

Supplementary Materials

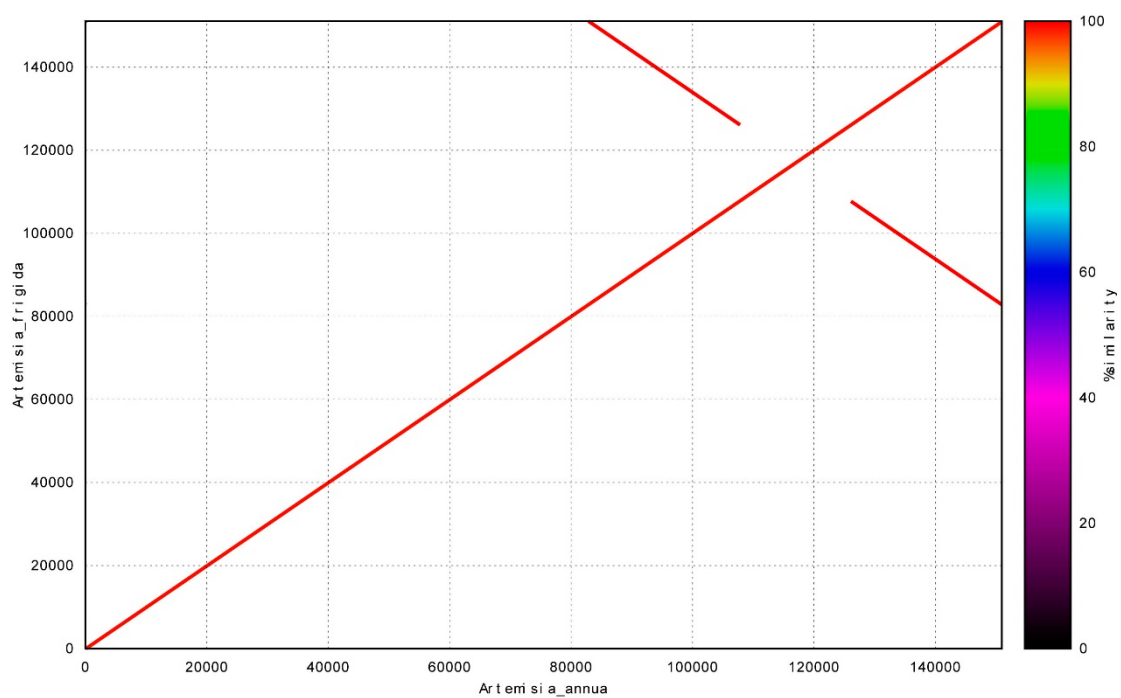


Figure S1. Chloroplast genomic alignment between *Artemisia annua* and *Artemisia frigida*.

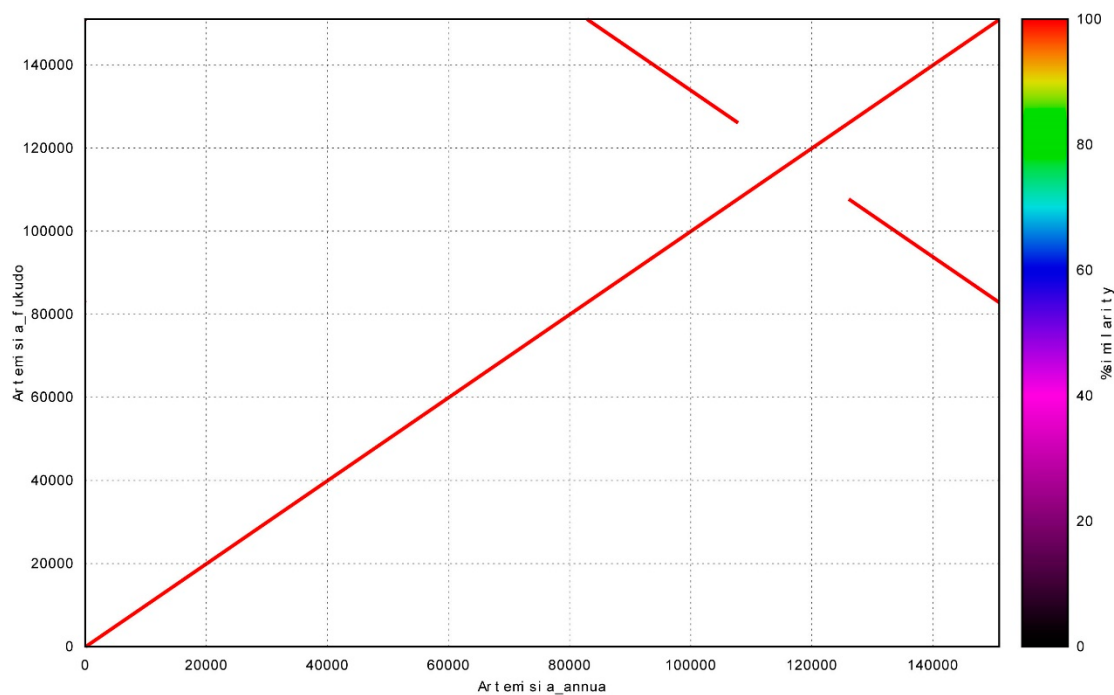
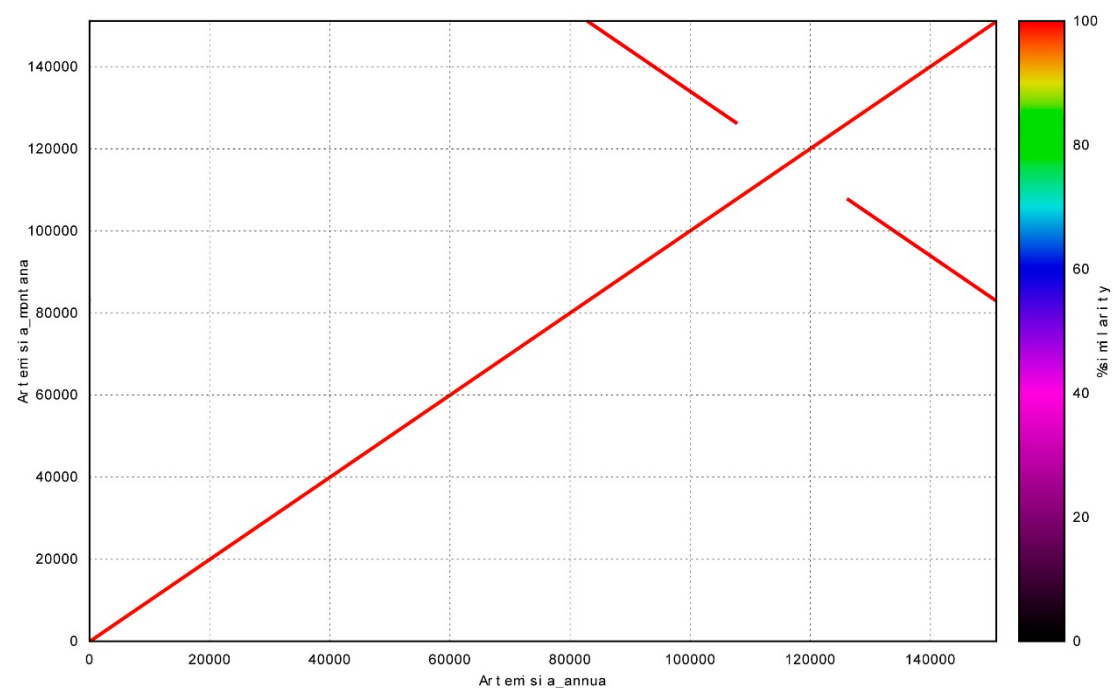


Figure S2. Chloroplast genomic alignment between *Artemisia annua* and *Artemisia fukudo*.



FigureS3. Chloroplast genomic alignment between *Artemisia annua* and *Artemisia montana*.

Table S1. Gene contents in *Artemisia annua* chloroplast genome (113 genes).

Category for genes	Group of genes	Name of genes
Self-replication	rRNA genes	<i>rrn16^a, rrn23^a, rrn5^a, rrn4.5^a</i>
	tRNA genes	<i>trnH-GUG, trnK-UUU*, trnQ-UUG, trnS-GCU, trnC-GCA, trnD-GUC, trnY-GUA, trnE-UUC, trnR-UCU, trnG-UCC*, trnT-GGU, trnS-UGA, trnG-GCC, trnM-CAU^a, trnS-GGA, trnT-UGU, trnL-UAA*, trnF-GAA, trnV-UAC*, trnW-CCA, trnP-UGG, trnI-CAU^a, trnL-CAA^a, trnV-GAC^a, trnI-GAU*,^a trnA-UGC*,^a trnR-ACG^a, trnN-GUU^a, trnL-UAG</i>
	Small subunit of ribosome	<i>rps4, rps14, rps18, rps2, rps12**^a, rps11, rps8, rps3, rps19, rps7^a, rps15, rps16*</i>
	Large subunit of ribosome	<i>rpl33, rpl20, rpl36, rpl14, rpl16*, rpl22, rpl2*^a, rpl23^a, rpl32</i>
	DNA dependent RNA polymerase	<i>rpoB, rpoC1*, rpoC2, rpoA</i>
Genes for photosynthesis	Translational initiation factor	<i>infA</i>
	Subunits of NADH-dehydrogenase	<i>ndhA*, ndhB*^a, ndhC, ndhD, ndhE, ndhF, ndhG, ndhH, ndhI, ndhJ, ndhK, psbA, psbB, psbC, psbI, psbJ, ycf3**, ycf4</i>
	Subunits of photosystem I	<i>psbA, psbB, psbC, psbD, psbE, psbF, psbH, psbI, psbJ, psbK, psbL, psbM, psbN, psbT, psbZ</i>
	Subunits of photosystem II	<i>petN, petA, petL, petG, petB*, petD, atpI, atpH, atpF*, atpA, atpE, atpB</i>
	Subunits of cytochrome b/f complex	<i>rbcL</i>
	Subunits of ATP synthase	
	Large subunit of rubisco	
	Other genes	
Other genes	Maturase	<i>matK</i>
	Protease	<i>clpP**</i>
	Envelope membrane protein	<i>cemA</i>
	Subunit of Acetyl-CoA-carboxylase	<i>accD, ccsA</i>
	C-type cytochrome synthesis gene	
Genes of unknown function	Open Reading Frames (ORF, ycf)	<i>ycf1, ycf15^a, ycf2^a</i>
	Pseudo genes	<i>ycf1</i>

* Gene with one intron, ** Gene with two introns, ^a Gene with two copies.

Table S2. Size comparison of *Artemisia annua* chloroplast genomic regions with three other Asteraceae chloroplast genomes.

Species	Length (bp)			
	Total genome	LSC	SSC	IR
<i>Artemisia annua</i>	150,955	82,988	18,267	24,850
<i>Artemisia fukudo</i>	151,011	82,751	18,348	24,956
<i>Lactuca sativa</i>	152,772	84,105	18,599	25,034
<i>Jacobaea vulgaris</i>	150,689	82,855	18,276	24,779
<i>Cynara cornigera</i>	152,550	83,580	18,660	25,155

LSC, Large Single Copy; SSC, Small Single Copy; IR, Inverted Repeat.

Table S3. Size comparison of *Artemisia annua* chloroplast genomic regions with three other *Artemisia* chloroplast genomes.

Species	Length (bp)			
	Total genome	LSC	SSC	IR
<i>Artemisia annua</i>	150,955	82,988	18,267	24,850
<i>Artemisia fukudo</i>	151,011	82,751	18,348	24,956
<i>Artemisia frigida</i>	151,0n76	82,740	18,392	24,972
<i>Artemisia montana</i>	151,130	82,873	18,339	24,959

LSC, Large Single Copy; SSC, Small Single Copy; IR, Inverted Repeat.

Table S4. Primers used for assembly validation.

Primer	Sequence (5'>3')	Amplicon Size (bp)
LSC_IRa	TCAATTACTCTTCGCGCTTTGT CGGACAAGTGGGGAATGTTG	753
IRa_SSC	CGATCTATTATGCGCCTCTGC GGGTGGGCGTATTCCTCTT	479
SSC_IRb	ATCTCGCTAACATTGAACTTGGT AATCAATTCGGTCGTTGTGGT	401
IRb_LSC	CACTTGGAAGGGTGGACAA CGTCGTTCGCCCAAATGAAA	525