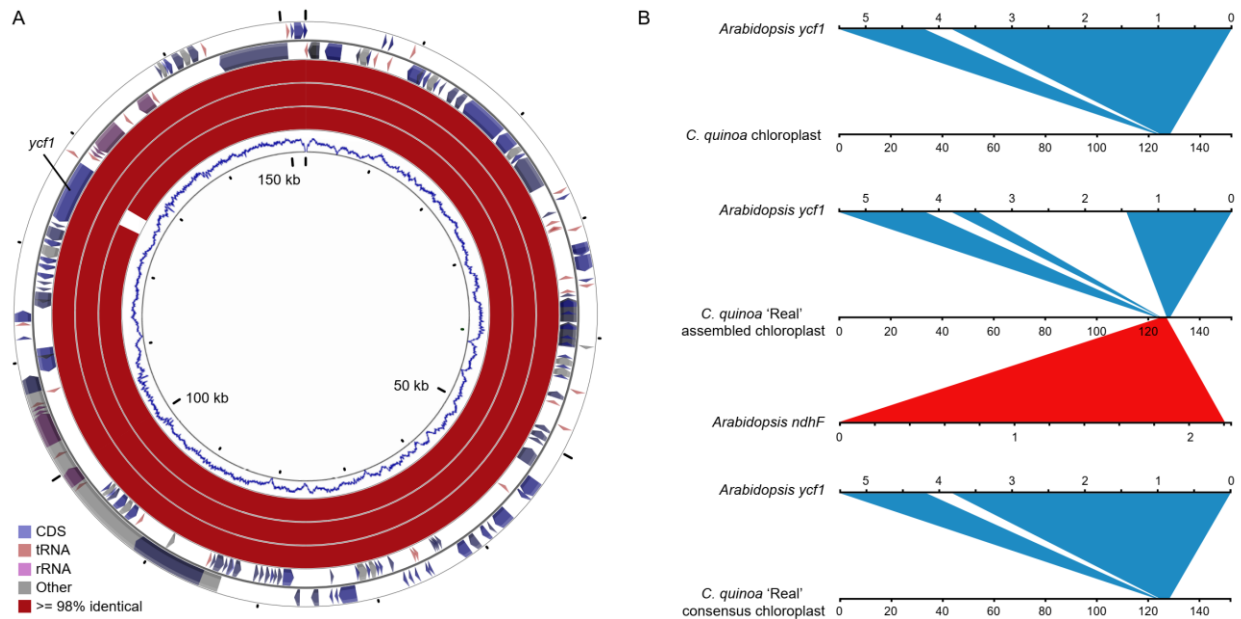


Mitochondrial and chloroplast genomes provide insights into the evolutionary origins of quinoa (*Chenopodium quinoa* Willd.)

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Supplementary Figure 1. Comparison of quinoa chloroplast assemblies. (A) Circular representation of BLAST sequence similarity of previously reported complete chloroplast assemblies relative to that of PI 614886. From the outside, tracks represent annotated genes in PI 614886 in the forward and reverse directions, similarity of PI 510550, similarity of PI 433232, similarity of 'Real', and sequencing read depth of the re-sequenced 'Real' accession. (B) BLAST sequence similarity of the chloroplasts of the PI 614886 assembly, the 'Real' assembly, and the 'Real' consensus sequence based on re-sequencing data, compared to *Arabidopsis ycf1* (blue) and *Arabidopsis ndhF* (red).



Supplementary Table S1. Species used in this study.

Species	Accession	Origin	Type	Ecotype	Ploidy	Source
<i>C. quinoa</i>	0654	Peru	Highland	Altiplano	2n=4x=36	CIP-FAO
<i>C. quinoa</i>	Cherry Vanilla	Oregon, US	Coastal	Coastal	2n=4x=36	Wild Garden Seed
<i>C. quinoa</i>	Chucapaca	Bolivia	Highland	Altiplano	2n=4x=36	CIP-FAO
<i>C. quinoa</i>	CICA-17	Peru	Highland	Andean Valley	2n=4x=36	CIP-FAO
<i>C. quinoa</i>	G-205-95DK	Denmark	Coastal	Coastal	2n=4x=36	CIP-FAO
<i>C. quinoa</i>	Ku-2	Chile	Coastal	Coastal	2n=4x=36	CIP-FAO
<i>C. quinoa</i>	Kurmi	Bolivia	Highland	Altiplano	2n=4x=36	PROINPA
<i>C. quinoa</i>	Ollague	Chile	Highland	Salares	2n=4x=36	CIP-FAO

<i>C. quinoa</i>	Pasankalla	Peru	Highland	Andean Valley	$2n=4x=36$	BYU Collection
<i>C. quinoa</i>	PI 614886	Chile	Coastal	Coastal	$2n=4x=36$	USDA-NPGS
<i>C. quinoa</i>	PI 634921	Chile	Coastal	Coastal	$2n=4x=36$	USDA-NPGS
<i>C. quinoa</i>	Real	Bolivia	Highland	Salares	$2n=4x=36$	CIP-FAO
<i>C. quinoa</i>	Regalona	Chile	Coastal	Coastal	$2n=4x=36$	Semillas Baer
<i>C. quinoa</i>	Salcedo INIA	Peru	Highland	Altiplano	$2n=4x=36$	CIP-FAO
<i>C. berlandieri</i> subsp. <i>nuttalliae</i>	PI 568156	Mexico		Cultivated (huauzontle)	$2n=4x=36$	USDA-NPGS
<i>C. berlandieri</i> var. <i>boscianum</i>	BYU 937	Texas, US		Wild/weedy	$2n=4x=36$	BYU Collection
<i>C. berlandieri</i> var. <i>macrocalycium</i>	PI 666279	Maine, US		Wild/weedy	$2n=4x=36$	USDA-NPGS
<i>C. berlandieri</i> var. <i>sinuatum</i>	Ames 33013	Arizona, US		Wild/weedy	$2n=4x=36$	USDA-NPGS
<i>C. berlandieri</i> var. <i>zschackei</i>	BYU 1314	Utah, US		Wild/weedy	$2n=4x=36$	BYU Collection
<i>C. hircinum</i>	BYU 1101	Argentina		Weedy (pampas)	$2n=4x=36$	Daniel Bertero
<i>C. hircinum</i>	BYU 566	Chile		Weedy (desert valley)	$2n=4x=36$	Francisco Fuentes
<i>C. pallidicaule</i>	Ames 13221	Bolivia		Cultivated (kaniwa)	$2n=2x=18$	USDA-NPGS
<i>C. suecicum</i>	328/6	Czech Republic		Weedy	$2n=2x=18$	Helena Storchova

Supplementary Table S2. SSRs in the mitochondrial genomes of *Chenopodium* species.

Species	Accession	Mono	Di	Tri	Tetra	Penta	Hexa	Total
<i>C. quinoa</i>	0654	7	4	8	25	4	0	48
<i>C. quinoa</i>	Cherry Vanilla	7	4	8	25	4	0	48
<i>C. quinoa</i>	Chucapaca	9	4	8	25	4	0	50
<i>C. quinoa</i>	CICA-17	7	4	8	25	4	0	48
<i>C. quinoa</i>	G-205-95DK	8	4	8	25	4	0	49
<i>C. quinoa</i>	Ku-2	8	4	8	25	4	0	49
<i>C. quinoa</i>	Kurmi	7	4	8	25	4	0	48
<i>C. quinoa</i>	Ollague	7	4	8	25	4	0	48
<i>C. quinoa</i>	Pasankalla	8	4	8	25	4	0	49
<i>C. quinoa</i>	PI 614886	9	4	8	25	4	0	50
<i>C. quinoa</i>	PI 634921	9	4	8	25	4	0	50
<i>C. quinoa</i>	Real	7	4	8	25	4	0	48
<i>C. quinoa</i>	Regalona	8	4	8	25	4	0	49
<i>C. quinoa</i>	Salcedo INIA	7	4	8	25	4	0	48
<i>C. berlandieri</i> subsp. <i>nuttalliae</i>	PI 568156	7	4	8	25	3	0	47

<i>C. berlandieri</i> var. <i>boscianum</i>	BYU 937	7	4	7	24	4	0	46
<i>C. berlandieri</i> var. <i>macrocalycium</i>	PI 666279	7	4	8	25	4	0	48
<i>C. berlandieri</i> var. <i>sinuatum</i>	Ames 33013	9	4	7	25	4	0	49
<i>C. berlandieri</i> var. <i>zschackei</i>	BYU 1314	6	4	8	25	4	0	47
<i>C. hircinum</i>	BYU 1101	8	3	8	25	4	0	48
<i>C. hircinum</i>	BYU 566	8	4	8	25	4	0	49
<i>C. pallidicaule</i>	Ames 13221	8	4	5	21	4	0	42
<i>C. suecicum</i>	328/6	11	5	6	17	6	0	45

Supplementary Table S3. SSRs in the chloroplast genomes of *Chenopodium* species.

Species	Accession	Mono	Di	Tri	Tetra	Penta	Hexa	Total
<i>C. quinoa</i>	0654	5	3	1	6	1	0	16
<i>C. quinoa</i>	Cherry Vanilla	5	2	1	6	1	0	15
<i>C. quinoa</i>	Chucapaca	4	3	1	6	1	0	15
<i>C. quinoa</i>	CICA-17	5	3	1	6	1	0	16
<i>C. quinoa</i>	G-205-95DK	5	3	1	6	1	0	16
<i>C. quinoa</i>	Ku-2	5	3	1	6	1	0	16
<i>C. quinoa</i>	Kurmi	5	3	1	6	1	0	16
<i>C. quinoa</i>	Ollague	5	3	1	6	1	0	16
<i>C. quinoa</i>	Pasankalla	5	3	1	6	1	0	16
<i>C. quinoa</i>	PI 614886	4	2	1	6	1	0	14
<i>C. quinoa</i>	PI 634921	4	1	1	6	1	0	13
<i>C. quinoa</i>	Real	5	3	1	6	1	0	16
<i>C. quinoa</i>	Regalona	5	3	1	6	1	0	16
<i>C. quinoa</i>	Salcedo INIA	5	3	1	6	1	0	16
<i>C. berlandieri</i> subsp. <i>nuttalliae</i>	PI 568156	5	3	1	6	1	0	16
<i>C. berlandieri</i> var. <i>boscianum</i>	BYU 937	5	1	1	6	1	1	15
<i>C. berlandieri</i> var. <i>macrocalycium</i>	PI 666279	3	3	1	6	1	0	14
<i>C. berlandieri</i> var. <i>sinuatum</i>	Ames 33013	4	3	1	6	1	0	15
<i>C. berlandieri</i> var. <i>zschackei</i>	BYU 1314	4	3	1	6	0	2	16
<i>C. hircinum</i>	BYU 1101	4	3	1	6	1	0	15
<i>C. hircinum</i>	BYU 566	4	3	1	6	1	0	15
<i>C. pallidicaule</i>	Ames 13221	6	1	1	6	0	0	14
<i>C. suecicum</i>	328/6	7	1	1	7	0	0	16

