. Schematic representation of the *A. officinarum* plastome features.

From the center going outward, the first circle shows the species name and specific information regarding the genome (length, GC content, and the number of genes). The optional GC content is depicted as the proportion of the shaded parts of each section and the length of the corresponding single short copy (SSC), inverted repeat (IRa and IRb), and large single-copy (LSC) regions are also given in this circle. The outer circle shows the gene names and their optional codon usage bias. The genes are colored based on their functional categories. Genes inside and outside of the circle are transcribed in clockwise and counterclockwise directions, represented with arrows. The optional shaded area stretching from the inner sphere toward the outer circle marks the IR regions.



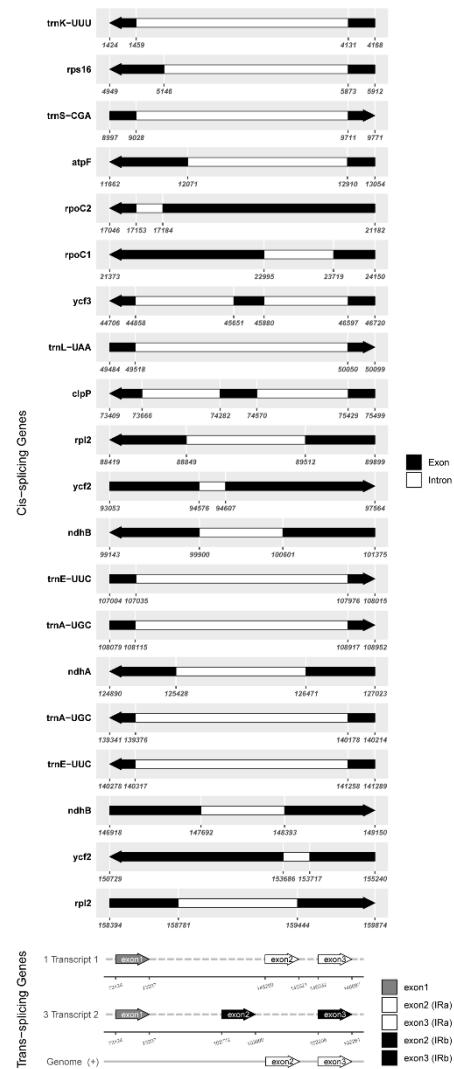
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129 **Figure S3. Schematic representation of the *A. oxyphylla* plastome features.**  
 130 From the center going outward, the first circle shows the species name and specific information  
 131 regarding the genome (length, GC content, and the number of genes). The optional GC content is  
 132 depicted as the proportion of the shaded parts of each section and the length of the corresponding  
 133 single short copy (SSC), inverted repeat (IRa and IRb), and large single-copy (LSC) regions are also  
 134 given in this circle. The outer circle shows the gene names and their optional codon usage bias. The  
 135 genes are colored based on their functional categories. Genes inside and outside of the circle are  
 136 transcribed in clockwise and counterclockwise directions, represented with arrows. The optional  
 137 shaded area stretching from the inner sphere toward the outer circle marks the IR regions.



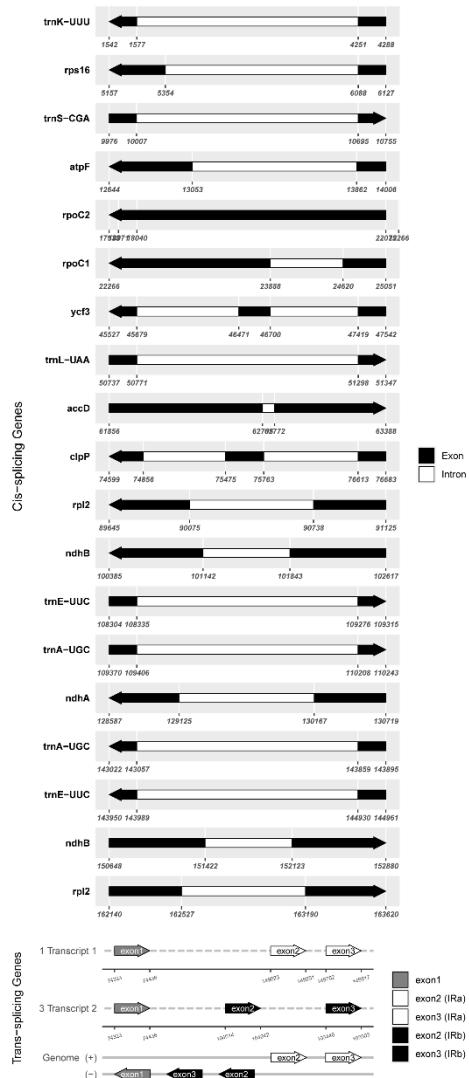
138

139 **Figure S4. The schematic diagram of position and length of introns and exons for**  
 140 **the splitting genes in the plastome of *A. galanga*. The gene *rps12* was a trans-**  
 141 **splicing gene.**



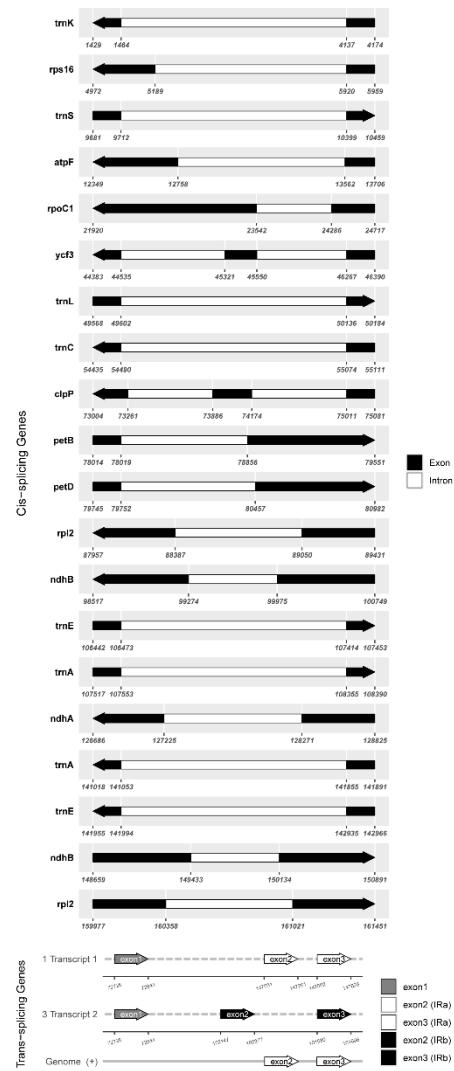
142

143 **FigureS5. The schematic diagram of position and length of introns and exons for**  
 144 **the splitting genes in the plastome of *A. nigra*. The gene *rps12* was a trans-**  
 145 **splicing gene.**



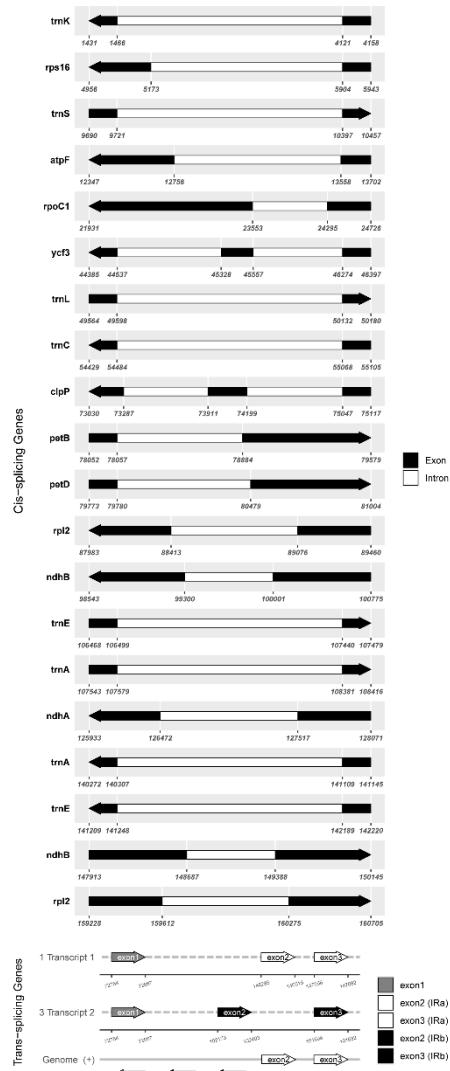
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147 **Figure S6. The schematic diagram of position and length of introns and exons**  
 148 **for the splitting genes in the plastome of *A. officinarum*. The gene *rps12* was a**  
 149 **trans-splicing gene.**



150

151 **FigureS7. The schematic diagram of position and length of introns and exons for**  
 152 **the splitting genes in the plastome of *A. oxyphylla*. The gene *rps12* was a trans-**  
 153 **splicing gene.**



154

155 **Figure S8. The VCF output for the *A. officinarum*.**  
 156 The VCF file with all the detected intra-individual polymorphism outputed by the heteroplasmy mode  
 157 of NOVOPLasty. The allele frequency (AF), depth of coverage (DP) are given as additional info. FR  
 158 indicates if the polymorphism was detected on the forward and/or reverse strand. LCR will indicate if  
 159 the polymorphism is situated near a low-complexity region; SNR stands for single nucleotide repeat.  
 160

```
##fileformat=VCFv4.0
##fileDate=20210531
##reference=/home/zhangh/my_apps/HybPiper-master/MK940823.fasta
##INFO=<ID=AF,Number=1,Type=Float,Description="Allele Frequency">
##INFO=<ID=DP,Number=1,Type=Integer,Description="Raw Depth">
##INFO=<ID=FR,Number=1,Type=Flag,Description="Detected on the forward(F) and/or reverse(R) strand">
##INFO=<ID=LCR,Number=1,Type=String,Description="Low Complexity Region">
#CHROM POS ID REF ALT QUALFILTER INFO
cp 87674 . A . AF=;;DP=129;FR=R;LCR=SNR
cp 87680 . A . AF=;;DP=125;FR=R;LCR=SNR
```

171 **Figure S9. The VCF output for the *A. oxyphylla*.**  
 172 The VCF file with all the detected intra-individual polymorphism outputed by the heteroplasmy mode  
 173 of NOVOPLasty. The allele frequency (AF), depth of coverage (DP) are given as additional info. FR  
 174 indicates if the polymorphism was detected on the forward and/or reverse strand. LCR will indicate if  
 175 the polymorphism is situated near a low-complexity region; SNR stands for single nucleotide repeat.  
 176

```
##fileformat=VCFv4.0
##fileDate=14:13:3606
##reference=/home/zhangh/my_apps/HybPiper-master/MK940824.fasta
##INFO=<ID=AF,Number=1,Type=Float,Description="Allele Frequency">
##INFO=<ID=DP,Number=1,Type=Integer,Description="Raw Depth">
##INFO=<ID=FR,Number=1,Type=Flag,Description="Detected on the forward(F) and/or reverse(R) strand">
##INFO=<ID=LCR,Number=1,Type=String,Description="Low Complexity Region">
#CHROM POS ID REF ALT QUALFILTER INFO
cp 89024 . T G . AF=0.949;DP=39;FR=R;LCR=SNR
cp 89039 . T A,C . AF=0.976;;DP=41;FR=R;LCR=
cp 89040 . A G,T . AF=0.976;;DP=41;FR=R;LCR=
cp 89195 . T A . AF=0.0511;DP=39;FR=R;LCR=
cp 89197 . C A . AF=0.0511;DP=39;FR=R;LCR=
cp 89327 . T G . AF=0.0447;DP=44;FR=R;LCR=
cp 89457 . A C . AF=0.0761;DP=39;FR=R;LCR=
cp 89630 . A C . AF=0.0403;DP=49;FR=R;LCR=
cp 90064 . A T . AF=0.0447;DP=44;FR=R;LCR=
cp 90409 . CAATTATA C . AF=0.0364;DP=55;FR=R;LCR=
cp 90494 . G T . AF=0.048;DP=41;FR=R;LCR=
cp 90510 . T A . AF=0.0505;DP=39;FR=R;LCR=
cp 90524 . A G,T . AF=0.952;;DP=41;FR=R;LCR=
cp 90525 .
A,C . AF=0.977;;DP=43;FR=R;LCR=
cp 91306 .
C,A . AF=0.965;;DP=56;FR=R;LCR=
cp 92629 . G T . AF=0.0322;DP=62;FR=R;LCR=
cp 93100 . T A . AF=0.0214;DP=46;FR=R;LCR=
cp 93468 . T A . AF=0.0286;DP=35;FR=R;LCR=
cp 93769 . C A . AF=0.0176;DP=56;FR=R;LCR=
cp 93821 . G T . AF=0.0169;DP=59;FR=R;LCR=
cp 93848 . A C . AF=0.0327;DP=61;FR=R;LCR=
cp 93894 . A T . AF=0.0605;DP=49;FR=R;LCR=
cp 94060 . C T . AF=0.0214;DP=46;FR=R;LCR=
cp 94062 . C T . AF=0.0429;DP=46;FR=R;LCR=
cp 94884 . G T . AF=0.0196;DP=51;FR=F;LCR=
cp 96369 . T G . AF=0.0435;DP=46;FR=F;LCR=
cp 96467 . A T . AF=0.0351;DP=57;FR=F;LCR=
```

```

213 cp 96534 . T A . AF=0.0358;DP=55;FR=F;LCR=
214 cp 97616 . G A . AF=0.0402;DP=49;FR=R;LCR=
215 cp 97916 . C A . AF=0.0428;DP=92;FR=FR;LCR=
216 cp 98809 . A C . AF=0.0455;DP=44;FR=R;LCR=
217 cp 98951 . A C . AF=0.0521;DP=38;FR=R;LCR=
218 cp 100787 . C A . AF=0.0306;DP=65;FR=F;LCR=
219 cp 100914 . A C . AF=0.0278;DP=36;FR=F;LCR=
220 cp 101043 . G T . AF=0.0182;DP=54;FR=F;LCR=
221 cp 101153 . G T . AF=0.0217;DP=46;FR=R;LCR=
222 cp 101570 . C A . AF=0.0698;DP=43;FR=F;LCR=
223 cp 101632 . G T . AF=0.0836;DP=47;FR=F;LCR=
224 cp 101633 . A T . AF=0.0627;DP=47;FR=F;LCR=
225 cp 101634 . A T . AF=0.0627;DP=47;FR=F;LCR=
226 cp 101657 . A C . AF=0.0393;DP=50;FR=F;LCR=
227 cp 101775 . C A . AF=0.0359;DP=55;FR=F;LCR=
228 cp 102204 . T G . AF=0.0378;DP=52;FR=F;LCR=
229 cp 102454 .
230 C,T . AF=0.898;DP=58;FR=F;LCR=
231 cp 102794 . T C . AF=0.0408;DP=49;FR=F;LCR=
232 cp 102797 . A G . AF=0.0408;DP=49;FR=F;LCR=
233 cp 102849 . C T . AF=0.042;DP=47;FR=F;LCR=
234 cp 102870 . A T . AF=0.044;DP=45;FR=F;LCR=
235 cp 103038 . A G . AF=0.054;DP=37;FR=F;LCR=
236 cp 103221 . G T . AF=0.0465;DP=43;FR=F;LCR=
237 cp 103385 . G A . AF=0.0371;DP=53;FR=F;LCR=
238 cp 103401 . C T . AF=0.0364;DP=54;FR=F;LCR=
239 cp 103533 . C A . AF=0.0457;DP=43;FR=F;LCR=
240 cp 103963 . C T . AF=0.0435;DP=46;FR=F;LCR=
241 cp 104003 . C A . AF=0.0427;DP=46;FR=F;LCR=
242 cp 104432 . A C . AF=0.0702;DP=28;FR=F;LCR=
243 cp 104713 . T G . AF=0.0488;DP=41;FR=F;LCR=
244 cp 104762 . G T . AF=0.0393;DP=50;FR=F;LCR=
245 cp 105233 . A T . AF=0.127;DP=55;FR=F;LCR=
246

```

#### 247 **Figure S10. The VCF output for the *A. galanga*.**

248 The VCF file with all the detected intra-individual polymorphism outputed by the heteroplasmy mode  
249 of NOVOPLasty. The allele frequency (AF), depth of coverage (DP) are given as additional info. FR  
250 indicates if the polymorphism was detected on the forward and/or reverse strand. LCR will indicate if  
251 the polymorphism is situated near a low-complexity region; SNR stands for single nucleotide repeat.

```

252 ##fileformat=VCFv4.0
253 ##fileDate=11:36:2106
254 ##reference=/home/zhangh/my_apps/HybPiper-master/NC_035895.fasta
255 ##INFO=<ID=AF,Number=1>Type=Float>Description="Allele Frequency">
256 ##INFO=<ID=DP,Number=1>Type=Integer>Description="Raw Depth">
257 ##INFO=<ID=FR,Number=1>Type=Flag>Description="Detected on the forward(F) and/or reverse(R) strand">
258 ##INFO=<ID=LCR,Number=1>Type=String>Description="Low Complexity Region">
259 #CHROM POS ID REF ALT QUALFILTER INFO
260 cp 229 . T A . AF=0.0111;DP=90;FR=R;LCR=
261 cp 234 . A C . AF=0.0404;DP=74;FR=R;LCR=
262

```

#### 263 **Figure S11. The VCF output for the *A.nigra*.**

264 The VCF file with all the detected intra-individual polymorphism outputed by the heteroplasmy mode  
265 of NOVOPLasty. The allele frequency (AF), depth of coverage (DP) are given as additional info. FR  
266 indicates if the polymorphism was detected on the forward and/or reverse strand. LCR will indicate if  
267 the polymorphism is situated near a low-complexity region; SNR stands for single nucleotide repeat.

```

268 ##fileformat=VCFv4.0
269 ##fileDate=19:46:5906
270 ##reference=/home/zhangh/my_apps/HybPiper-master/MK940825.fasta

```

```

271 ##INFO=<ID=AF,Number=1,Type=Float>Description="Allele Frequency">
272 ##INFO=<ID=DP,Number=1,Type=Integer>Description="Raw Depth">
273 ##INFO=<ID=FR,Number=1,Type=Flag>Description="Detected on the forward(F) and/or reverse(R) strand">
274 ##INFO=<ID=LCR,Number=1,Type=String>Description="Low Complexity Region">
275 #CHROM POS ID REF ALT QUALFILTER INFO
276 cp 89413 . A T . AF=0.0184;DP=162;FR=R;LCR=SNR
277 cp 89452 .
278 C,A . AF=0.988;;DP=162;FR=R;LCR=SNR
279 cp 89783 . C A . AF=0.0311;DP=224;FR=R;LCR=SNR(T)
280 cp 89832 . G T . AF=0.0135;DP=148;FR=R;LCR=
281 cp 89833 . G T . AF=0.0128;DP=156;FR=R;LCR=
282 cp 89900 . A C . AF=0.0185;DP=108;FR=R;LCR=
283 cp 89990 . C A . AF=0.0167;DP=119;FR=R;LCR=
284 cp 90217 . C A . AF=0.0129;DP=232;FR=R;LCR=
285 cp 90316 . T A . AF=0.0133;DP=224;FR=R;LCR=
286 cp 90780 . C A . AF=0.0173;DP=115;FR=R;LCR=
287 cp 90833 . C A . AF=0.0185;DP=108;FR=R;LCR=
288 cp 91245 . C T . AF=0.0217;DP=92;FR=R;LCR=
289 cp 91535 . C A . AF=0.0156;DP=192;FR=R;LCR=
290 cp 92306 . C A . AF=0.016;DP=124;FR=R;LCR=
291 cp 92564 . G T . AF=0.0153;DP=130;FR=R;LCR=
292 cp 92743 . C A . AF=0.0159;DP=126;FR=R;LCR=
293 cp 92819 . C A . AF=0.0181;DP=110;FR=R;LCR=
294 cp 92859 . A G . AF=0.0165;DP=120;FR=R;LCR=
295 cp 93059 . A G . AF=0.0133;DP=150;FR=R;LCR=
296 cp 93379 . C A . AF=0.0176;DP=113;FR=R;LCR=
297 cp 93769 . G T . AF=0.0181;DP=110;FR=R;LCR=
298 cp 94088 . G T . AF=0.0174;DP=114;FR=R;LCR=SNR
299 cp 94187 . G A . AF=0.0159;DP=126;FR=R;LCR=
300 cp 94368 . G T . AF=0.0115;DP=260;FR=R;LCR=
301 cp 94439 . C A . AF=0.0146;DP=273;FR=R;LCR=
302 cp 94608 . C A . AF=0.0167;DP=119;FR=R;LCR=SNR
303 cp 95000 . C A . AF=0.0129;DP=155;FR=R;LCR=
304 cp 95112 .
305 . AF=;DP=126;FR=R;LCR=
306 cp 96101 . C A . AF=0.016;DP=124;FR=R;LCR=
307 cp 96495 . G C,T . AF=0.0177;;DP=112;FR=R;LCR=
308 cp 96569 . C A . AF=0.0157;DP=127;FR=R;LCR=
309 cp 96609 . G T . AF=0.0156;DP=128;FR=R;LCR=
310 cp 96675 . G T . AF=0.0164;DP=122;FR=R;LCR=
311 cp 96876 . G A . AF=0.0155;DP=257;FR=R;LCR=
312 cp 96943 . C A . AF=0.016;DP=125;FR=R;LCR=
313 cp 97234 . G T . AF=0.0179;DP=111;FR=R;LCR=
314 cp 97385 . G T . AF=0.0138;DP=289;FR=R;LCR=
315 cp 97880 . G T . AF=0.0182;DP=110;FR=R;LCR=
316 cp 98283 . G T . AF=0.0141;DP=142;FR=R;LCR=
317 cp 98365 . G T . AF=0.0158;DP=126;FR=R;LCR=
318 cp 98384 . G T,C . AF=0.0165;;DP=121;FR=R;LCR=
319 cp 98881 . G T . AF=0.0186;DP=107;FR=R;LCR=
320 cp 98912 . G T . AF=0.0192;DP=104;FR=R;LCR=
321 cp 99236 . G T . AF=0.0178;DP=112;FR=R;LCR=
322 cp 99380 . C A . AF=0.015;DP=133;FR=R;LCR=
323 cp 99693 . G T . AF=0.017;DP=117;FR=R;LCR=
324 cp 99698 . C A . AF=0.0183;DP=109;FR=R;LCR=
325 cp 99927 . G T . AF=0.0152;DP=131;FR=R;LCR=
326 cp 100269 . A G . AF=0.0113;DP=266;FR=R;LCR=
327 cp 100705 . G T . AF=0.017;DP=117;FR=R;LCR=
328 cp 100788 . C A . AF=0.01;DP=298;FR=R;LCR=
329 cp 100859 . C A . AF=0.0158;DP=126;FR=R;LCR=
330 cp 101082 . T A,C . AF=0.987;;DP=152;FR=R;LCR=

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331	cp	101367	.	C	A	.	.	AF=0.0234;DP=128;FR=R;LCR=
332	cp	101491	.	C	A	.	.	AF=0.0185;DP=108;FR=R;LCR=
333	cp	101718	.	G	T	.	.	AF=0.0155;DP=128;FR=R;LCR=
334	cp	101778	.	C	A	.	.	AF=0.0152;DP=131;FR=R;LCR=
335	cp	102454	.	G	A	.	.	AF=0.0125;DP=240;FR=R;LCR=
336	cp	102710	.	G	T	.	.	AF=0.0129;DP=155;FR=R;LCR=
337	cp	103144	.	T	C	.	.	AF=0.0175;DP=114;FR=R;LCR=
338	cp	103270	.	C	A	.	.	AF=0.0156;DP=128;FR=R;LCR=
339	cp	103433	.	A	C	.	.	AF=0.0155;DP=128;FR=R;LCR=
340	cp	103505	.	C	A	.	.	AF=0.0308;DP=97;FR=R;LCR=SNR(T)
341	cp	103686	.	CATATTGTAGGGTC	.	.	.	AF=0.0487;DP=308;FR=R;LCR=
342	cp	103993	.	G	T	.	.	AF=0.0113;DP=176;FR=R;LCR=
343	cp	104347	.	T	G	.	.	AF=0.0465;DP=129;FR=R;LCR=
344	cp	104484	.	G	T	.	.	AF=0.0177;DP=112;FR=R;LCR=
345	cp	105072	.	G,T	.	.	.	AF=0.984;DP=124;FR=R;LCR=
347	cp	105391	.	A	G,C	.	.	AF=0.908;DP=141;FR=R;LCR=
348	cp	105437	.			.	.	AF=;DP=133;FR=R;LCR=
350	cp	105853	.			.	.	
351	cp	105854	.	G,T	.	.	.	AF=0.982;DP=112;FR=R;LCR=
352	cp	105854	.	A	C,G	.	.	AF=0.0177;DP=112;FR=R;LCR=
353	cp	105889	.	C	A	.	.	AF=0.0326;DP=92;FR=R;LCR=
354	cp	105912	.	G	C	.	.	AF=0.0326;DP=313;FR=R;LCR=
355	cp	105928	.	A	C,G	.	.	AF=0.966;DP=303;FR=R;LCR=
356	cp	106064	.	G	T	.	.	AF=0.0207;DP=145;FR=R;LCR=
357	cp	106226	.	C	A	.	.	AF=0.0129;DP=154;FR=R;LCR=
358	cp	106253	.	G	A	.	.	AF=0.941;DP=136;FR=R;LCR=
359	cp	106619	.	G	T	.	.	AF=0.0135;DP=147;FR=R;LCR=
360	cp	106757	.	A	G	.	.	AF=0.0179;DP=111;FR=R;LCR=
361	cp	107497	.	C	A	.	.	AF=0.016;DP=125;FR=R;LCR=
362	cp	107550	.	G	C	.	.	AF=0.0166;DP=120;FR=R;LCR=
363	cp	107819	.	G	T	.	.	AF=0.0177;DP=112;FR=R;LCR=
364	cp	108374	.	C	A	.	.	AF=0.0144;DP=138;FR=R;LCR=
365	cp	108429	.	C	A	.	.	AF=0.0171;DP=116;FR=R;LCR=
366	cp	108809	.	G	T	.	.	AF=0.0129;DP=154;FR=R;LCR=
367	cp	109167	.	C	A	.	.	AF=0.0147;DP=136;FR=R;LCR=
368	cp	109188	.	C	A	.	.	AF=0.0173;DP=115;FR=R;LCR=
369	cp	109459	.	C	A	.	.	AF=0.017;DP=117;FR=R;LCR=
370	cp	109852	.	C	A	.	.	AF=0.0191;DP=104;FR=R;LCR=
371	cp	110067	.	C	A	.	.	AF=0.0158;DP=126;FR=R;LCR=
372	cp	110534	.	A	G,T	.	.	AF=0.985;DP=132;FR=R;LCR=
373	cp	111499	.	C	A	.	.	AF=0.0155;DP=128;FR=R;LCR=
374	cp	111733	.	G	T	.	.	AF=0.0165;DP=120;FR=R;LCR=
375	cp	111765	.	G	T	.	.	AF=0.018;DP=111;FR=R;LCR=
376	cp	112099	.	A	G,T	.	.	AF=0.983;DP=116;FR=R;LCR=
377	cp	112260	.	G	C,T	.	.	AF=0.984;DP=126;FR=R;LCR=
378	cp	112403	.	C	A	.	.	AF=0.016;DP=124;FR=R;LCR=
379	cp	112442	.	C	A	.	.	AF=0.0176;DP=113;FR=R;LCR=
380	cp	113139	.	C	A	.	.	AF=0.0157;DP=127;FR=R;LCR=
381	cp	113146	.	C	A	.	.	AF=0.0174;DP=114;FR=R;LCR=
382	cp	113157	.	T	G	.	.	AF=0.0257;DP=116;FR=R;LCR=
383	cp	113194	.	T	G	.	.	AF=0.0264;DP=113;FR=R;LCR=
384	cp	113195	.	C	A	.	.	AF=0.0264;DP=113;FR=R;LCR=
385	cp	113274	.	G	C,T	.	.	AF=0.0272;DP=110;FR=R;LCR=
386	cp	113281	.	CATTAAG C	.	.	.	AF=0.0174;DP=230;FR=R;LCR=
387	cp	113323	.	C	G	.	.	AF=0.0296;DP=135;FR=R;LCR=
388	cp	113330	.	G	T	.	.	AF=0.0142;DP=140;FR=R;LCR=
389	cp	113780	.	C	A	.	.	AF=0.0151;DP=132;FR=R;LCR=
390	cp	114159	.	G	T	.	.	AF=0.0156;DP=128;FR=R;LCR=

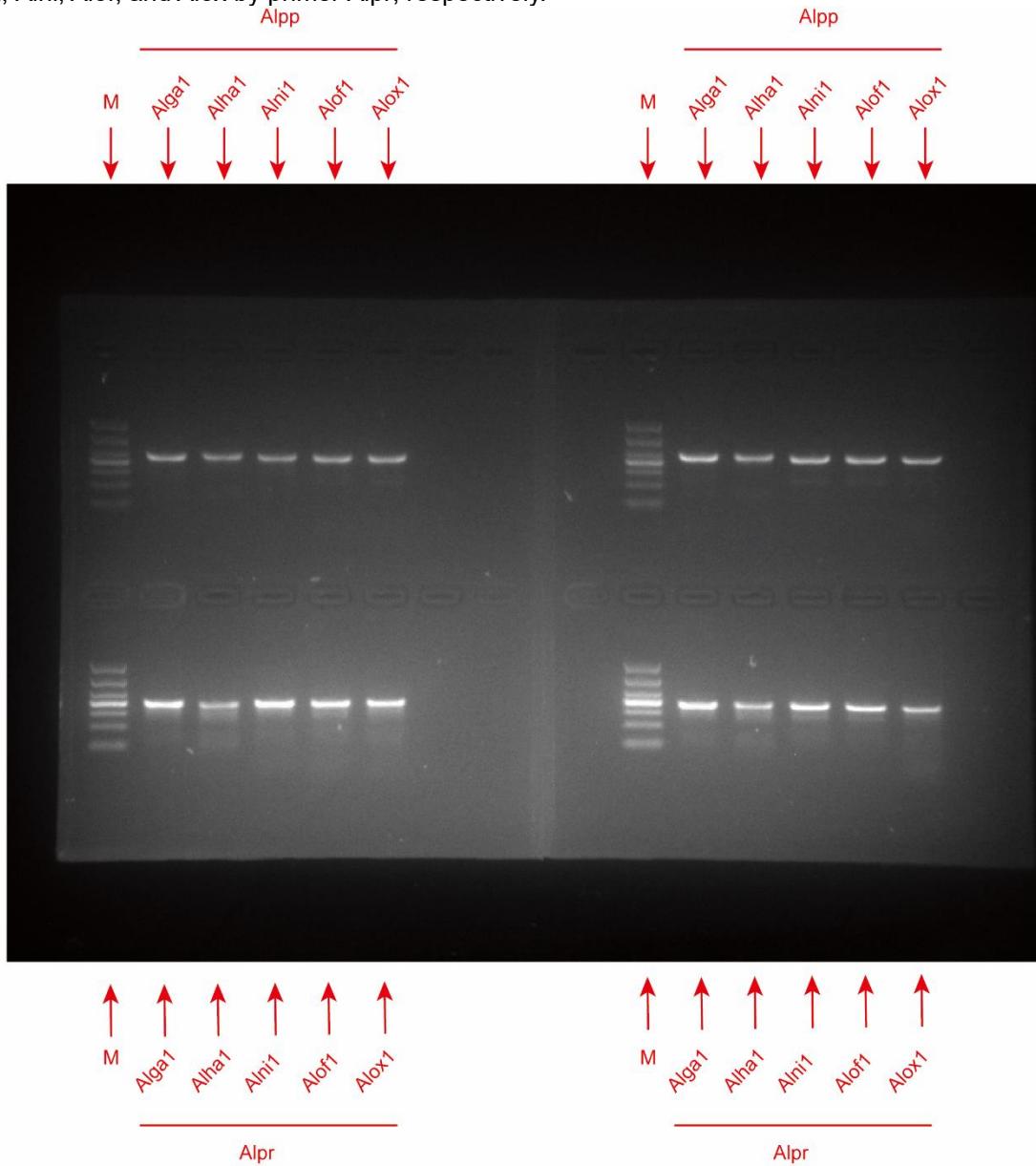
391	cp	114431	.	G	C	.	.	AF=0.964;DP=277;FR=R;LCR=
392	cp	114548	.	A	G	.	.	AF=0.97;DP=266;FR=R;LCR=SNR(T)
393	cp	114609	.	T	A	.	.	AF=0.978;DP=268;FR=R;LCR=
394	cp	114743	.	G	T	.	.	AF=0.0104;DP=288;FR=R;LCR=
395	cp	115064	.	T	C	.	.	AF=0.0561;DP=160;FR=R;LCR=
396	cp	115071	.	A	C	.	.	AF=0.0518;DP=154;FR=R;LCR=
397	cp	115341	.	T	C,A	.	.	AF=0.99;;DP=193;FR=R;LCR=
398	cp	115358	.	A	.	.	.	AF=;DP=204;FR=R;LCR=
399	cp	115361	.	T	.	.	.	AF=;DP=204;FR=R;LCR=
400	cp	115379	.	A	G,T	.	.	AF=0.987;;DP=157;FR=R;LCR=SNR(A)
401	cp	115814	.	C	A	.	.	AF=0.0267;DP=112;FR=R;LCR=
402	cp	115919	.	G	T	.	.	AF=0.017;DP=117;FR=R;LCR=
403	cp	115956	.	G	T	.	.	AF=0.0167;DP=119;FR=R;LCR=
404	cp	116186	.	G	T	.	.	AF=0.0162;DP=123;FR=R;LCR=
405	cp	116406	.	G	T	.	.	AF=0.0146;DP=136;FR=R;LCR=
406	cp	116975	.	C	A	.	.	AF=0.982;DP=111;FR=R;LCR=
407	cp	117009	.	A	G	.	.	AF=0.973;DP=111;FR=R;LCR=
408	cp	117047	.	C	T,G	.	.	AF=0.0171;;DP=116;FR=R;LCR=
409	cp	132064	.	T	TTGATTG	.	.	AF=0.0101;DP=198;FR=R;LCR=
410	cp	132117	.	T	G	.	.	AF=0.971;DP=69;FR=R;LCR=SNR
411	cp	132323	.	G	T	.	.	AF=0.0262;DP=76;FR=R;LCR=SNR(T)
412	cp	132733	.	C	A	.	.	AF=0.018;DP=111;FR=R;LCR=
413	cp	132834	.	T	G,A	.	.	AF=0.988;;DP=167;FR=R;LCR=
414	cp	132836	.	G	C	.	.	AF=0.0108;DP=184;FR=R;LCR=
415	cp	132894	.	AGA	A	.	.	AF=1;DP=195;FR=R;LCR=
416	cp	133034	.	T	TCTGTTTCATCA	.	.	AF=0.976;DP=168;FR=R;LCR=
417	cp	133069	.	A	G,T	.	.	AF=0.988;;DP=258;FR=R;LCR=
418	cp	133077	.	G	T	.	.	AF=0.0123;DP=243;FR=R;LCR=
419	cp	133078	.	A	T	.	.	AF=0.0123;DP=243;FR=R;LCR=
420	cp	133678	.	G	T	.	.	AF=0.0118;DP=255;FR=R;LCR=
421	cp	133893	.	G	A	.	.	AF=0.0165;DP=120;FR=R;LCR=
422	cp	133938	.	A	G	.	.	AF=0.0192;DP=104;FR=R;LCR=
423	cp	134177	.	C	A	.	.	AF=0.0193;DP=155;FR=R;LCR=
424	cp	134440	.	T	C	.	.	AF=0.0152;DP=131;FR=R;LCR=
425	cp	134612	.	G	T	.	.	AF=0.0165;DP=120;FR=R;LCR=
426	cp	134726	.	A	T	.	.	AF=0.0101;DP=297;FR=R;LCR=SNR
427	cp	135016	.	C	A	.	.	AF=0.0186;DP=107;FR=R;LCR=SNR(T)
428	cp	137723	.	G	T	.	.	AF=0.0175;DP=114;FR=R;LCR=
429	cp	137835	.	C	G	.	.	AF=0.0112;DP=355;FR=R;LCR=
430	cp	137882	.	G	T	.	.	AF=0.0163;DP=122;FR=R;LCR=
431	cp	138049	.	C	A	.	.	AF=0.0144;DP=138;FR=R;LCR=
432	cp	138189	.	T	C	.	.	AF=0.016;DP=125;FR=R;LCR=
433	cp	138594	.	C	A	.	.	AF=0.0105;DP=286;FR=R;LCR=
434	cp	138801	.	G	T	.	.	AF=0.0134;DP=148;FR=R;LCR=
435	cp	139170	.	C	A	.	.	AF=0.0168;DP=118;FR=R;LCR=
436	cp	139329	.	G	T	.	.	AF=0.0191;DP=104;FR=R;LCR=
437	cp	139394	.	G	C	.	.	AF=0.0179;DP=111;FR=R;LCR=
438	cp	139966	.	C	A	.	.	AF=0.0196;DP=101;FR=R;LCR=
439	cp	140338	.	G	T	.	.	AF=0.016;DP=124;FR=R;LCR=
440	cp	140537	.	C	A	.	.	AF=0.0162;DP=123;FR=R;LCR=
441	cp	140612	.	C	A	.	.	AF=0.0155;DP=129;FR=R;LCR=
442	cp	141795	.	G	T	.	.	AF=0.0137;DP=146;FR=R;LCR=
443	cp	141797	.	G	T	.	.	AF=0.0134;DP=148;FR=R;LCR=
444	cp	141938	.	G	T	.	.	AF=0.0173;DP=115;FR=R;LCR=
445	cp	142220	.	G	T	.	.	AF=0.0159;DP=125;FR=R;LCR=
446	cp	142596	.	G	T	.	.	AF=0.0173;DP=115;FR=R;LCR=
447	cp	142656	.	C	A	.	.	AF=0.0159;DP=125;FR=R;LCR=
448	cp	142825	.	G	T	.	.	AF=0.0164;DP=121;FR=R;LCR=
449	cp	142896	.	C	A	.	.	AF=0.0179;DP=111;FR=R;LCR=
450	cp	142958	.	C	A	.	.	AF=0.017;DP=117;FR=R;LCR=

451	cp	143331	.	G	T	.	.	AF=0.0133;DP=150;FR=R;LCR=
452	cp	143399	.	C	A	.	.	AF=0.0179;DP=111;FR=R;LCR=
453	cp	143970	.	A	G,T	.	.	AF=0.977;DP=131;FR=R;LCR=
454	cp	144378	.	G	T,C	.	.	AF=0.0179;DP=111;FR=R;LCR=
455	cp	145210	.	A	G	.	.	AF=0.0171;DP=116;FR=R;LCR=
456	cp	145633	.	G	T	.	.	AF=0.0161;DP=124;FR=R;LCR=
457	cp	146971	.	C	T	.	.	AF=0.986;DP=142;FR=R;LCR=SNR
458	cp	146994	.	T	TNAA.	.	.	AF=0;DP=256;FR=R;LCR=
459	cp	146994	.	T	TNAA.	.	.	AF=0;DP=256;FR=R;LCR=
460	cp	147040	.	G	T	.	.	AF=0.0167;DP=119;FR=R;LCR=
461	cp	147080	.	AGATTATAAGAT	A	.	.	AF=0.984;DP=258;FR=R;LCR=
462	cp	147548	.	G	T,C	.	.	AF=0.017;DP=117;FR=R;LCR=
463	cp	147650	.	G	T	.	.	AF=0.016;DP=125;FR=R;LCR=
464	cp	147685	.	C	A	.	.	AF=0.0154;DP=129;FR=R;LCR=
465	cp	148071	.	G	T	.	.	AF=0.0152;DP=131;FR=R;LCR=
466	cp	148215	.	G	T	.	.	AF=0.983;DP=119;FR=R;LCR=
467	cp	148334	.	G	T	.	.	AF=0.013;DP=307;FR=R;LCR=
468	cp	148385	.	C	A	.	.	AF=0.0179;DP=111;FR=R;LCR=
469	cp	148535	.	C	A	.	.	AF=0.0168;DP=118;FR=R;LCR=
470	cp	148652	.	G	T	.	.	AF=0.0153;DP=130;FR=R;LCR=
471	cp	148936	.	C	A	.	.	AF=0.0174;DP=114;FR=R;LCR=
472	cp	148954	.	C	A	.	.	AF=0.017;DP=117;FR=R;LCR=
473	cp	149262	.	G	T	.	.	AF=0.0132;DP=151;FR=R;LCR=
474	cp	149298	.					
475		G,A	.			AF=0.976;DP=123;FR=R;LCR=		
476	cp	149486	.	TTCAGAAT	T	.	.	AF=0.0121;DP=248;FR=R;LCR=
477	cp	149499	.	A	T	.	.	AF=0.0163;DP=123;FR=R;LCR=
478	cp	149893	.	T	G	.	.	AF=0.0186;DP=107;FR=R;LCR=
479	cp	150167	.	G	T	.	.	AF=0.0149;DP=134;FR=R;LCR=
480	cp	150347	.	G	T	.	.	AF=0.0207;DP=144;FR=R;LCR=
481	cp	150356	.	T	C	.	.	AF=0.0155;DP=128;FR=R;LCR=
482	cp	150415	.	T	C,A	.	.	AF=0.983;DP=114;FR=R;LCR=
483	cp	150946	.	C	A	.	.	AF=0.0149;DP=134;FR=R;LCR=
484	cp	151122	.	C	A	.	.	AF=0.0139;DP=144;FR=R;LCR=
485	cp	151182	.	C	A	.	.	AF=0.016;DP=124;FR=R;LCR=
486	cp	151517	.	C	A	.	.	AF=0.0181;DP=110;FR=R;LCR=
487	cp	152058	.	C	A	.	.	AF=0.0151;DP=330;FR=R;LCR=SNR
488	cp	152228	.	G	A	.	.	AF=0.0156;DP=128;FR=R;LCR=
489	cp	152233	.	C	T	.	.	AF=0.0163;DP=122;FR=R;LCR=
490	cp	152239	.	G	A,T	.	.	AF=0.0166;DP=120;FR=R;LCR=
491	cp	152370	.	G	A	.	.	AF=0.0181;DP=110;FR=R;LCR=
492	cp	152685	.	C	A	.	.	AF=0.0148;DP=135;FR=R;LCR=
493	cp	152798	.	A	G	.	.	AF=0.0134;DP=149;FR=R;LCR=
494	cp	152823	.	C	A	.	.	AF=0.015;DP=133;FR=R;LCR=
495	cp	153092	.	C	A	.	.	AF=0.0138;DP=145;FR=R;LCR=
496	cp	153149	.	G	T	.	.	AF=0.0129;DP=154;FR=R;LCR=
497	cp	153202	.	A	G,T	.	.	AF=0.987;DP=149;FR=R;LCR=
498	cp	153326	.	T	C	.	.	AF=0.0161;DP=123;FR=R;LCR=
499	cp	153737	.	C	A	.	.	AF=0.0131;DP=153;FR=R;LCR=
500	cp	154239	.	G	T	.	.	AF=0.0161;DP=124;FR=R;LCR=
501	cp	154388	.	G	T	.	.	AF=0.0139;DP=144;FR=R;LCR=
502	cp	154429	.	G	A	.	.	AF=0.0138;DP=145;FR=R;LCR=
503	cp	154989	.	G	T	.	.	AF=0.0165;DP=120;FR=R;LCR=
504	cp	155386	.	C	A	.	.	AF=0.0149;DP=134;FR=R;LCR=
505	cp	155387	.	G	T	.	.	AF=0.0151;DP=132;FR=R;LCR=
506	cp	155395	.	G	T	.	.	AF=0.0161;DP=123;FR=R;LCR=
507	cp	155736	.	C	A	.	.	AF=0.0179;DP=111;FR=R;LCR=
508	cp	155808	.	C	A	.	.	AF=0.0139;DP=143;FR=R;LCR=
509	cp	155858	.	G	A	.	.	AF=0.0132;DP=151;FR=R;LCR=
510	cp	155883	.	G	A	.	.	AF=0.013;DP=153;FR=R;LCR=

511	cp	156055	.	C	A,T	.	.	AF=0.0174;;DP=115;FR=R;LCR=
512	cp	156280	.	C	A	.	.	AF=0.0174;DP=114;FR=R;LCR=SNR
513	cp	156893	.	A	G,T	.	.	AF=0.983;;DP=118;FR=R;LCR=
514	cp	156952	.	C	A	.	.	AF=0.015;DP=133;FR=R;LCR=
515	cp	157141	.	G	T	.	.	AF=0.0177;DP=112;FR=R;LCR=
516	cp	157706	.	T	G,C	.	.	AF=0.974;;DP=116;FR=R;LCR=
517	cp	157904	.	T	C,A	.	.	AF=0.986;;DP=294;FR=R;LCR=SNR
518	cp	157943	.	A	T	.	.	AF=0.0168;DP=119;FR=R;LCR=
519	cp	157954	.	C	A	.	.	AF=0.0244;DP=122;FR=R;LCR=
520	cp	157981	.	G	T	.	.	AF=0.015;DP=133;FR=R;LCR=
521	cp	158455	.	A	G,T	.	.	AF=0.98;;DP=148;FR=R;LCR=
522	cp	158772	.	C	A	.	.	AF=0.0149;DP=133;FR=R;LCR=
523	cp	159533	.	G	T	.	.	AF=0.0137;DP=418;FR=F;LCR=
524	cp	159762	.	G	T	.	.	AF=0.0168;DP=119;FR=R;LCR=
525	cp	160254	.	C	T	.	.	AF=0.0155;DP=193;FR=F;LCR=
526	cp	160594	.	G	A	.	.	AF=0.0157;DP=254;FR=F;LCR=
527	cp	160684	.	C	A	.	.	AF=0.0188;DP=106;FR=R;LCR=
528	cp	160713	.	C	A	.	.	AF=0.0188;DP=106;FR=R;LCR=
529	cp	161320	.	G	T	.	.	AF=0.0109;DP=274;FR=F;LCR=
530	cp	161523	.	A	T	.	.	AF=0.0145;DP=207;FR=F;LCR=
531	cp	161561	.	C	A	.	.	AF=0.0104;DP=192;FR=F;LCR=
532	cp	161741	.	G	A	.	.	AF=0.0117;DP=256;FR=F;LCR=
533	cp	162276	.	CC	C	.	.	AF=0.0109;DP=274;FR=R;LCR=SNR
534	cp	162276	.	CC	C	.	.	AF=0.0109;DP=274;FR=R;LCR=SNR
535	cp	162278	.	C	.	.	.	AF=:DP=3;FR=R;LCR=SNR
536	cp	162278	.	C	.	.	.	AF=:DP=3;FR=R;LCR=SNR
537	cp	162307	.	T	C	.	.	AF=0.0107;DP=186;FR=F;LCR=SNR
538	cp	162361	.	G	T	.	.	AF=0.0112;DP=179;FR=F;LCR=
539	cp	162365	.	A	T,C	.	.	AF=0.99;;DP=199;FR=F;LCR=
540	cp	162387	.	G	T	.	.	AF=0.0132;DP=151;FR=F;LCR=SNR
541	cp	162426	.	T	A	.	.	AF=0.0208;DP=144;FR=F;LCR=SNR
542	cp	162481	.	A	G	.	.	AF=0.0103;DP=193;FR=F;LCR=

543 **Figure S12. The original and full-length gel electrophoresis results of the**  
544 **amplification of DNA barcodes using designed primers.**

545 This is the original and uncropped gel electrophoresis plot for the cropped image shown in Figure 7.  
546 Lane M was the marker of DL1000. The upper lanes from left to right corresponded to products  
547 amplified from the individual 1 and individual 2 of *A. galanga* (Alga), *A. hainanensis* (Alha), *A. nigra*  
548 (*Alni*), *A. officinarum* (*Alof*), and *A. oxyphylla* (*Alox*) by primer Alpp, respectively. The lower lanes  
549 from left to right corresponded to products amplified from the individual 2 and individual 1 of Alga,  
550 Alha, Alni, Alof, and Alox by primer Alpr, respectively.



551

552 **Figure S13. The alignment of amplicons produced by designed Alpp primers.**  
 553 The ID of each sequence is shown on the left side of each panel. The ID is the concatenation of  
 554 species name, plant individual id, and primer name. The rightmost number in each column represents  
 555 the position of the base at that position in the amplicon. The SNPs and Indel are shown in red  
 556 squares. The nucleotides identical across all plastomes are shaded in black, whereas those  
 557 conserved in 60% of the sequences are shaded in gray. *Alpinia galanga*: Alga; *A. hainanensis*: Alha;  
 558 *A. nigra*: Alni; *A. officinarum*: Alof; *A. oxyphylla*: Alox. Arabic numerals represent different individuals.  
 559  
 560 Alga1\_Alpp : -----aaaagtc---acg---tcac---acagg---aatgtag : 29  
 561 Alga2\_Alpp : -----t---caaaacat---cgaa---tcac---acagg---aatgtag : 31  
 562 Alga3\_Alpp : -----gcaaaagaacg---tcg---atcc---acagg---aatgtag : 32  
 563 Alga4\_Alpp : -----a---cagacta---atcgc---tcac---acagg---aatgtag : 32  
 564 Alga6\_Alpp : -----gcgaca---atg---atcc---acagg---aatgtag : 27  
 565 Alga7\_Alpp : -----a---cacagg---a---acg---atcc---acagg---aatgtag : 31  
 566 Alga8\_Alpp : -----gaaaaaggacaa---cg---atcc---acagg---aatgtag : 32  
 567 Alga0\_Alpp : agaacagtggccttcgattatggatcgatcg---aaat---acac---acagg---aatgtag : 57  
 568 Alha1\_Alpp : a-----aagaca---acg---tac---acagg---aatgtag : 30  
 569 Alha2\_Alpp : c-----aagacta---acg---atcc---acagg---aatgtag : 30  
 570 Alha3\_Alpp : caaaacatgc---atc---cg---tcc---acagg---aatgtag : 32  
 571 Alha6\_Alpp : a-----cagaca---acg---taa---acagg---aatgtag : 28  
 572 Alha7\_Alpp : cccaaaggccaa-----cgaa---taca---acagg---aatgtag : 34  
 573 Alha8\_Alpp : acaagcatcga-----tcc---acagg---aatgtag : 27  
 574 Alha0\_Alpp : agaacagtggccttcgattatggatcgatcg---aaat---acac---acagg---aatgtag : 57  
 575 Alni1\_Alpp : -----caaggccat---cgaa---tcac---acagg---aatgtag : 29  
 576 Alni2\_Alpp : -----c---aaatacat---cgaa---tcac---acagg---aatgtag : 30  
 577 Alni3\_Alpp : -----c---acaagact---atcg---atcc---acagg---aatgtag : 30  
 578 Alni4\_Alpp : -----g---aaagacat---cgaa---tacc---acagg---aatgtag : 30  
 579 Alni6\_Alpp : -----a---aaagacca---tcg---tcac---acagg---aatgtag : 30  
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 581 Alni8\_Alpp : -----ccaatgaaaggc---atcg---atcc---acagg---aatgtag : 32  
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 583 Alof1\_Alpp : -----cagaacaa---tcg---tcac---acagg---aatgtag : 30  
 584 Alof2\_Alpp : -----aaaggca---acg---tacc---acagg---aatgtag : 28  
 585 Alof3\_Alpp : -----aaagaaaa---tcg---atcc---acagg---aatgtag : 29  
 586 Alof4\_Alpp : -----gcatacaa---tcg---taa---acagg---aatgtag : 29  
 587 Alof6\_Alpp : -----gaagacca---tcg---atcc---acagg---aatgtag : 28  
 588 Alof7\_Alpp : -----acagacca---acg---aaatac---acagg---aatgtag : 31  
 589 Alof8\_Alpp : -----gaaagtcca---tcg---taa---acagg---aatgtag : 30  
 590 Alof0\_Alpp : agaacagtggccttcgattatggatcgatcg---aaat---acac---acagg---aatgtag : 57  
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 592 Alox2\_Alpp : g-----aaaggcaaa---cgaa---tcac---acagg---aatgtag : 32  
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 594 Alox6\_Alpp : g-----aaggaccca---acg---atcc---acagg---aatgtag : 31  
 595 Alox7\_Alpp : -----aaaggcca---tcg---tcac---acagg---aatgtag : 31  
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 602 Alga6\_Alpp : caaaaaaaaaagaattgggctgtatggatgtactatggatataatctatgt : 87  
 603 Alga7\_Alpp : caaaaaaaaaagaattgggctgtatggatgtactatggatataatctatgt : 91  
 604 Alga8\_Alpp : caaaaaaaaaagaattgggctgtatggatgtactatggatataatctatgt : 92  
 605 Alga0\_Alpp : caaaaaaaaaagaattgggctgtatggatgtactatggatataatctatgt : 117  
 606 Alha1\_Alpp : caaaaaaaaaagaattgggctgtatggatgtactatggatataatctatgt : 90  
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 621 Alof1\_Alpp : caaaaaaaaaagaattgggctgtatggatgtactatggatataatctatgt : 90

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623	Alof3_Alpp :	ccaaaaaaaaagaattgggctgtatTTTgatgtactatTTtagatatacatctaattccatg	:	89
624	Alof4_Alpp :	ccaaaaaaaaagaattgggctgtatTTTgatgtactatTTtagatatacatctaattccatg	:	89
625	Alof6_Alpp :	ccaaaaaaaaagaattgggctgtatTTTgatgtactatTTtagatatacatctaattccatg	:	88
626	Alof7_Alpp :	ccaaaaaaaaagaattgggctgtatTTTgatgtactatTTtagatatacatctaattccatg	:	91
627	Alof8_Alpp :	ccaaaaaaaaagaattgggctgtatTTTgatgtactatTTtagatatacatctaattccatg	:	90
628	Alof0_Alpp :	ccaaaaaaaaagaattgggctgtatTTTgatgtactatTTtagatatacatctaattccatg	:	117
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630	Alox2_Alpp :	ccaaaaaaaaagaattgggctgtatTTTgatgtactatTTtagatatacatctaattccatg	:	92
631	Alox3_Alpp :	ccaaaaaaaaagaattgggctgtatTTTgatgtactatTTtagatatacatctaattccatg	:	90
632	Alox6_Alpp :	ccaaaaaaaaagaattgggctgtatTTTgatgtactatTTtagatatacatctaattccatg	:	91
633	Alox7_Alpp :	ccaaaaaaaaagaattgggctgtatTTTgatgtactatTTtagatatacatctaattccatg	:	91
634	Alox0_Alpp :	ccaaaaaaaaagaattgggctgtatTTTgatgtactatTTtagatatacatctaattccatg	:	117
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672	Alox0_Alpp :	tacatacatattgtatattgatctagatatggc---ttttttt-----tag	:	161
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674	Alga1_Alpp :	ccccaaattttttttttgggtacatttaccgtgtgtgtattttcgatcgatccaaataatc	:	206
675	Alga2_Alpp :	ccccaaattttttttttgggtacatttaccgtgtgtgtattttcgatcgatccaaataatg	:	208
676	Alga3_Alpp :	tcccaattttttttttgggtacatttaccgtgtgtgtattttcgatcgatccaaataatg	:	209
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 753 Alga4\_Alpp : tctcagatacttatctcagatactttgattccagccagatcattttcgtttaa : 318  
 754 Alga6\_Alpp : ----- : -  
 755 Alga7\_Alpp : ----- : -  
 756 Alga8\_Alpp : tctcagatacttatctcagatactttgattccagccagatcattttcgtttaa : 318  
 757 Alga0\_Alpp : tctcagatacttatctcagatactttgattccagccagatcattttcgtttaa : 343  
 758 Alha1\_Alpp : tctcagatacttatctcagatactttgattccagccagatcattttcgtttaa : 317  
 759 Alha2\_Alpp : tctcagatacttatctcagatactttgattccagccagatcattttcgtttaa : 317  
 760 Alha3\_Alpp : tctcagatacttatctcagatactttgattccagccagatcattttcgtttaa : 319  
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 762 Alha7\_Alpp : tctcagatacttatctcagatactttgattccagccagatcattttcgtttaa : 321  
 763 Alha8\_Alpp : tctcagatacttatctcagatactttgattccagccagatcattttcgtttaa : 314  
 764 Alha0\_Alpp : tctcagatacttatctcagatactttgattccagccagatcattttcgtttaa : 344  
 765 Alnil\_Alpp : tctaagatacttatctcagatactttattccagccgatcattttcgtttaa : 314

766 Alni2\_Alpp : tctaagatacttatatctcagatacttattatccaggcgatcattttcgttaa : 315  
 767 Alni3\_Alpp : tctaagatacttatatctcagatacttattatccaggcgatcattttcgttaa : 315  
 768 Alni4\_Alpp : tctaagatacttatatctcagatacttattatccaggcgatcattttcgttaa : 315  
 769 Alni6\_Alpp : tctaataccctcatatctcatatacttattatctcggatcgttttcgcgtttaa : 314  
 770 Alni7\_Alpp : tctaagatacttatatctcagatacttattatccaggcgatcattttcgttaa : 315  
 771 Alni8\_Alpp : tctaagatacttatatctcagatacttattatccaggcgatcattttcgttaa : 317  
 772 Alni0\_Alpp : tctaagatacttatatctcagatacttattatccaggcgatcattttcgttaa : 342  
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 775 Alof3\_Alpp : -----tatctcagatacttatgatccaggcgatcattttcgttaa : 287  
 776 Alof4\_Alpp : -----tatctcagatacttatgatccaggcgatcattttcgttaa : 287  
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 790 Alga3\_Alpp : gacttaaagt-----tgcacttcaatcattgataagaactaataattcaagt : 365  
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 792 Alga6\_Alpp : -----  
 793 Alga7\_Alpp : -----  
 794 Alga8\_Alpp : gacttaaagt-----tgcacttcaatcattgataagaactaataattcaagt : 365  
 795 Alga0\_Alpp : gacttaaagtttga-----cttcaatcattgataagaactaataattcaagt : 390  
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 798 Alha3\_Alpp : gacttgaagtttgaatccctttccctttcaatcattgataagaactaataattcaagt : 379  
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 801 Alha8\_Alpp : gacttgaagtttgaatccctttccctttcaatcattgataagaactaataattcaagt : 374  
 802 Alha0\_Alpp : gacttgaagtttgaatccctttccctttcaatcattgataagaactaataattcaagt : 404  
 803 Alni1\_Alpp : gacttgaagt-----cttacttcaatcattgataagaactaataattcaagt : 361  
 804 Alni2\_Alpp : gacttgaagt-----cttacttcaatcattgataagaactaataattcaagt : 362  
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 807 Alni6\_Alpp : cacttgaagt-----cttacttcaatcattgataaaaaactaataattcaagt : 361  
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 809 Alni8\_Alpp : gacttgaagt-----cttacttcaatcattgataagaactaataattcaagt : 364  
 810 Alni0\_Alpp : gacttgaagt-----cttacttcaatcattgataagaactaataattcaagt : 389  
 811 Alof1\_Alpp : gacttgaagtttgaatccctttccctttcaatcattgataagaactaataattcaagt : 348  
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 815 Alof6\_Alpp : gacttgaagtttgaatccctttccctttcaatcattgataagaactaataattcaagt : 346  
 816 Alof7\_Alpp : gacttgaagtttgaatccctttccctttcaatcattgataagaactaataattcaagt : 349  
 817 Alof8\_Alpp : gacttgaagtttgaatccctttccctttcaatcattgataagaactaataattcaagt : 348  
 818 Alof0\_Alpp : gacttgaagtttgaatccctttccctttcaatcattgataagaactaataattcaagt : 375  
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 830 Alga6\_Alpp : -----  
 831 Alga7\_Alpp : -----  
 832 Alga8\_Alpp : ttcaatcaaatttagtcatttgactgactgttttacgttagatgataagaaaaagcag : 425  
 833 Alga0\_Alpp : ttcaatcaaatttagtcatttgactgactgttttacgttagatgataagaaaaagcag : 450  
 834 Alha1\_Alpp : ttcaatcaaatttagtcatttgactgactgttttacgttagatgataagaaaaagcag : 437  
 835 Alha2\_Alpp : ttcaatcaaatttagtcatttgactgactgttttacgttagatgataagaaaaagcag : 437  
 836 Alha3\_Alpp : ttcaatcaaatttagtcatttgactgactgttttacgttagatgataagaaaaagcag : 439  
 837 Alha6\_Alpp : ttcaatcaaatttagtcatttgactgactgttttacgttagatgataagaaaaagcag : 435

838	Alha7_Alpp	: ttcaatcaaattagtcatttgactgactgttttacgttagatgataagtaaaaaagcag	: 441
839	Alha8_Alpp	: ttcaatcaaattagtcatttgactgactgttttacgttagatgataagtaaaaaagcag	: 434
840	Alha0_Alpp	: ttcaatcaaattagtcatttgactgactgttttacgttagatgataagtaaaaaagcag	: 464
841	Alni1_Alpp	: ttcaatcaaattagtcatttgactgactgttttacgttagatgataagtaaaaaagcag	: 421
842	Alni2_Alpp	: ttcaatcaaattagtcatttgactgactgttttacgttagatgataagtaaaaaagcag	: 422
843	Alni3_Alpp	: ttcaatcaaattagtcatttgactgactgttttacgttagatgataagtaaaaaagcag	: 422
844	Alni4_Alpp	: ttcaatcaaattagtcatttgactgactgttttacgttagatgataagtaaaaaagcag	: 422
845	Alni6_Alpp	: ttcaatgactg-c-gat-ttgactgactgat-ttttacgttagatgataagtaaaaaagcag	: 421
846	Alni7_Alpp	: ttcaatcaaattagtcatttgactgactgttttacgttagatgataagtaaaaaagcag	: 422
847	Alni8_Alpp	: ttcaatcaaattagtcatttgactgactgttttacgttagatgataagtaaaaaagcag	: 424
848	Alni0_Alpp	: ttcaatcaaattagtcatttgactgactgttttacgttagatgataagtaaaaaagcag	: 449
849	Alof1_Alpp	: ttcaatcaaattagtcatttgactgactgttttacgttagatgataagtaaaaaagcag	: 408
850	Alof2_Alpp	: ttcaatcaaattagtcatttgactgactgttttacgttagatgataagtaaaaaagcag	: 406
851	Alof3_Alpp	: ttcaatcaaattagtcatttgactgactgttttacgttagatgataagtaaaaaagcag	: 407
852	Alof4_Alpp	: ttcaatcaaattagtcatttgactgactgttttacgttagatgataagtaaaaaagcag	: 407
853	Alof6_Alpp	: ttcaatcaaattagtcatttgactgactgttttacgttagatgataagtaaaaaagcag	: 406
854	Alof7_Alpp	: ttcaatcaaattagtcatttgactgactgttttacgttagatgataagtaaaaaagcag	: 409
855	Alof8_Alpp	: ttcaatcaaattagtcatttgactgactgttttacgttagatgataagtaaaaaagcag	: 408
856	Alof0_Alpp	: ttcaatcaaattagtcatttgactgactgttttacgttagatgataagtaaaaaagcag	: 435
857	Alox1_Alpp	: ttcaatcaaattagtcatttgactgactgttttacgttagatgataagtaaaaaagcag	: 407
858	Alox2_Alpp	: ttcaatcaaattagtcatttgactgactgttttacgttagatgataagtaaaaaagcag	: 410
859	Alox3_Alpp	: ttcaatcaaattagtcatttgactgactgttttacgttagatgataagtaaaaaagcag	: 408
860	Alox6_Alpp	: ttcaatcaaattagtcatttgactgactgttttacgttagatgataagtaaaaaagcag	: 409
861	Alox7_Alpp	: ttcaatcaaattagtcatttgactgactgttttacgttagatgataagtaaaaaagcag	: 409
862	Alox0_Alpp	: ttcaatcaaattagtcatttgactgactgttttacgttagatgataagtaaaaaagcag	: 435
863			
864	Alga1_Alpp	: ----- : -	
865	Alga2_Alpp	: taggaactagaatgaa cagtgcagta-- : 450	
866	Alga3_Alpp	: taggaactagaatgaa cagtgcagta-- : 451	
867	Alga4_Alpp	: taggaactagaatgaa cagtgcagta- : 452	
868	Alga6_Alpp	: ----- : -	
869	Alga7_Alpp	: ----- : -	
870	Alga8_Alpp	: taggaactagaatgaa cagtgcagta-- : 451	
871	Alga0_Alpp	: taggaactagaatgaa cagtgcagta--- : 475	
872	Alha1_Alpp	: taggaactagaatgaa cagtgcagta-- : 463	
873	Alha2_Alpp	: taggaactagaatgaa cagtgcagta-- : 463	
874	Alha3_Alpp	: taggaactagaatgaa cagtgcagta-- : 465	
875	Alha6_Alpp	: taggaactagaatgaa cagtgcagta-- : 460	
876	Alha7_Alpp	: taggaactagaatgaa cagtgcagta-- : 467	
877	Alha8_Alpp	: taggaactagaatgaa cagtgcagta-- : 460	
878	Alha0_Alpp	: taggaactagaatgaa cagtgcagta--- : 489	
879	Alni1_Alpp	: taggaactagaatgaa cagtgcagta-- : 447	
880	Alni2_Alpp	: taggaactagaatgaa cagtgcagtaaaa : 450	
881	Alni3_Alpp	: taggaactagaatgaa cagtgcagta-- : 448	
882	Alni4_Alpp	: taggaactagaatgaa cagtgcagta-- : 448	
883	Alni6_Alpp	: a cgaactagaatgaa cagtgcagta-- : 447	
884	Alni7_Alpp	: taggaactagaatgaa cagtgcagta-- : 448	
885	Alni8_Alpp	: taggaactagaatgaa cagtgcagta-- : 450	
886	Alni0_Alpp	: taggaactagaatgaa cagtgcagta--- : 474	
887	Alof1_Alpp	: taggaactagaatgaa cagtgcagta-- : 434	
888	Alof2_Alpp	: taggaactagaatgaa cagtgcagta-- : 431	
889	Alof3_Alpp	: taggaactagaatgaa cagtgcagta-- : 433	
890	Alof4_Alpp	: taggaactagaatgaa cagtgcagta-- : 432	
891	Alof6_Alpp	: taggaactagaatgaa cagtgcagta-- : 432	
892	Alof7_Alpp	: taggaactagaatgaa cagtgcagta-- : 435	
893	Alof8_Alpp	: taggaactagaatgaa cagtgcagta-- : 435	
894	Alof0_Alpp	: taggaactagaatgaa cagtgcagta--- : 460	
895	Alox1_Alpp	: taggaactagaatgaa cagtgcagta-- : 433	
896	Alox2_Alpp	: taggaactagaatgaa cagtgcagta-- : 436	
897	Alox3_Alpp	: taggaactagaatgaa cagtgcagta-- : 433	
898	Alox6_Alpp	: taggaactagaatgaa cagtgcagta-- : 435	
899	Alox7_Alpp	: taggaactagaatgaa cagtgcagta-- : 435	
900	Alox0_Alpp	: taggaactagaatgaa cagtgcagta--- : 460	

901

902 **Figure S14. The alignment of amplicons produced by designed Alpr primers.**

903 The ID of each sequence is shown on the left side of each panel. The ID is the concatenation of  
 904 species name, plant individual id, and primer name. The rightmost number in each column represents  
 905 the position of the base at that position in the amplicon. The SNPs and Indel are shown in red  
 906 squares. The nucleotides identical across all plastomes are shaded in black, whereas those  
 907 conserved in 60% of the sequences are shaded in gray. *Alpinia galanga*: Alga; *A. hainanensis*: Alha;  
 908 *A. nigra*: Alni; *A. officinarum*: Alof; *A. oxyphylla*: Alox. Arabic numerals represent different individuals.  
 909

910	Alga1_Alpr :	ggggg-----	tgagagagatacttaa	:	21
911	Alga2_Alpr :	c-ggg-----	atagagagatactt-a	:	19
912	Alga3_Alpr :	g-ggg-----	gaagagagatactt-a	:	19
913	Alga4_Alpr :	t-gac-----	gcgaagagatactt-a	:	19
914	Alga6_Alpr :	cgggg-----	cgagagagatactt-a	:	20
915	Alga7_Alpr :	aggaa-----	taaggagaagatacttaa	:	24
916	Alga8_Alpr :	g-gga-----	gagaagagatactt-a	:	19
917	Alga0_Alpr :	taggagggttccgctaaatcatagcatagaaaaaaaagaaagataacttaa	:	50	
918	Alha1_Alpr :	gggg-----	tggagagatctt-a	:	17
919	Alha2_Alpr :	gggg-----	tcggagatactt-a	:	17
920	Alha3_Alpr :	gggg-----	atgagagaactt-a	:	17
921	Alha6_Alpr :	agg-----	agagagtctt-a	:	14
922	Alha7_Alpr :	agg-----	atgagagtctta-a	:	17
923	Alha8_Alpr :	cgsa-----	ggagagtctt-a	:	15
924	Alha0_Alpr :	taggagggttccgctaaatcatagcataga-----aagaagatacttaa	:	45	
925	Alni1_Alpr :	gcgt-----	gagaagagatactt-a	:	20
926	Alni3_Alpr :	-agga-----	gagaagagatactt-a	:	19
927	Alni3_Alpr :	ggggc-----	taggagagatactt-a	:	20
928	Alni4_Alpr :	--ogg-----	cgagagagatactt-a	:	18
929	Alni6_Alpr :	--ogg-----	ctagagagatactt-a	:	18
930	Alni7_Alpr :	tgggc-----	gaagaagagatacttaa	:	22
931	Alni8_Alpr :	cgggg-----	ctgagagagatactt-a	:	21
932	Alni0_Alpr :	taggagggttccgctaaatcatagcatagaaaaaaaagaaagataacttaa	:	50	
933	Alof1_Alpr :	ggacg-----	aagagaactt-a	:	16
934	Alof2_Alpr :	agatt-----	aaagaggaactt-a	:	18
935	Alof3_Alpr :	agat-----	aagaggtctt-a	:	16
936	Alof4_Alpr :	ggac-----	tgaggagaacttaa	:	19
937	Alof5_Alpr :	gggc-----	taggagaactt-a	:	17
938	Alof6_Alpr :	aggac-----	gaggagaactt-a	:	17
939	Alof7_Alpr :	cgggg-----	tagagaacttaa	:	17
940	Alof8_Alpr :	gtoga-----	cgagagaactt-a	:	17
941	Alof0_Alpr :	taggagggttccgctaaatcatagcataga-----aagaagatacttaa	:	45	
942	Alox1_Alpr :	gggc-----	gagaagaactt-a	:	17
943	Alox2_Alpr :	gggc-----	gaggagaactt-a	:	17
944	Alox6_Alpr :	gtoga-----	tagagatctt-a	:	16
945	Alox7_Alpr :	ggaa-----	taaggagaactt-a	:	19
946	Alox0_Alpr :	taggagggttccgctaaatcatagcataga-----aagaagatacttaa	:	45	
947					
948	Alga1_Alpr :	at-taaataaaaataataattttatgtggatttaggataggaacaattt	tgatag	:	71
949	Alga2_Alpr :	at-taaataaaaataataattttatgtggatttaggataggaacaattt	tgatag	:	69
950	Alga3_Alpr :	at-taaataaaaataataattttatgtggatttaggataggaacaattt	tgatag	:	69
951	Alga4_Alpr :	at-taaataaaaataataattttatgtggatttaggataggaacaattt	tgatag	:	69
952	Alga6_Alpr :	at-taaataaaaataataattttatgtggatttaggataggaacaattt	tgatag	:	70
953	Alga7_Alpr :	at-taaataaaaataataattttatgtggatttaggataggaacaattt	tgatag	:	74
954	Alga8_Alpr :	at-taaataaaaataataattttatgtggatttaggataggaacaattt	tgatag	:	69
955	Alga0_Alpr :	at-taaataaaaataataattttatgtggatttaggataggaacaattt	tgatag	:	100
956	Alha1_Alpr :	at-ttaataaaaataataattttatgtggatttaggataggaacaattt	tgatag	:	66
957	Alha2_Alpr :	at-ttaataaaaataataattttatgtggatttaggataggaacaattt	tgatag	:	66
958	Alha3_Alpr :	at-ttaataaaaataataattttatgtggatttaggataggaacaattt	tgatag	:	66
959	Alha6_Alpr :	at-ttaataaaaataataattttatgtggatttaggataggaacaattt	tgatag	:	63
960	Alha7_Alpr :	at-ttaataaaaataataattttatgtggatttaggataggaacaattt	tgatag	:	66
961	Alha8_Alpr :	at-ttaataaaaataataattttatgtggatttaggataggaacaattt	tgatag	:	64
962	Alha0_Alpr :	at-taaataaaaataataattttatgtggatttaggataggaacaattt	tgatag	:	95
963	Alni1_Alpr :	at-taaataaaaataataattttatgtggatttaggataggaacaattt	tgatag	:	70
964	Alni3_Alpr :	at-taaataaaaataataattttatgtggatttaggataggaacaattt	tgatag	:	69
965	Alni3_Alpr :	at-taaataaaaataataattttatgtggatttaggataggaacaattt	tgatag	:	70
966	Alni4_Alpr :	at-taaataaaaataataattttatgtggatttaggataggaacaattt	tgatag	:	68
967	Alni6_Alpr :	at-taaataaaaataataattttatgtggatttaggataggaacaattt	tgatag	:	68
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969	Alni8_Alpr :	at-taaataaaaataataattttatgtggatttaggataggaacaattt	tgatag	:	71

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972	Alof2_Alpr	: a-ttaataaaa-----tagtggatttaggataggaacaattgatag	:	57
973	Alof3_Alpr	: a-ttaataaaa-----tagtggatttaggataggaacaattgatag	:	55
974	Alof4_Alpr	: a-ttaataaaa-----tagtggatttaggataggaacaattgatag	:	58
975	Alof5_Alpr	: a-ttaataaaa-----tagtggatttaggataggaacaattgatag	:	56
976	Alof6_Alpr	: a-ttaataaaa-----tagtggatttaggataggaacaattgatag	:	56
977	Alof7_Alpr	: atttaaaataaaa-----tagtggatttaggataggaacaattgatag	:	57
978	Alof8_Alpr	: a-ttaataaaa-----tagtggatttaggataggaacaattgatag	:	56
979	Alox0_Alpr	: atttaaaataaaa-----tagtggatttaggataggaacaattgatag	:	85
980	Alox1_Alpr	: a-ttaataaaa-----tagtggatttaggataggaacaattgatag	:	56
981	Alox2_Alpr	: a-ttaataaaa-----tagtggatttaggataggaacaattgatag	:	56
982	Alox6_Alpr	: a-ttaataaaa-----tagtggatttaggataggaacaattgatag	:	55
983	Alox7_Alpr	: a-ttaataaaa-----tagtggatttaggataggaacaattgatag	:	58
984	Alox0_Alpr	: atttaaaataaaa-----tagtggatttaggataggaacaattgatag	:	85
985				
986	Alga1_Alpr	: ttagaaagaaattgtatttcttaatttacttcataaaatttatttt	:	121
987	Alga2_Alpr	: ttagaaagaaattgtatttcttaatttacttcataaaatttatttt	:	119
988	Alga3_Alpr	: ttagaaagaaattgtatttcttaatttacttcataaaatttatttt	:	119
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990	Alga6_Alpr	: ttagaaagaaattgtatttcttaatttacttcataaaatttatttt	:	120
991	Alga7_Alpr	: ttagaaagaaattgtatttcttaatttacttcataaaatttatttt	:	124
992	Alga8_Alpr	: ttagaaagaaattgtatttcttaatttacttcataaaatttatttt	:	119
993	Alga0_Alpr	: ttagaaagaaattgtatttcttaatttacttcataaaatttatttt	:	150
994	Alha1_Alpr	: ttagaaagaaattgtatttcttaatttacttcataaaatttatttt	:	116
995	Alha2_Alpr	: ttagaaagaaattgtatttcttaatttacttcataaaatttatttt	:	116
996	Alha3_Alpr	: ttagaaagaaattgtatttcttaatttacttcataaaatttatttt	:	116
997	Alha6_Alpr	: ttagaaagaaattgtatttcttaatttacttcataaaatttatttt	:	113
998	Alha7_Alpr	: ttagaaagaaattgtatttcttaatttacttcataaaatttatttt	:	116
999	Alha8_Alpr	: ttagaaagaaattgtatttcttaatttacttcataaaatttatttt	:	114
1000	Alha0_Alpr	: ttagaaagaaattgtatttcttaatttacttcataaaatttatttt	:	145
1001	Alni1_Alpr	: ttagaaaaaaactgtatttcttaatttacttcataaaatttatttt	:	120
1002	Alni3_Alpr	: ttagaaaaaaactgtatttcttaatttacttcataaaatttatttt	:	119
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1004	Alni4_Alpr	: ttagaaaaaaactgtatttcttaatttacttcataaaatttatttt	:	118
1005	Alni6_Alpr	: ttagaaaaaaactgtatttcttaatttacttcataaaatttatttt	:	118
1006	Alni7_Alpr	: ttagaaaaaaactgtatttcttaatttacttcataaaatttatttt	:	122
1007	Alni8_Alpr	: ttagaaaaaaactgtatttcttaatttacttcataaaatttatttt	:	121
1008	Alni0_Alpr	: ttagaaaaaaactgtatttcttaatttacttcataaaatttatttt	:	150
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1010	Alof2_Alpr	: ttagaaataaaattgtatttcttaatttacttcataaaatttatttt	:	107
1011	Alof3_Alpr	: ttagaaataaaattgtatttcttaatttacttcataaaatttatttt	:	105
1012	Alof4_Alpr	: ttagaaataaaattgtatttcttaatttacttcataaaatttatttt	:	108
1013	Alof5_Alpr	: ttagaaataaaattgtatttcttaatttacttcataaaatttatttt	:	106
1014	Alof6_Alpr	: ttagaaataaaattgtatttcttaatttacttcataaaatttatttt	:	106
1015	Alof7_Alpr	: ttagaaataaaattgtatttcttaatttacttcataaaatttatttt	:	107
1016	Alof8_Alpr	: ttagaaataaaattgtatttcttaatttacttcataaaatttatttt	:	106
1017	Alof0_Alpr	: ttagaaataaaattgtatttcttaatttacttcataaaatttatttt	:	135
1018	Alox1_Alpr	: ttagaaataaaattgtatttcttaatttacttcataaaatttatttt	:	106
1019	Alox2_Alpr	: ttagaaataaaattgtatttcttaatttacttcataaaatttatttt	:	106
1020	Alox6_Alpr	: ttagaaataaaattgtatttcttaatttacttcataaaatttatttt	:	105
1021	Alox7_Alpr	: ttagaaataaaattgtatttcttaatttacttcataaaatttatttt	:	108
1022	Alox0_Alpr	: ttagaaataaaattgtatttcttaatttacttcataaaatttatttt	:	135
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1025	Alga2_Alpr	: attactctatatctatat-----	:	137
1026	Alga3_Alpr	: attactctatatctatat-----	:	137
1027	Alga4_Alpr	: attactctatatctatat-----	:	137
1028	Alga6_Alpr	: attactctatatctatat-----	:	138
1029	Alga7_Alpr	: attactctatatctatat-----	:	142
1030	Alga8_Alpr	: attactctatatctatat-----	:	137
1031	Alga0_Alpr	: attactctatatctatat-----	:	168
1032	Alha1_Alpr	: attactctatatctatat-----	:	134
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1034	Alha3_Alpr	: attactctatatctatat-----	:	134
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1038	Alha0_Alpr	: attactctatatctatat-----	:	163
1039	Alni1_Alpr	: attactctatatctatat-----	:	138
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1043	Alni6_Alpr :	attactctatatctatat-----	: 136
1044	Alni7_Alpr :	attactctatatctatat-----	: 140
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1055	Alof0_Alpr :	attactctatatctatat-----	: 153
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1057	Alox2_Alpr :	attactctatatctatat-----	: 124
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1059	Alox7_Alpr :	attactctatatctatat-----	: 126
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1066	Alga6_Alpr :	-----atctataaaatatcaaagtaaaaattttactta-----	: 172
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1095	Alox2_Alpr :	-----atctataaaatataaaagtaaaaattttactta-----	: 158
1096	Alox6_Alpr :	-----atctataaaatataaaagtaaaaattttactta-----	: 157
1097	Alox7_Alpr :	-----atctataaaatataaaagtaaaaattttactta-----	: 160
1098	Alox0_Alpr :	-----atctataaaatataaaagtaaaaattttactta-----	: 187
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1101	Alga2_Alpr :	-tctta-----attacattaaat-----attaat-----t	: 194
1102	Alga3_Alpr :	-tctta-----attacattaaat-----attaat-----t	: 194
1103	Alga4_Alpr :	-tctta-----attacattaaat-----attaat-----t	: 194
1104	Alga6_Alpr :	-tctta-----attacattaaat-----attaat-----t	: 195
1105	Alga7_Alpr :	-tctta-----attacattaaat-----attaat-----t	: 199
1106	Alga8_Alpr :	-tctta-----attacattaaat-----attaat-----t	: 194
1107	Alga0_Alpr :	-tctta-----attacattaaattttattatcttaattacattaattaat-----t	: 246
1108	Alha1_Alpr :	-tctta-----attacattaa-----t	: 184
1109	Alha2_Alpr :	-tctta-----attacattaa-----t	: 184
1110	Alha3_Alpr :	-tctta-----attacattaa-----t	: 184
1111	Alha6_Alpr :	-tctta-----attacattaa-----t	: 181
1112	Alha7_Alpr :	-tctta-----attacattaa-----t	: 184
1113	Alha8_Alpr :	-tctta-----attacattaa-----t	: 182

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1124 Alof2_Alpr : ttcttaattacgttacattaa-----t : 188
1125 Alof3_Alpr : ttcttaattacattacattaa-----t : 186
1126 Alof4_Alpr : ttcttaattacattacattaa-----t : 189
1127 Alof5_Alpr : ttcttaattacattacattaa-----t : 187
1128 Alof6_Alpr : ttcttaattacattacattaa-----t : 187
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1131 Alof0_Alpr : ttcttaattacattacattaa-----t : 216
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1140 Alga3_Alpr : attaattaagaattt-----aat-----aaataagaatttaatgataatg : 234
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1163 Alof3_Alpr : attaattaataat-----aataaataaaataagaatt-----tcatg : 226
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1165 Alof5_Alpr : attaattaataat-----aataaataaaataagaatt-----tcatg : 227
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1172 Alox6_Alpr : attaattaataat-----aataaataaaataagaatt-----tcatg : 225
1173 Alox7_Alpr : attaattaataat-----aataaataaaataagaatt-----tcatg : 228
1174 Alox0_Alpr : attaattaataat-----aataaataaaataagaatt-----tcatg : 255
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1182 Alga8_Alpr : ataattgcaacgaaattttataaaaattttatatttctagtttagtcacttt : 284
1183 Alga0_Alpr : ataattgcaacgaaattttataaaaattttatatttctagtttagtcacttt : 340
1184 Alha1_Alpr : ataattgcaacgaaatttttagaaaattttatatttctagtttagtcacttt : 268
1185 Alha2_Alpr : ataattgcaacgaaatttttagaaaattttatatttctagtttagtcacttt : 268

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1188	Alha7_Alpr :	ataattgcaacgaaattttagaaaatttctatttctagttgtcacttt	: 268
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1237	Alof1_Alpr :	attnocatttatttttggtttcttcttcagctcagatcgaaaatataa	: 326
1238	Alof2_Alpr :	attnocatttatttttggtttcttcttcagctcagatcgaaaatataa	: 328
1239	Alof3_Alpr :	attnocatttatttttggtttcttcttcagctcagatcgaaaatataa	: 326
1240	Alof4_Alpr :	attnocatttatttttggtttcttcttcagctcagatcgaaaatataa	: 329
1241	Alof5_Alpr :	attnocatttatttttggtttcttcttcagctcagatcgaaaatataa	: 327
1242	Alof6_Alpr :	attnocatttatttttggtttcttcttcagctcagatcgaaaatataa	: 327
1243	Alof7_Alpr :	attnocatttatttttggtttcttcttcagctcagatcgaaaatataa	: 328
1244	Alof8_Alpr :	attnocatttatttttggtttcttcttcagctcagatcgaaaatataa	: 327
1245	Alof0_Alpr :	attnocatttatttttggtttcttcttcagctcagatcgaaaatataa	: 356
1246	Alox1_Alpr :	attnocatttatttttggtttcttcttcagctcagatcgaaaatataa	: 326
1247	Alox2_Alpr :	attnocatttatttttggtttcttcttcagctcagatcgaaaatataa	: 326
1248	Alox6_Alpr :	attnocatttatttttggtttcttcttcagctcagatcgaaaatataa	: 325
1249	Alox7_Alpr :	attnocatttatttttggtttcttcttcagctcagatcgaaaatataa	: 328
1250	Alox0_Alpr :	attnocatttatttttggtttcttcttcagctcagatcgaaaatataa	: 355
1251			
1252	Alga1_Alpr :	gagtttaagccgataaaaaat--gaaaagggggttatggtaaagggt-taa	: 383
1253	Alga2_Alpr :	gagtttaagccgataaaaaat--gaaaagggggttatggtaaagggt-taa	: 381
1254	Alga3_Alpr :	gagtttaagccgataaaaaat--gaaaagggggttatggtaaagggt-taa	: 382
1255	Alga4_Alpr :	gagtttaagccgataaaaaat--gaaaagggggttatggtaaagggt-taa	: 381
1256	Alga6_Alpr :	gagtttaagccgataaaaaat--gaaaagggggttatggtaaagggt-taa	: 382
1257	Alga7_Alpr :	gagtttaagccgataaaaaat--gaaaagggggttatggtaaagggt-taa	: 386

1258 Alga8\_Alpr : gagttAACCGataaaaaat--gaaaAGGGGTTtatggc~~t~~-aaggg-taa : 380  
 1259 Alga0\_Alpr : gagttAACCGataaaaaat--gaaaAGGGGTTtatggc~~t~~aaggg-taa : 437  
 1260 Alha1\_Alpr : gagttAACCGataaaaaat--ttaaaAGGGGTTtatggc~~t~~aaggg-taa : 365  
 1261 Alha2\_Alpr : ga----- : 320  
 1262 Alha3\_Alpr : gagttAACCGataaaaaat--ttaaaAGGGGTTtatggc~~t~~aaggg-taa : 365  
 1263 Alha6\_Alpr : gagttAACCGataaaaaat--ttaaaAGGGGTTtatggc~~t~~aagggtaa : 363  
 1264 Alha7\_Alpr : gagttAACCGataaaaaat--ttaaaAGGGGTTtatggc~~t~~aaggg-taa : 365  
 1265 Alha8\_Alpr : gagttAACCGataaaaaat--ttaaaAGGGGTTtatggc~~t~~aaggg-taa : 363  
 1266 Alha0\_Alpr : gagttAACCGataaaaaat--ttaaaAGGGGTTtatggc~~t~~aaggg-taa : 394  
 1267 Alni1\_Alpr : gagttAACCGataaaaaataaaaaaAGGGGTTtatggc~~t~~aaggg-taa : 383  
 1268 Alni3\_Alpr : gagttAACCGataaaaaataaaaaaAGGGGTTtatggc~~t~~aaggg-taa : 382  
 1269 Alni3\_Alpr : gagttAACCGataaaaaataaaaaaAGGGGTTtatggc~~t~~aaggg-taa : 383  
 1270 Alni4\_Alpr : gagttAACCGataaaaaataaaaaaAGGGGTTtatggc~~t~~aaggg-taa : 381  
 1271 Alni6\_Alpr : gagttAACCGataaaaaataaaaaaAGGGGTTtatggc~~t~~aaggg-taa : 381  
 1272 Alni7\_Alpr : gagttAACCGataaaaaataaaaaaAGGGGTTtatggc~~t~~aaagg-gta : 385  
 1273 Alni8\_Alpr : gagttAACCGataaaaaataaaaaaAGGGGTTtatggc~~t~~aaggg-taa : 384  
 1274 Alni0\_Alpr : gagttAACCGataaaaaataaaaaaAGGGGTTtatggc~~t~~aaggg-taa : 454  
 1275 Alof1\_Alpr : gagttAACCGataaaaaat--ttaaaAGGGGTTtatggc~~t~~aaggg-taa : 373  
 1276 Alof2\_Alpr : gagttAACCGataaaaaat--ttaaaAGGGGTTtatggc~~t~~aaaggtaa : 376  
 1277 Alof3\_Alpr : gagttAACCGataaaaaat--ttaaaAGGGGTTtatggc~~t~~aaggg-taa : 373  
 1278 Alof4\_Alpr : gagttAACCGataaaaaat--ttaaaAGGGGTTtatggc~~t~~aaggg-taa : 376  
 1279 Alof5\_Alpr : gagttAACCGataaaaaat--ttaaaAGGGGTTtatggc~~t~~aaaggg-taa : 374  
 1280 Alof6\_Alpr : gagttAACCGataaaaaat--ttaaaAGGGGTTtatggc~~t~~aaggg-taa : 374  
 1281 Alof7\_Alpr : gagttAACCGataaaaaat--ttaaaAGGGGTTtatggc~~t~~aaggg-taa : 375  
 1282 Alof8\_Alpr : gagttAACCGataaaaaat--ttaaaAGGGGTTtatggc~~t~~aaggg-taa : 374  
 1283 Alof0\_Alpr : gagttAACCGataaaaaat--ttaaaAGGGGTTtatggc~~t~~aaggg-taa : 403  
 1284 Alox1\_Alpr : gagttAACCGataaaaaat--ttaaaAGGGGTTtatggc~~t~~aaggg-taa : 373  
 1285 Alox2\_Alpr : gagttAACCGataaaaaat--ttaaaAGGGGTTtatggc~~t~~aaggg-taa : 373  
 1286 Alox6\_Alpr : gagttAACCGataaaaaat--ttaaaAGGGGTTtatggc~~t~~aaggg-taa : 372  
 1287 Alox7\_Alpr : gagttAACCGataaaaaat--ttaaaAGGGGTTtatggc~~t~~aaggg-taa : 375  
 1288 Alox0\_Alpr : gagttAACCGataaaaaat--ttaaaAGGGGTTtatggc~~t~~aaggg-taa : 402  
 1289  
 1290 Alga1\_Alpr : ga----- : 385  
 1291 Alga2\_Alpr : ga----- : 383  
 1292 Alga3\_Alpr : ga----- : 384  
 1293 Alga4\_Alpr : ga----- : 383  
 1294 Alga6\_Alpr : ga----- : 384  
 1295 Alga7\_Alpr : gagtgctttctccctgcgttgtggggagcgaggataaaact : 436  
 1296 Alga8\_Alpr : ga----- : 382  
 1297 Alga0\_Alpr : g----- : 438  
 1298 Alha1\_Alpr : ga----- : 367  
 1299 Alha2\_Alpr : ----- : -  
 1300 Alha3\_Alpr : gatttaggggaaccctccctaact----- : 389  
 1301 Alha6\_Alpr : gaagtggggatggtttgggt----- : 384  
 1302 Alha7\_Alpr : gatttaggggaaccctccctaatg----- : 389  
 1303 Alha8\_Alpr : ga----- : 365  
 1304 Alha0\_Alpr : g----- : 395  
 1305 Alni1\_Alpr : ga----- : 385  
 1306 Alni3\_Alpr : ga----- : 384  
 1307 Alni3\_Alpr : ga----- : 385  
 1308 Alni4\_Alpr : ga----- : 383  
 1309 Alni6\_Alpr : gatttagcggaccctccctaa----- : 403  
 1310 Alni7\_Alpr : agatgagcggaccctccctaatc----- : 408  
 1311 Alni8\_Alpr : gatttagcggaccctccctaa----- : 407  
 1312 Alni0\_Alpr : g----- : 455  
 1313 Alof1\_Alpr : g----- : 374  
 1314 Alof2\_Alpr : ga----- : 378  
 1315 Alof3\_Alpr : gatttggggaccctttgc----- : 392  
 1316 Alof4\_Alpr : ga----- : 378  
 1317 Alof5\_Alpr : ga----- : 376  
 1318 Alof6\_Alpr : gattcggggaccctgtaccga----- : 395  
 1319 Alof7\_Alpr : ga----- : 377  
 1320 Alof8\_Alpr : ga----- : 376  
 1321 Alof0\_Alpr : g----- : 404  
 1322 Alox1\_Alpr : ga----- : 375  
 1323 Alox2\_Alpr : ga----- : 375  
 1324 Alox6\_Alpr : gatttagcggaccctccctaa----- : 394  
 1325 Alox7\_Alpr : ga----- : 377  
 1326 Alox0\_Alpr : g----- : 403  
 1327  
 1328 Alga1\_Alpr : ----- : -  
 1329 Alga2\_Alpr : ----- : -

1330 Alga3\_Alpr : ----- : -  
1331 Alga4\_Alpr : ----- : -  
1332 Alga6\_Alpr : ----- : -  
1333 Alga7\_Alpr : attattttatattaataaattatccccttcttttattc : 477  
1334 Alga8\_Alpr : ----- : -  
1335 Alga0\_Alpr : ----- : -  
1336 Alha1\_Alpr : ----- : -  
1337 Alha2\_Alpr : ----- : -  
1338 Alha3\_Alpr : ----- : -  
1339 Alha6\_Alpr : ----- : -  
1340 Alha7\_Alpr : ----- : -  
1341 Alha8\_Alpr : ----- : -  
1342 Alha0\_Alpr : ----- : -  
1343 Alni1\_Alpr : ----- : -  
1344 Alni3\_Alpr : ----- : -  
1345 Alni3\_Alpr : ----- : -  
1346 Alni4\_Alpr : ----- : -  
1347 Alni6\_Alpr : ----- : -  
1348 Alni7\_Alpr : ----- : -  
1349 Alni8\_Alpr : ----- : -  
1350 Alni0\_Alpr : ----- : -  
1351 Alof1\_Alpr : ----- : -  
1352 Alof2\_Alpr : ----- : -  
1353 Alof3\_Alpr : ----- : -  
1354 Alof4\_Alpr : ----- : -  
1355 Alof5\_Alpr : ----- : -  
1356 Alof6\_Alpr : ----- : -  
1357 Alof7\_Alpr : ----- : -  
1358 Alof8\_Alpr : ----- : -  
1359 Alof0\_Alpr : ----- : -  
1360 Alox1\_Alpr : ----- : -  
1361 Alox2\_Alpr : ----- : -  
1362 Alox6\_Alpr : ----- : -  
1363 Alox7\_Alpr : ----- : -  
1364 Alox0\_Alpr : ----- : -  
1365

1366 **Figure S15. The alignment of amplicons in 10 *Alpinia* plastomes produced by  
1367 designed Alpp primers in silico.**

1368 The ID of each sequence is shown on the left side of each panel. The ID is the accession numbers of  
1369 species in GenBank (Table S24). The rightmost number in each column represents the position of the  
1370 base at that position in the amplicon. The SNPs and Indel are shown in red squares. The nucleotides  
1371 identical across all plastomes are shaded in black, whereas those conserved in 60% of the  
1372 sequences are shaded in gray.

1373	MK940825.1 : agaacagttggccttcgattatTTggatcgatcgaaatacacacaggta	: 50
1374	NC_048461. : agaacagttggccttcgattatTTggatcgatcgaaatacacacaggta	: 50
1375	MK940826.1 : agaacagttggccttcgattatTTggatcgatcgaaatacacacaggta	: 50
1376	MK940823.1 : agaacagttggccttcgattatTTggatcgatcgaaatacacacaggta	: 50
1377	MK940824.1 : agaacagttggccttcgattatTTggatcgatcgaaatacacacaggta	: 50
1378	NC_035895. : agaacagttggccttcgattatTTggatcgatcgaaatacacacaggta	: 50
1379	MK262729.1 : agaacagttggccttcgattatTTggatcgatcgaaatacacacaggta	: 50
1380	NC_050165. : agaacagttggccttcgattatTTggatcgatcgaaatacacacaggta	: 50
1381	NC_048462. : agaacagttggccttcgattatTTggatcgatcgaaatacacacaggta	: 50
1382	JX088668.1 : agaacagttggccttcgattatTTggatcgatcgaaatacacacaggta	: 50
1383		AGAACAGTTGGCCTCgATTATTTGGATCGATCGAAATACACACAGGTA
1384		
1385	MK940825.1 : aatgttagccaaaaaaaaaagaattgggctgtatTTgtatattttaga	: 100
1386	NC_048461. : aatgttagccaaaaaaaaaagaattgggctgtatTTgtatattttaga	: 100
1387	MK940826.1 : aatgttagccaaaaaaaaaagaattgggctgtatTTgtatattttaga	: 100
1388	MK940823.1 : aatgttagccaaaaaaaaaagaattgggctgtatTTgtatattttaga	: 100
1389	MK940824.1 : aatgttagccaaaaaaaaaagaattgggctgtatTTgtatattttaga	: 100
1390	NC_035895. : aatgttagccaaaaaaaaaagaattgggctgtatTTgtatattttaga	: 100
1391	MK262729.1 : aatgttagccaaaaaaaaaagaattgggctgtatTTgtatattttaga	: 100
1392	NC_050165. : aatgttagccaaaaaaaaaagaattgggctgtatTTgtatattttaga	: 100
1393	NC_048462. : aatgttagccaaaaaaaaaagaattgggctgtatTTgtatattttaga	: 100
1394	JX088668.1 : aatgttagccaaaaaaaaaagaattgggctgtatTTgtatattttaga	: 100
1395		AATGTAGCCAAAAAAAAGAATTGGGCTGCTATTGATGTAcTATTAGA
1396		
1397	MK940825.1 : tataatatctaatactatgtacatacatatattytatattgtatctagatatggg	: 150
1398	NC_048461. : tataatatctaatactatgtacatacatatattytatattgtatctagatatggg	: 150
1399	MK940826.1 : tataatatctaatactatgtacatacatatattytatattgtatctagatatggg	: 150
1400	MK940823.1 : tataatatctaatactatgtacatacatatattytatattgtatctagatatggg	: 150
1401	MK940824.1 : tataatatctaatactatgtacatacatatattytatattgtatctagatatggg	: 150
1402	NC_035895. : tataatatctaatactatgtacatacatatattytatattgtatctagatatggg	: 150
1403	MK262729.1 : tataatatctaatactatgtacatacatatattytatattgtatctagatatggg	: 150
1404	NC_050165. : tataatatctaatactatgtacatacatatattytatattgtatctagatatggg	: 150
1405	NC_048462. : tataatatctaatactatgtacatacatatattytatattgtatctagatatggg	: 150
1406	JX088668.1 : tataatatctaatactatgtacatacatatattytatattgtatctagatatggg	: 150
1407		TATAcATCTAATCcATGTACATACATATTgTATATTGATCTAGATATGGG
1408		
1409	MK940825.1 : c----tttttttataggaaaaaggccccatatatctagatcaatataataacaa	: 198
1410	NC_048461. : c----tttttttataggaaaaaggccccatatatctagatcaatataataacaa	: 199
1411	MK940826.1 : c----tttttttataggaaaaaggccccatatatctagatcaatataataacaa	: 197
1412	MK940823.1 : c----tttttttataggaaaaaggccccatatatctagatcaatataataacaa	: 196
1413	MK940824.1 : c----tttttttataggaaaaaggccccatatatctagatcaatataataacaa	: 196
1414	NC_035895. : c----tttttttataggaaaaaggccccatatatctagatcaatataataacaa	: 196
1415	MK262729.1 : c----tttttttataggaaaaaggccccatatatctagatcaatataataacaa	: 196
1416	NC_050165. : c----tttttttataggaaaaaggccccatatatctagatcaatataataacaa	: 199
1417	NC_048462. : c----tttttttataggaaaaaggccccatatatctagatcaatataataacaa	: 199
1418	JX088668.1 : c----tttttttataggaaaaaggccccatatatctagatcaatataataacaa	: 200
1419		C TTTTTATAGGAAAAAGtCtATATCTAGATCAATATATAACAA
1420		
1421		
1422		
1423	MK940825.1 : ctctctatgaaaataatgaataatgataatataactatataatagtagat	: 248
1424	NC_048461. : ctctctatgaaaataatgaataatgataatataactatataatagtgat	: 249
1425	MK940826.1 : ctctctatgaaaataatgaataatgataatataactatataatagtagat	: 247
1426	MK940823.1 : ctctctatgaaaataatgaataatgataatataactatataatagtagat	: 236
1427	MK940824.1 : ctctctatgaaaataatgaataatgataatataactatataatagtagat	: 236
1428	NC_035895. : ctctctatgaaaataatgaataatgataatataactatataatagtagat	: 236
1429	MK262729.1 : ctctctatgaaaataatgaataatgataatataactatataatagtagat	: 236
1430	NC_050165. : ctctctatgaaaataatgaataatgataatataactatataatactagat	: 249
1431	NC_048462. : ctctctatgaaaataatgaataatgataatataactatataatactagat	: 249
1432	JX088668.1 : ctctctatgaaaataatgaataatgataatataactatataatattat	: 250
1433		CTCTCtATGAAAATAATGAATATGATAATATACTA gAT
1434		

1435  
 1436 MK940825.1 : aactataccatactatcaggcttagatagtagtactatctcagataacttatt : 298  
 1437 NC\_048461. : aactataccatactatcaggcttagatagtagtactatctcagataacttatt : 299  
 1438 MK940826.1 : aactataccatactatcaggcttagatagtagtactatctcagataacttatt : 297  
 1439 MK940823.1 : aactataccatactatcaggcttagatagtagtactatctcagatac---- : 281  
 1440 MK940824.1 : aactataccatactatcaggcttagatagtagtactatctcagatac---- : 281  
 1441 NC\_035895. : aactataccatactatcaggcttagatagtagtactatctcagatac---- : 281  
 1442 MK262729.1 : aactataccatactatcaggcttagatagtagtactatctcagatac---- : 281  
 1443 NC\_050165. : aactataccatactatcaggcttagatagtagtactatctcagatac---- : 294  
 1444 NC\_048462. : aactataccatactatcaggcttagatagtagtactatctcagatac---- : 294  
 1445 JX088668.1 : aactataccatactatcaggcttagatagtagtactatctcagataacttatt : 300  
 1446 AACTATAACCATACTATCtAGGCTTAGATAGTACTATCTcAGATAC  
 1447  
 1448 MK940825.1 : atctcagatacttatattccagccgatcattttcggttaagactt : 348  
 1449 NC\_048461. : atctcagatacttatattccagccgatcattttcggttaagactt : 349  
 1450 MK940826.1 : atctcagatacttatattccagccgatcattttcggttaagactt : 347  
 1451 MK940823.1 : -----ttatattccagccgatcattttcggttaagactt : 320  
 1452 MK940824.1 : -----ttatattccagccgatcattttcggttaagactt : 320  
 1453 NC\_035895. : -----ttatattccagccgatcattttcggttaagactt : 320  
 1454 MK262729.1 : -----ttatattccagccgatcattttcggttaagactt : 320  
 1455 NC\_050165. : -----ttatattccagccgatcattttcggttaagactt : 333  
 1456 NC\_048462. : -----ttatattccagccgatcattttcggttaagactt : 333  
 1457 JX088668.1 : atctcagatacttatattccagccgatcattttcggttaagactt : 350  
 1458 TTATgATTCCAGCCaGATCATTTCTTCGTTAAGACTT  
 1459  
 1460 MK940825.1 : aaagttttga-----cttcataatcattgataagaactaataatt : 385  
 1461 NC\_048461. : aaagttttgaatcccttccttccttcataatcattgataagaactaataatt : 399  
 1462 MK940826.1 : aaagtttttgaatcccttccttccttcataatcattgataagaactaataatt : 384  
 1463 MK940823.1 : aaagtttttgaatcccttccttccttcataatcattgataagaactaataatt : 370  
 1464 MK940824.1 : aaagtttttgaatcccttccttccttcataatcattgataagaactaataatt : 370  
 1465 NC\_035895. : aaagtttttgaatcccttccttccttcataatcattgataagaactaataatt : 370  
 1466 MK262729.1 : aaagtttttgaatcccttccttccttcataatcattgataagaactaataatt : 370  
 1467 NC\_050165. : aaagtttttgaatcccttccttccttcataatcattgataagaactaataatt : 383  
 1468 NC\_048462. : aaagtttttgaatcccttccttccttcataatcattgataagaactaataatt : 383  
 1469 JX088668.1 : aaagtttttgaatcccttccttccttcataatcattgataagaactaataatt : 400  
 1470 gAAGTTtTgAatcccttccttcCTCAATCATTGATAAGAACTAATAATT  
 1471  
 1472 MK940825.1 : caagtttcaatcaaatttagtcattttgactgactgttttacgtatgaa : 435  
 1473 NC\_048461. : caagtttcaatcaaatttagtcattttgactgactgttttacgtatgaa : 449  
 1474 MK940826.1 : caagtttcaatcaaatttagtcattttgactgactgttttacgtatgaa : 434  
 1475 MK940823.1 : caagtttcaatcaaatttagtcattttgactgactgttttacgtatgaa : 420  
 1476 MK940824.1 : caagtttcaatcaaatttagtcattttgactgactgttttacgtatgaa : 420  
 1477 NC\_035895. : caagtttcaatcaaatttagtcattttgactgactgttttacgtatgaa : 420  
 1478 MK262729.1 : caagtttcaatcaaatttagtcattttgactgactgttttacgtatgaa : 420  
 1479 NC\_050165. : caagtttcaatcaaatttagtcattttgactgactgttttacgtatgaa : 433  
 1480 NC\_048462. : caagtttcaatcaaatttagtcattttgactgactgttttacgtatgaa : 433  
 1481 JX088668.1 : caagtttcaatcaaatttagtcattttgactgactgttttacgtatgaa : 450  
 1482 CAAGTTCAATCAAATTAGTCATTGACTGACTGTTTACGTAGATGA  
 1483  
 1484 MK940825.1 : taagtaaaaaagcagtaggaactagaatgaacagtcgcgt : 475  
 1485 NC\_048461. : taagtaaaaaagcagtaggaactagaatgaacagtcgcgt : 489  
 1486 MK940826.1 : taagtaaaaaagcagtaggaactagaatgaacagtcgcgt : 474  
 1487 MK940823.1 : taagtaaaaaagcagtaggaactagaatgaacagtcgcgt : 460  
 1488 MK940824.1 : taagtaaaaaagcagtaggaactagaatgaacagtcgcgt : 460  
 1489 NC\_035895. : taagtaaaaaagcagtaggaactagaatgaacagtcgcgt : 460  
 1490 MK262729.1 : taagtaaaaaagcagtaggaactagaatgaacagtcgcgt : 460  
 1491 NC\_050165. : taagtaaaaaagcagtaggaactagaatgaacagtcgcgt : 473  
 1492 NC\_048462. : taagtaaaaaagcagtaggaactagaatgaacagtcgcgt : 473  
 1493 JX088668.1 : taagtaaaaaagcagtaggaactagaatgaacagtcgcgt : 490  
 1494 TAAGTAAAAAGCAGTAGGAACTAGAATGAACAGTCGCAGT

1495

1496 **Figure S16. The alignment of amplicons in 10 *Alpinia* plastomes produced by  
1497 designed Alpr primers in silico.**

1498 The ID of each sequence is shown on the left side of each panel. The ID is the accession numbers of  
1499 species in NCBI (Table S24). The rightmost number in each column represents the position of the  
1500 base at that position in the amplicon. The SNPs and Indel are shown in red squares. The nucleotides  
1501 identical across all plastomes are shaded in black, whereas those conserved in 60% of the  
1502 sequences are shaded in gray.

1503  
 1504 MK940825.1 : tagggagggttccgctaaatcatagcat agaaaagaaagatacttaa : 50  
 1505 NC\_048461. : tagggagggttccgctaaatcatagcat --- agaaaagaaagatacttaa : 45  
 1506 MK940826.1 : tagggagggttccgctaaatcatagcat agaaaagaaaagatacttaa : 50  
 1507 MK940823.1 : tagggagggttccgctaaatcatagcat --- agaaaagaagatacttaa : 45  
 1508 MK940824.1 : tagggagggttccgctaaatcatagcat --- agaaagaagatacttaa : 45  
 1509 NC\_035895. : tagggagggttccgctaaatcatagcat --- agaaaagaagatacttaa : 45  
 1510 MK262729.1 : tagggagggttccgctaaatcatagcat --- agaaaagaagatacttaa : 45  
 1511 NC\_050165. : tagggagggttccgctaaatcatagcat --- agaaaagaagatacttaa : 45  
 1512 NC\_048462. : tagggagggttccgctaaatcatagcat --- agaaaagaagatacttaa : 45  
 1513 JX088668.1 : tagggagggttccgctaaatcatagcat --- agaaaagaagatacttaa : 45  
 1514 TAGGGAGGGTCCGCTAAATCATAGCAT AGAAAAGAAGATACTTA  
 1515  
 1516 MK940825.1 : attaaataaaaataataatttagtgatttaggataggacaatttttatgatag : 100  
 1517 NC\_048461. : attaaataaaaataataatttagtgatttaggataggacaatttttatgatag : 95  
 1518 MK940826.1 : attaaataaaaataataatttagtgatttaggataggacaatttttatgatag : 100  
 1519 MK940823.1 : attaaataaa-----tagtgatttaggataggacaatttttatgatag : 85  
 1520 MK940824.1 : attaaataaa-----tagtgatttaggataggacaatttttatgatag : 85  
 1521 NC\_035895. : attaaataaa-----tagtgatttaggataggacaatttttatgatag : 85  
 1522 MK262729.1 : attaaataaa-----tagtgatttaggataggacaatttttatgatag : 85  
 1523 NC\_050165. : attaaataaaaataataatttagtgatttaggatggacaatttttatgatag : 95  
 1524 NC\_048462. : attaaataaaaataataatttagtgatttaggatggacaatttttatgatag : 95  
 1525 JX088668.1 : attaaataaaaataataatttagtgatttaggatggacaatttttatgatag : 95  
 1526 ATTAAATAAA TAGTGGATTAGGATAGAACATTTGATAG  
 1527  
 1528 MK940825.1 : tttagaaagaaattgtatttcttaatttattacttcataaaatttttttt : 150  
 1529 NC\_048461. : tttagaaagaaattgtatttcttaatttattacttcataaaatttttttt : 145  
 1530 MK940826.1 : tttagaaaaaaactgtatttcttaatttattacttcataaaatttttttt : 150  
 1531 MK940823.1 : tttagaaataaaattgtatttcttaatttattacttcataaaatttttttt : 135  
 1532 MK940824.1 : tttagaaataaaattgtatttcttaatttattacttcataaaatttttttt : 135  
 1533 NC\_035895. : tttagaaataaaattgtatttcttaatttattacttcataaaatttttttt : 135  
 1534 MK262729.1 : tttagaaataaaattgtatttcttaatttattacttcataaaatttttttt : 135  
 1535 NC\_050165. : tttagaaataaaabtgtatttcttaatttattacttcataaaatttttttt : 145  
 1536 NC\_048462. : tttagaaataaaabtgtatttcttaatttattacttcataaaatttttttt : 145  
 1537 JX088668.1 : tttagaaataaaabtgtatttcttaatttattacttcataaaatttttttt : 145  
 1538 TTAGAAA AAATGTATTCTTAATTATTACTTCATAAAATTATTATT  
 1539  
 1540 MK940825.1 : attactctatatctatat----- : 168  
 1541 NC\_048461. : attactctatatctatat----- : 163  
 1542 MK940826.1 : attactctatatctatatatctataaaatataaaggtaaaatttttactc : 200  
 1543 MK940823.1 : attactctatatctatat----- : 153  
 1544 MK940824.1 : attactctatatctatat----- : 153  
 1545 NC\_035895. : attactctatatctatat----- : 153  
 1546 MK262729.1 : attactctatatctatat----- : 153  
 1547 NC\_050165. : attactc-----tat----- : 155  
 1548 NC\_048462. : attactc-----tat----- : 155  
 1549 JX088668.1 : attactctatatctatat----- : 163  
 1550 ATTACTCtatatctatTAT  
 1551  
 1552 MK940825.1 : -----atctataaaatatacaagtaaaaatttttacttaa----- : 202  
 1553 NC\_048461. : -----atctataaaatataaagtaaaaatttttacttaa----- : 197  
 1554 MK940826.1 : taaatcttaatctataaaatataaaggtaaaaatttttacttaa----- : 243  
 1555 MK940823.1 : -----atctataaaatataaaggtaaaaatttttacttaatcttaat : 194  
 1556 MK940824.1 : -----atctataaaatataaaggtaaaaatttttacttaa----- : 187  
 1557 NC\_035895. : -----atctataaaatataaaggtaaaaatttttacttaa----- : 187  
 1558 MK262729.1 : -----atctataaaatataaaggtaaaaatttttacttaa----- : 187  
 1559 NC\_050165. : -----atctataaaatataaaggtaaaaatttttacttaa----- : 189  
 1560 NC\_048462. : -----atctataaaatataaaggtaaaaatttttacttaa----- : 189  
 1561 JX088668.1 : -----atctataaaatataaaggtaaaaatttttacttaa----- : 197  
 1562 ATCTATAAAATAAAAGTAAATTCTAA  
 1563  
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1565 MK940825.1 : -tcttaattacattaattttattatcttattacattaa--ttaattatt : 249  
 1566 NC\_048461. : -tctta-----attacattaa-----tatt : 216  
 1567 MK940826.1 : -tcttaattac-----attacattaaatattaattatt : 274  
 1568 MK940823.1 : ttcttaattac-----attacattaa-----tatt : 219  
 1569 MK940824.1 : -tcttaattac-----attacattaaatattaattatt : 218  
 1570 NC\_035895. : -tcttaattac-----attacattaaatattaattatt : 218  
 1571 MK262729.1 : -tcttaattac-----attacattaaatattaattatt : 218  
 1572 NC\_050165. : -tcttaattac-----attacattaa-----tatt : 213  
 1573 NC\_048462. : -tcttaattac-----attacattaa-----tatt : 213  
 1574 JX088668.1 : -tctta-----attacattaa-----tatt : 216  
 1575 TCTTAattac ATTACATTAATATT  
 1576  
 1577 MK940825.1 : aattaaagaaatttaataat--aaataagaatttaatgataatgataattg : 297  
 1578 NC\_048461. : aattatttaatttaat-----aaataagaatt-----tcatgataattg : 254  
 1579 MK940826.1 : aattaaagaaatttaat-----aaataagaatt-----tcatgataattg : 312  
 1580 MK940823.1 : aatttaataatttaataaaaaaaataagaatt-----tcatgataattg : 263  
 1581 MK940824.1 : aatttaataatttaataaaaaaaataagaatt-----tcatgataattg : 262  
 1582 NC\_035895. : aatttaataatttaataaaaaaaataagaatt-----tcatgataattg : 262  
 1583 MK262729.1 : aatttaataatttaataaaaaaaataagaatt-----tcatgataattg : 262  
 1584 NC\_050165. : aatttaataatttaat-----aaataagaatt-----tcatgataattg : 251  
 1585 NC\_048462. : aatttaataatttaat-----aaataagaatt-----tcatgataattg : 251  
 1586 JX088668.1 : aattatttaatttaat-----aaataagaatt-----tcatgataattg : 254  
 1587 AATTAAattTAATTTAAT AAATAAGAATT TcATGATAATTG  
 1588  
 1589  
 1590 MK940825.1 : caacgaaaatttttagaaaattctatttctatgttagtcactttatttat : 347  
 1591 NC\_048461. : caacgaaaatttttagaaaattctatttctatgttagtcactttatttat : 304  
 1592 MK940826.1 : caacgaaaatttttagaaaatttatatttctatgttagtcactttatttat : 362  
 1593 MK940823.1 : caacgaaaatttttagaaaattctatttctatgttagtcactttatttat : 313  
 1594 MK940824.1 : caacgaaaatttttagaaaattctatttctatgttagtcactttatttat : 312  
 1595 NC\_035895. : caacgaaaatttttagaaaattctatttctatgttagtcactttatttat : 312  
 1596 MK262729.1 : caacgaaaatttttagaaaattctatttctatgttagtcactttatttat : 312  
 1597 NC\_050165. : caacgaaaatttttagaaaattctatttctatgttagtcactttatttat : 301  
 1598 NC\_048462. : caacgaaaatttttagaaaattctatttctatgttagtcactttatttat : 301  
 1599 JX088668.1 : caacgaaaatttttagaaaattctatttctatgttagtcactttatttat : 304  
 1600 CAACGAAATTTTTAgAAAATTTCATTTCTAGTTAGTCACTTTATTTcAT  
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 1603 MK940825.1 : ttatTTTgtttcttcttcagctcagatcgaaaataaagagttaa : 397  
 1604 NC\_048461. : ttatTTTgtttcttcttcagctcagatcgaaaataaagagttaa : 354  
 1605 MK940826.1 : ttatTTTgtttcttcttcagctcagatcgaaaataaagagttaa : 412  
 1606 MK940823.1 : ttatTTTgtttcttcttcagctcagatcgaaaataaagagttaa : 363  
 1607 MK940824.1 : ttatTTTgtttcttcttcagctcagatcgaaaataaagagttaa : 362  
 1608 NC\_035895. : ttatTTTgtttcttcttcagctcagatcgaaaataaagagttaa : 362  
 1609 MK262729.1 : ttatTTTgtttcttcttcagctcagatcgaaaataaagagttaa : 362  
 1610 NC\_050165. : ttatTTTgtttcttcttcagctcagatcgaaaataaagagttaa : 351  
 1611 NC\_048462. : ttatTTTgtttcttcttcagctcagatcgaaaataaagagttaa : 351  
 1612 JX088668.1 : ttatTTTgtttcttcttcagctcagatcgaaaataaagagttaa : 354  
 1613 TTATTTGTCTCTCTCTAGCTCAGATCGAAAATAAAGAGTTAA  
 1614  
 1615  
 1616 MK940825.1 : gccgataaaaaat-gaaaaaggggtttatggctaagggttaag : 438  
 1617 NC\_048461. : gccgataaaaaat-taaaaggggtttatggctaagggttaag : 395  
 1618 MK940826.1 : gccgataaaaaataaaaaaggggtttatggctaagggttaag : 455  
 1619 MK940823.1 : gccgataaaaaat-taaaaggggtttatggctaagggttaag : 404  
 1620 MK940824.1 : gccgataaaaaat-taaaaggggtttatggctaagggttaag : 403  
 1621 NC\_035895. : gccgataaaaaat-taaaaggggtttatggctaagggttaag : 403  
 1622 MK262729.1 : gccgataaaaaat-taaaaggggtttatggctaagggttaag : 403  
 1623 NC\_050165. : gccgataaaaaat-taaaaggggtttatggctaagggttaag : 392  
 1624 NC\_048462. : gccgataaaaaat-taaaaggggtttatggctaagggttaag : 392  
 1625 JX088668.1 : gccgataaaaaat-taaaaggggtttatggctaagggttaag : 395  
 1626 GCCGATACAAAAT t AAAGGGGGTTATGGCTAAGGGTAAG  
 1627