

Supplemental data for:

Estifanos, E., Feyissa, T., Tesfaye, K., Lencho, A., Eynck, C. (2025). Morphological and biochemical characterization of Ethiopian mustard (*Brassica carinata* A. Braun) germplasm grown in Central Ethiopia. *Genetic Resources* 6 (11), 41–56. doi: [10.46265/genresj.ZFEE2261](https://doi.org/10.46265/genresj.ZFEE2261).

Supplemental Table 1. Passport data of the accessions used and pedigree information of the released varieties

Accession	Zone	Latitude	Longitude	Altitude (m)	Accession	Zone	Latitude	Longitude	Altitude (m)
17545	East Wollega	09-05-59-N	36-35-09-E	2181	24495	Horo Guduru	09-21-9 -N	37- 7-21-E	2264
17546	East Wollega	09-02-07-N	36-24-10-E	2056	202489	North Wello	11-49-59 -N	39- 14-60-E	1600
17547	East Wollega	09-21-35-N	36-23-38-E	1387	207923	Illubabor	08-20-00-N	35-21-00-E	1600
17548	East Wollega	09-09-12-N	36-28-03-E	1859	208403	East Gojam	10-40-00-N	38-10-00-E	2650
17562	West Wwolleaga	08-34-13-N	36-52-03-E	1612	208404	East Gojam	10-52-00-N	38-28-00-E	2650
19959	North Gondar	12-33-09-N	37-06-07-E	1984	208407	South Gondar	11-49-00-N	37-50-00-E	2650
20222	East Wellega	08-48-31-N	36-55-12-E	1597	208412	South Gondar	11-52-00-N	37-35-00-E	2530
20913	Sheka	07-15-67-N	03-23-25-E	1463	208413	South Gondar	11-45-00-N	37-35-00-E	2530
20914	Sheka	07-14-41-N	35-23-92-E	1322	208423	East Gojam	10-24-00-N	37-23-00-E	2400
21285	South Wello	10-47-00-N	38-37-00-E	2540	208588	West Harerge	09-12-00-N	40-36-00-E	1770
21310	South Wello	10-46-00-N	38-37-00-E	2540	208590	West Harerge	08-53-00-N	40-33-00-E	1770
21330	East Wollega	09-01-21-N	36-25-00-E	2110	208593	East Harerge	09-05-00-N	40-21-00-E	2200
21367	Keficho	07-12-00-N	36-17-00-E	1680	208597	East Harerge	09-27-00-N	41-50-00-E	2100
21373	Gurage	08-16-00-N	37-44-00-E	1770	208609	East Harerge	09-14-00-N	41-50-00-E	2500
21378	Kembata	07-21-00-N	37-47-00-E	2400	208612	East Harerge	09-15-00-N	41-32-00-E	2090
21383	Kembata	07-05-00-N	37-57-00-E	1900	209055	North Omo	37-14-00-N	05-60-00-E	1580
21384	North Omo	06-56-00-N	37-51-00-E	1900	212665	East Gojam	10-13-21-N	38-27-00-E	2540
23593	Metekel	10-35-54-N	35-39-46-E	2501	212899	Hadiya	37-44-00-N	07-13-00-E	2130
23597	Metekel	10-39-57-N	35-41-08-E	2484	212904	North Omo	37-14-00-N	05-60-00-E	2510
23602	Metekel	10-31-47-N	36-01-10-E	1480	215824	East Gojam	10-13-11-N	37-45-00-E	2340
24203	Agew Awi	10-56-14-N	36-32-37-E	1690	216845	Arssi	08-00-00-N	39-12-00-E	2340
24484	Horo Guduru	09-29-49-N	37-26-14-E	2396	216848	Arss	08-01-02-N	39-13-9-E	2550
24491	Horo Guduru	09-27-33-N	37-25-57-E	2295	Genotype Pedigree (source)		Year of release		
24493	Horo Guduru	09-24-12-N	37- 6-48-E	2275	Holetta-1	MS-YD X Zem-1-BCR-5		2005	
24494	Horo Guduru	09-22-32-N	37-5 -52-E	2373	S-67	Single plant selection		1976	

Supplemental Table 2. Loadings, eigenvalues, and variances of principal components with eigenvalues greater than one from PCA of 49 *Brassica carinata* accessions at Asela and Holeta

Attributes	PC1	PC2	PC3	PC4	PC5	PC6
LPL	0.9	-0.1	0.05	0.1	-0.06	-0.18
LL	0.94	0.05	0.03	0.11	-0.07	-0.05
LW	0.92	0.12	0.08	0.16	-0.02	-0.08
LPP	0.18	-0.45	0.19	0.03	-0.12	0.58
FD	0.89	-0.09	-0.17	0.06	-0.2	0.06
MD	0.88	-0.09	-0.16	0.17	-0.21	0.03
PH	0.39	0.69	-0.05	0.17	0	-0.1
PB	0.49	0.14	0.16	-0.71	-0.11	0.23
MRL	-0.41	0.52	0.39	0.08	0.19	-0.3
SPMR	-0.33	0.61	0.46	0.34	0.05	-0.02
SL	0.23	-0.25	-0.22	-0.54	0.58	-0.13
SW	0.19	0.12	-0.59	0.18	0.57	0.07
SPS	-0.08	-0.33	-0.11	0.45	0.38	0.52
TSW	0.58	0.48	-0.28	0.06	0.18	-0.18
SYppl	0.39	0.73	0.39	-0.09	0.23	0.26
SYpha	0.34	0.75	0.37	-0.16	0.18	0.27
OIL	-0.11	0.64	-0.59	-0.08	-0.18	0.06
PRO	0.52	-0.54	0.47	0.07	0.27	-0.12
TG	0.29	-0.72	0.34	0.02	0.16	-0.26
Eigenvalue	5.89	4.12	1.94	1.32	1.22	1.09
Variance (%)	31.03	21.66	10.23	6.94	6.43	5.75
Cumulative variance (%)	31.03	52.69	62.91	69.85	76.28	82.03

LPL; leaf petiole length (cm), LL; leaf length (cm), LW; leaf width (cm), LPP; leaves per plant, DF; days to flowering, DM; days to maturity, PH; plant height (cm), PB; primary branches per plant, MRL; main raceme length (cm), SPMR; number of siliques per main raceme, SL; silique length (mm), SW; silique width (mm), SPS; number of seeds per silique, TSW; thousand seed weight (gm), SYppl; seed yield per plant (gm), SYpha; seed yield per hectare (kg), OIL; oil content (%), PRO; protein content (%), TG; total glucosinolate content ($\mu\text{mol/g}$)

Supplemental Table 3. Cluster mean values and intra- and inter-cluster distances for 49 *Brassica carinata* accessions at Asela and Holeta

Attributes	Cluster mean		
	Cluster-1	Cluster-2	Cluster-3
LPL	11.9	14.6	7.5
LL	27.3	30.3	18.3
LW	11.8	12.8	8.1
LPP	91.7	101.8	91.0
FD	88.2	95.1	75.5
MD	161.8	170.3	150.1
PH	202.2	190.5	173.9
PB	14.9	15.2	10.7
MRL	5.6	5.1	5.5
SPMR	21.5	15.5	18.4
SL	28.8	30.7	27.4
SW	2.3	2.3	2.2
SPS	12.4	12.8	13.6
TSW	3.2	3.0	2.4
SYppl	4.0	3.0	2.2
SYpha	2615.4	2016.5	1528.8
OIL	41.6	39.7	40.2
PRO	27.4	28.9	26.8
TG	87.9	95.1	92.1
Average cluster distance			
Cluster-1	5.04	5.98	7.31
Cluster-2		4.92	7.36
Cluster-3			5.61

LPL; leaf petiole length (cm), LL; leaf length (cm), LW; leaf width (cm), LPP; leaves per plant, DF; days to flowering, DM; days to maturity, PH; plant height (cm), PB; primary branches per plant, MRL; main raceme length (cm), SPMR; number of siliques per main raceme, SL; silique length (mm), SW; silique width (mm), SPS; number of seeds per silique, TSW; thousand seed weight (gm), SYppl; seed yield per plant (gm), SYpha; seed yield per hectare (kg), OIL; oil content (%), PRO; protein content (%), TG; total glucosinolate content ($\mu\text{mol/g}$)

Supplemental Table 4. Mean performance evaluation results for 19 traits of 49 *Brassica carinata* accessions at Asela

Accession	LPL	LL	LW	LPP	FD	MD	PH	PB	MRL	SPMR	SL	SPS	TSW	SYppl	SYpha	TG
17545	12.3 ^{i-p}	36.0 ^{abc}	12.4 ^{a-c}	103.7 ^{c-k}	94.0 ^{b-f}	148.0 ^{b-j}	215.5 ^{ab}	20.3 ^a	5.8 ^{ab}	15.4 ^{c-m}	27.2 ^{ab}	10.7 ^{abc}	3.4 ^{a-d}	4.3 ^{a-i}	2857.5 ^{a-d}	98.2 ^{ab}
17546	16.8 ^{cde}	28.6 ^{a-e}	11.9 ^{a-f}	89.2 ^{k-r}	89.0 ^{b-i}	155.5 ^{a-j}	199.0 ^{abc}	18.2 ^{a-c}	5.6 ^{ab}	14.1 ^{g-m}	31.2 ^{ab}	11.1 ^{abc}	2.8 ^{a-d}	3.1 ^{i-r}	1856.3 ^{i-q}	100.2 ^{ab}
17547	12.7 ^{h-n}	26.7 ^{a-e}	10.5 ^{a-f}	79.7 ^{o-s}	88.0 ^{b-i}	141.5 ^{d-j}	210.5 ^{abc}	15.7 ^{a-h}	5.0 ^{ab}	12.6 ^{i-m}	36.7 ^{ab}	14.8 ^{abc}	2.8 ^{a-d}	2.9 ^{l-r}	1829.9 ^{j-q}	85.8 ^{ab}
17548	17.5 ^{bcd}	33.9 ^{abc}	11.8 ^{a-f}	96.1 ^{f-n}	92.5 ^{b-g}	161.0 ^{a-g}	203.5 ^{abc}	19.9 ^{ab}	6.1 ^{ab}	18.0 ^{d-m}	30.0 ^{ab}	12.2 ^{abc}	2.9 ^{a-d}	4.6 ^{a-d}	2503.8 ^{a-k}	108.0 ^{ab}
17562	13.9 ^{e-l}	29.0 ^{a-d}	11.8 ^{a-f}	81.5 ^{n-s}	78.5 ⁱ⁻ⁿ	140.0 ^{c-j}	204.0 ^{abc}	17.5 ^{a-f}	6.1 ^{ab}	20.0 ^{b-j}	27.8 ^{ab}	12.3 ^{abc}	2.9 ^{a-d}	4.4 ^{a-g}	2856.6 ^{a-d}	95.5 ^{ab}
19959	12.8 ^{h-n}	31.0 ^{a-d}	13.4 ^{a-d}	96.2 ^{f-n}	73.0 ^{k-p}	140.0 ^{c-j}	217.5 ^a	12.2 ^{d-i}	6.6 ^a	28.6 ^a	24.4 ^{ab}	10.3 ^{bc}	2.9 ^{a-d}	4.7 ^{abc}	2501.8 ^{a-k}	107.2 ^{ab}
20222	17.2 ^{bcd}	31.2 ^{a-d}	12.6 ^{a-e}	97.0 ^{f-n}	91.0 ^{b-h}	159.0 ^{a-h}	191.5 ^{abc}	13.3 ^{a-i}	5.3 ^{ab}	21.8 ^{a-f}	32.0 ^{ab}	10.6 ^{abc}	2.9 ^{a-d}	3.5 ^{e-o}	1947.2 ^{g-q}	105.5 ^{ab}
202489	4.9 ^u	9.0 ^e	5.8 ^f	118.3 ^{abc}	61.0 ^p	127.5 ^{ij}	162.0 ^c	8.2 ⁱ	6.2 ^{ab}	22.6 ^{a-c}	23.0 ^{ab}	14.5 ^{abc}	2.5 ^{a-d}	2.8 ^{l-r}	1861.1 ^{i-q}	108.2 ^{ab}
207923	20.2 ^{ab}	35.4 ^{abc}	14.2 ^{abc}	92.8 ^{i-q}	94.5 ^{b-e}	168.5 ^{a-e}	199.5 ^{abc}	13.4 ^{a-i}	4.9 ^{ab}	12.4 ^{j-m}	27.5 ^{ab}	12.8 ^{abc}	3.3 ^{a-d}	2.8 ^{m-r}	1751.0 ^{l-q}	101.0 ^{ab}
208403	11.8 ^{k-p}	24.9 ^{a-e}	10.1 ^{a-f}	75.1 ^{rs}	81.0 ^{g-l}	141.0 ^{d-j}	198.5 ^{abc}	10.4 ^{f-i}	5.7 ^{ab}	27.1 ^{ab}	27.0 ^{ab}	13.0 ^{abc}	2.9 ^{a-d}	3.9 ^{b-l}	2600.7 ^{a-h}	91.6 ^{ab}
208404	12.0 ^{j-p}	25.0 ^{a-e}	9.6 ^{a-f}	97.6 ^{f-m}	87.0 ^{c-j}	158.5 ^{a-h}	215.5 ^{ab}	12.8 ^{b-i}	5.8 ^{ab}	23.7 ^{a-d}	23.5 ^{ab}	12.0 ^{abc}	3.3 ^{a-d}	3.9 ^{b-m}	2568.1 ^{a-i}	86.5 ^{ab}
208407	9.5 ^{o-r}	20.8 ^{b-c}	8.4 ^{c-f}	77.1 ^{qrs}	82.5 ^{e-k}	140.0 ^{c-j}	208.5 ^{abc}	15.1 ^{a-i}	6.4 ^{ab}	23.5 ^{a-d}	19.8 ^b	10.4 ^{abc}	2.7 ^{a-d}	3.5 ^{e-p}	2240.3 ^{b-n}	90.4 ^{ab}
208412	11.8 ^{k-p}	27.5 ^{a-e}	11.0 ^{a-f}	110.6 ^{a-f}	87.0 ^{c-j}	158.0 ^{a-h}	206.0 ^{abc}	12.0 ^{d-i}	6.0 ^{ab}	19.6 ^{b-k}	25.3 ^{ab}	13.4 ^{abc}	3.3 ^{a-d}	3.6 ^{c-o}	2331.6 ^{b-m}	88.4 ^{ab}
208413	12.4 ^{i-o}	26.7 ^{a-e}	10.1 ^{a-f}	97.7 ^{f-m}	80.5 ^{g-l}	161.0 ^{a-g}	201.0 ^{abc}	10.1 ^{ghi}	5.9 ^{ab}	13.6 ^{h-m}	26.7 ^{ab}	14.3 ^{abc}	2.8 ^{a-d}	2.3 ^{pqr}	1468.4 ^{opq}	100.4 ^{ab}
208423	11.8 ^{k-p}	24.1 ^{a-e}	10.0 ^{a-f}	93.3 ^{h-p}	83.5 ^{d-k}	140.0 ^{c-j}	200.0 ^{abc}	12.7 ^{b-i}	5.8 ^{ab}	21.5 ^{a-g}	22.9 ^{ab}	12.5 ^{abc}	3.4 ^{a-d}	4.1 ^{a-k}	2555.6 ^{a-j}	99.0 ^{ab}
208588	11.1 ^{l-r}	26.8 ^{a-e}	9.2 ^{b-f}	75.6 ^{rs}	80.0 ^{h-m}	139.0 ^{f-j}	199.5 ^{abc}	14.2 ^{a-i}	4.6 ^{ab}	18.9 ^{c-l}	23.0 ^{ab}	14.0 ^{abc}	2.2 ^{cd}	3.2 ^{h-r}	2144.1 ^{d-o}	95.4 ^{ab}
208590	12.1 ^{j-p}	25.2 ^{a-e}	9.7 ^{a-f}	118.0 ^{a-d}	83.0 ^{e-k}	139.5 ^{f-j}	183.0 ^{abc}	15.1 ^{a-i}	4.6 ^{ab}	16.9 ^{d-m}	27.8 ^{ab}	14.9 ^{abc}	2.4 ^{bcd}	3.3 ^{g-q}	2153.9 ^{c-o}	106.7 ^{ab}
208593	11.2 ^{l-r}	23.0 ^{a-e}	8.9 ^{b-f}	120.7 ^{ab}	94.0 ^{b-f}	159.0 ^{a-h}	174.5 ^{abc}	15.4 ^{a-i}	4.5 ^{ab}	12.6 ^{i-m}	25.8 ^{ab}	15.6 ^a	2.5 ^{a-d}	2.8 ^{l-r}	1774.7 ^{k-q}	108.7 ^{ab}
208597	15.7 ^{d-h}	33.2 ^{abc}	12.8 ^{a-e}	118.8 ^{abc}	99.0 ^{abc}	156.0 ^{a-i}	189.5 ^{abc}	15.6 ^{a-h}	4.8 ^{ab}	12.8 ^{i-m}	26.0 ^{ab}	13.1 ^{abc}	2.4 ^{bcd}	3.0 ^{k-r}	1584.7 ^{n-q}	101.6 ^{ab}
208609	15.3 ^{d-i}	40.7 ^a	15.0 ^{ab}	110.1 ^{a-f}	94.0 ^{b-f}	180.5 ^a	189.5 ^{abc}	15.0 ^{a-i}	5.4 ^{ab}	21.2 ^{a-h}	25.1 ^{ab}	11.7 ^{abc}	3.2 ^{a-d}	4.2 ^{a-i}	2656.4 ^{a-g}	106.8 ^{ab}
208612	15.5 ^{d-h}	32.9 ^{abc}	11.7 ^{a-f}	109.2 ^{a-h}	98.0 ^{abc}	162.0 ^{a-g}	188.5 ^{abc}	12.9 ^{b-i}	4.5 ^b	17.9 ^{d-m}	24.9 ^{ab}	13.2 ^{abc}	2.8 ^{a-d}	4.3 ^{a-h}	2849.2 ^{a-d}	100.7 ^{ab}
209055	18.9 ^{abc}	37.3 ^{ab}	12.9 ^{a-e}	117.5 ^{a-d}	91.0 ^{b-h}	160.0 ^{a-h}	208.5 ^{abc}	16.8 ^{a-g}	5.7 ^{ab}	12.6 ^{i-m}	29.6 ^{ab}	13.9 ^{abc}	3.5 ^{abc}	3.4 ^{f-p}	2259.1 ^{b-n}	105.1 ^{ab}
20913	13.9 ^{e-l}	28.9 ^{a-d}	11.9 ^{a-f}	92.0 ^{i-q}	89.0 ^{b-i}	140.0 ^{c-j}	198.0 ^{abc}	14.9 ^{a-i}	5.6 ^{ab}	18.2 ^{d-m}	34.9 ^{ab}	14.8 ^{abc}	2.8 ^{a-d}	3.8 ^{b-m}	2471.5 ^{a-l}	92.7 ^{ab}

Supplemental Table 4. Cont.

Accession	LPL	LL	LW	LPP	FD	MD	PH	PB	MRL	SPMR	SL	SPS	TSW	SYppl	SYpha	TG
20914	11.5 ^{l-q}	26.8 ^{a-e}	10.3 ^{a-f}	87.7 ^{l-r}	82.0 ^{f-k}	145.5 ^{c-j}	204.5 ^{abc}	14.4 ^{a-i}	5.5 ^{ab}	11.2 ^m	34.6 ^{ab}	12.6 ^{abc}	3.9 ^{ab}	2.9 ^{l-r}	1845.9 ^{i-q}	83.7 ^{ab}
212665	12.7 ^{h-n}	27.6 ^{a-e}	11.6 ^{a-f}	77.8 ^{p-s}	80.5 ^{g-l}	146.0 ^{c-j}	219.5 ^a	14.3 ^{a-i}	5.5 ^{ab}	16.1 ^{d-m}	25.3 ^{ab}	14.1 ^{abc}	3.6 ^{abc}	4.2 ^{a-i}	2765.2 ^{a-f}	83.2 ^b
21285	5.6 ^{tu}	12.9 ^{de}	5.8 ^f	105.2 ^{b-j}	64.0 ^{op}	127.0 ^j	162.0 ^c	8.4 ^{hi}	6.3 ^{ab}	20.1 ^{b-i}	33.4 ^{ab}	14.1 ^{abc}	1.9 ^d	2.2 ^{qr}	1262.1 ^q	102.2 ^{ab}
212899	18.8 ^{abc}	36.8 ^{abc}	12.7 ^{a-e}	115.5 ^{a-d}	96.5 ^{bc}	167.0 ^{a-f}	189.0 ^{abc}	12.5 ^{c-i}	4.5 ^b	11.9 ^{lm}	35.4 ^{ab}	13.4 ^{abc}	3.4 ^{a-d}	2.6 ^{o-r}	1715.5 ^{m-q}	113.4 ^{ab}
212904	15.6 ^{d-h}	34.1 ^{abc}	13.5 ^{a-d}	87.3 ^{l-r}	109.0 ^a	175.5 ^{ab}	182.5 ^{abc}	13.6 ^{a-i}	4.6 ^{ab}	18.0 ^{d-m}	28.7 ^{ab}	12.8 ^{abc}	2.7 ^{a-d}	3.5 ^{d-o}	2104.8 ^{e-p}	115.8 ^{ab}
21310	6.4 ^{stu}	17.7 ^{cde}	6.8 ^{ef}	67.0 ^s	67.0 ^{nop}	132.0 ^{hij}	203.5 ^{abc}	8.5 ^{hi}	6.4 ^{ab}	22.3 ^{a-e}	20.3 ^b	12.6 ^{abc}	2.3 ^{cd}	2.2 ^r	1394.6 ^{pq}	93.9 ^{ab}
21330	9.3 ^{p-s}	18.4 ^{b-e}	7.4 ^{def}	109.4 ^{a-g}	73.0 ^{k-p}	136.0 ^{g-j}	187.5 ^{abc}	12.9 ^{b-i}	5.7 ^{ab}	19.2 ^{c-l}	24.1 ^{ab}	11.8 ^{abc}	2.0 ^{cd}	2.5 ^{o-r}	1564.7 ^{n-q}	95.7 ^{ab}
21367	10.0 ^{n-r}	23.3 ^{a-e}	8.0 ^{c-f}	86.5 ^{l-r}	79.0 ^{h-n}	138.5 ^{f-j}	164.5 ^{bc}	12.5 ^{c-i}	5.3 ^{ab}	12.4 ^{j-m}	33.9 ^{ab}	13.5 ^{abc}	2.3 ^{bcd}	2.2 ^r	1381.0 ^{pq}	111.5 ^{ab}
21373	16.1 ^{c-f}	36.0 ^{abc}	12.5 ^{a-e}	99.5 ^{e-m}	90.0 ^{b-i}	152.5 ^{a-j}	220.5 ^a	14.9 ^{a-i}	6.3 ^{ab}	21.8 ^{a-f}	27.3 ^{ab}	14.2 ^{abc}	3.4 ^{a-d}	5.2 ^a	2485.0 ^{a-k}	98.0 ^{ab}
21378	14.8 ^{d-k}	25.8 ^{a-e}	11.0 ^{a-f}	102.1 ^{d-l}	87.5 ^{b-j}	153.5 ^{a-j}	207.5 ^{abc}	12.5 ^{c-i}	5.3 ^{ab}	26.2 ^{abc}	24.5 ^{ab}	15.1 ^{ab}	2.6 ^{a-d}	5.0 ^{ab}	2849.0 ^{a-d}	96.2 ^{ab}
21383	10.5 ^{m-r}	23.2 ^{a-e}	8.8 ^{b-f}	87.0 ^{l-r}	75.5 ^{j-o}	135.0 ^{g-j}	213.0 ^{abc}	19.7 ^{abc}	6.0 ^{ab}	19.0 ^{c-l}	30.7 ^{ab}	11.2 ^{abc}	2.9 ^{a-d}	4.4 ^{a-g}	2713.6 ^{a-f}	82.6 ^b
21384	16.6 ^{cde}	30.5 ^{a-d}	12.1 ^{a-f}	116.0 ^{a-d}	83.5 ^{d-k}	151.5 ^{b-j}	200.0 ^{abc}	18.5 ^{a-e}	5.4 ^{ab}	18.3 ^{d-m}	25.4 ^{ab}	11.9 ^{abc}	2.7 ^{a-d}	3.7 ^{c-n}	2398.9 ^{a-m}	95.8 ^{ab}
215824	16.7 ^{cde}	29.5 ^{a-d}	10.9 ^{a-f}	99.1 ^{f-m}	97.5 ^{abc}	169.0 ^{a-d}	202.5 ^{abc}	14.3 ^{a-i}	6.1 ^{ab}	16.2 ^{d-m}	25.1 ^{ab}	9.8 ^c	3.5 ^{abc}	2.9 ^{k-r}	1775.8 ^{k-q}	104.7 ^{ab}
216845	12.1 ^{j-p}	25.9 ^{a-e}	10.2 ^{a-f}	115.4 ^{a-e}	90.0 ^{b-i}	144.5 ^{c-j}	188.0 ^{abc}	19.2 ^{a-d}	5.1 ^{ab}	17.2 ^{d-m}	35.2 ^{ab}	14.4 ^{abc}	2.7 ^{a-d}	4.4 ^{a-g}	2876.3 ^{abc}	100.0 ^{ab}
216848	12.0 ^{j-p}	23.0 ^{a-e}	10.4 ^{a-f}	107.8 ^{a-i}	90.5 ^{b-i}	159.0 ^{a-h}	181.5 ^{abc}	15.9 ^{a-g}	5.1 ^{ab}	12.3 ^{klm}	38.6 ^a	12.7 ^{abc}	3.2 ^{a-d}	3.0 ^{j-r}	1901.9 ^{h-q}	95.3 ^{ab}
23593	11.9 ^{j-p}	30.5 ^{a-d}	10.8 ^{a-f}	116.0 ^{a-d}	96.5 ^{bc}	168.5 ^{a-e}	186.5 ^{abc}	18.4 ^{a-e}	5.0 ^{ab}	15.0 ^{e-m}	28.1 ^{ab}	12.0 ^{abc}	2.9 ^{a-d}	3.9 ^{b-l}	2611.7 ^{a-h}	112.7 ^{ab}
23597	14.9 ^{d-j}	31.6 ^{a-d}	12.7 ^{a-e}	109.7 ^{a-g}	98.5 ^{abc}	176.5 ^{ab}	192.5 ^{abc}	16.7 ^{a-g}	4.6 ^{ab}	14.5 ^{f-m}	26.5 ^{ab}	12.8 ^{abc}	2.5 ^{a-d}	2.6 ^{n-r}	2040.4 ^{f-p}	102.6 ^{ab}
23602	12.9 ^{g-n}	23.7 ^{a-e}	9.7 ^{a-f}	96.1 ^{f-n}	87.0 ^{c-j}	160.0 ^{a-h}	196.5 ^{abc}	14.3 ^{a-i}	6.0 ^{ab}	17.5 ^{d-m}	31.4 ^{ab}	11.3 ^{abc}	2.9 ^{a-d}	2.9 ^{k-r}	1909.7 ^{h-q}	105.0 ^{ab}
24203	15.7 ^{d-h}	32.4 ^{a-d}	11.6 ^{a-f}	92.7 ^{i-q}	90.5 ^{b-i}	171.0 ^{abc}	197.0 ^{abc}	20.3 ^a	5.3 ^{ab}	18.7 ^{c-m}	27.4 ^{ab}	10.9 ^{abc}	3.2 ^{a-d}	4.5 ^{a-f}	2946.6 ^{ab}	96.7 ^{ab}
24484	20.8 ^a	37.6 ^{ab}	12.5 ^{a-e}	119.3 ^{abc}	99.5 ^{ab}	173.0 ^{abc}	201.0 ^{abc}	11.4 ^{e-i}	4.6 ^{ab}	14.1 ^{g-m}	29.9 ^{ab}	11.6 ^{abc}	2.7 ^{a-d}	2.6 ^{n-r}	1462.6 ^{opq}	117.1 ^{ab}
24491	17.2 ^{bcd}	32.2 ^{a-d}	12.5 ^{a-e}	94.0 ^{g-o}	98.5 ^{abc}	176.0 ^{ab}	202.0 ^{abc}	13.0 ^{a-i}	5.5 ^{ab}	17.8 ^{d-m}	28.4 ^{ab}	13.8 ^{abc}	4.0 ^a	4.4 ^{a-g}	2452.9 ^{a-l}	116.9 ^{ab}
24493	21.7 ^a	37.7 ^{ab}	15.8 ^a	94.7 ^{f-o}	99.0 ^{abc}	172.5 ^{abc}	209.0 ^{abc}	15.0 ^{a-i}	5.6 ^{ab}	19.8 ^{b-k}	35.9 ^{ab}	13.2 ^{abc}	3.3 ^{a-d}	4.6 ^{a-e}	2806.1 ^{a-e}	123.2 ^a
24494	13.1 ^{f-m}	30.5 ^{a-d}	10.8 ^{a-f}	99.3 ^{f-m}	90.5 ^{b-i}	158.0 ^{a-h}	218.0 ^a	13.2 ^{a-i}	5.2 ^{ab}	19.0 ^{c-l}	32.2 ^{ab}	13.9 ^{abc}	3.3 ^{a-d}	4.3 ^{a-h}	2848.9 ^{a-d}	97.6 ^{ab}
24495	15.9 ^{c-g}	34.2 ^{abc}	13.5 ^{a-d}	91.0 ^{j-r}	95.5 ^{bcd}	169.0 ^{a-d}	189.0 ^{abc}	9.9 ^{ghi}	5.3 ^{ab}	23.6 ^{a-d}	29.1 ^{ab}	11.3 ^{abc}	4.0 ^a	4.1 ^{a-j}	2735.4 ^{a-f}	87.1 ^{ab}
H1	8.4 ^{rst}	21.3 ^{a-e}	8.9 ^{b-f}	123.1 ^a	69.0 ^{l-p}	135.0 ^{g-j}	203.0 ^{abc}	12.7 ^{b-i}	5.9 ^{ab}	23.2 ^{a-d}	29.0 ^{ab}	13.3 ^{abc}	2.8 ^{a-d}	3.7 ^{c-n}	2478.5 ^{a-l}	92.9 ^{ab}
S-67	8.7 ^{qrs}	22.2 ^{a-e}	9.0 ^{b-f}	85.3 ^{m-r}	68.0 ^{m-p}	135.0 ^{g-j}	201.5 ^{abc}	12.7 ^{b-i}	6.4 ^{ab}	28.6 ^a	33.7 ^{ab}	12.1 ^{abc}	3.0 ^{a-d}	4.6 ^{a-d}	3074.2 ^a	86.3 ^{ab}
Mean	13.5	28.2	10.9	99	86.7	153.1	197.7	14.3	5.5	18.4	28.5	12.8	2.9	3.6	2245.4	99.9
MSD (0.05)	3	19.6	6.4	16	12.2	28.8	51.7	7.4	2.1	7.7	18	5.2	1.5	1.1	731.6	39.9

LPL; leaf petiole length (cm), LL; leaf length (cm), LW; leaf width (cm), LPP; leaves per plant, DF; days to flowering, DM; days to maturity, PH; plant height (cm), PB; primary branches per plant, MRL; main raceme length (cm), SPMR; number of siliques per main raceme, SL; silique length (mm), SW; silique width (mm), SPS; number of seeds per silique, TSW; thousand seed weight (gm), SYppl; seed yield per plant (gm), SYpha; seed yield per hectare (kg), OIL; oil content (%), PRO; protein content (%), TG; total glucosinolate content ($\mu\text{mol/g}$), MSD; minimum significant difference. Letters indicate Tukey HSD groupings ($p \leq 0.05$); means sharing a letter are not significantly different.

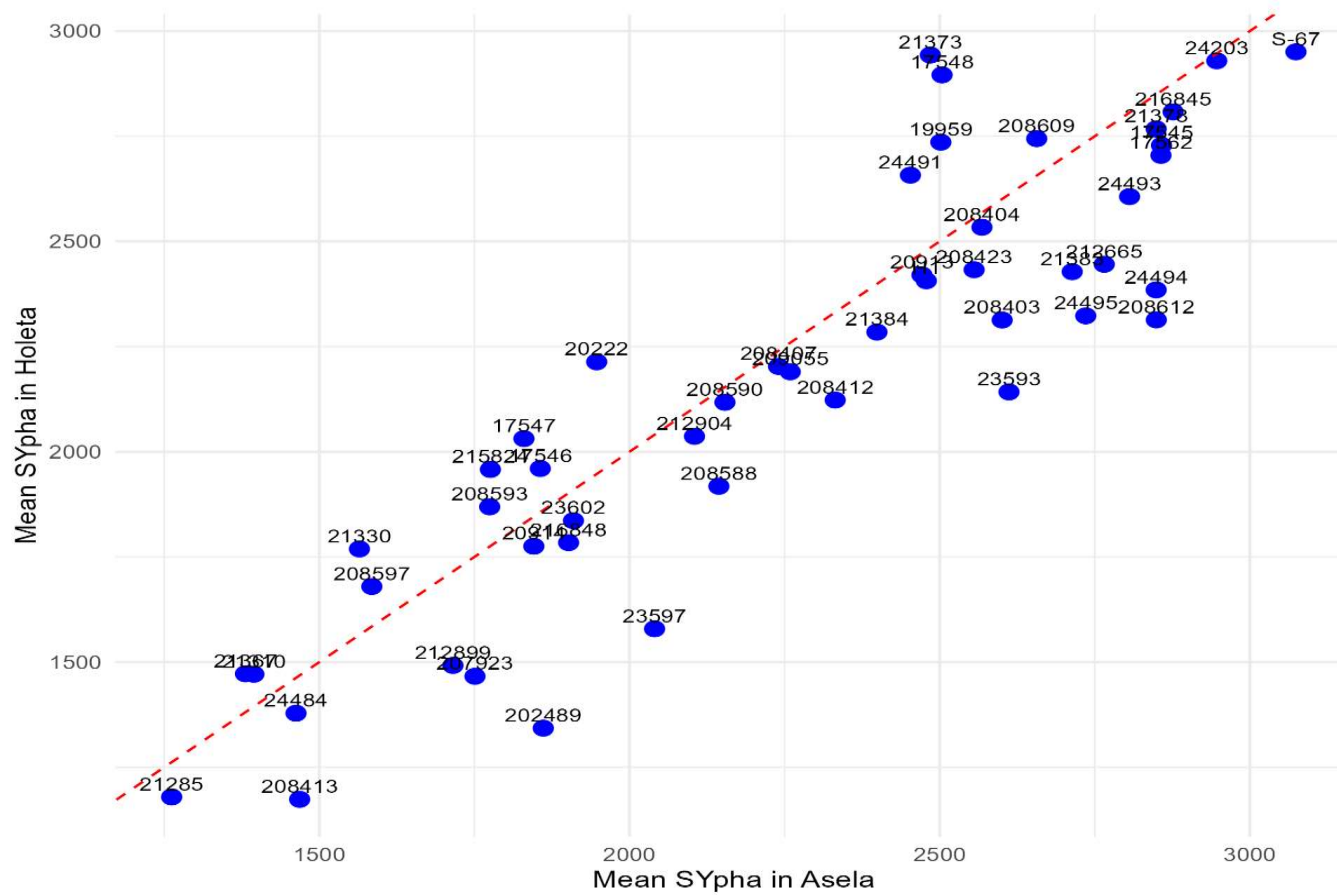
Supplemental Table 5. Mean performance evaluation results for 19 traits of 49 *Brassica carinata* accessions at Holeta

Accession	LPL	LL	LW	LPP	FD	MD	PH	PB	SPMR	SL	SW	SPS	TSW	SYppl	SYpha	OIL	PRO
17545	10.3 ^{j-p}	34.2 ^{ab}	13.6 ^{a-e}	96.2 ^{c-l}	102.5 ^{b-e}	182.0 ^{a-e}	198.0 ^a	20.3 ^a	14.1 ^{f-i}	30.7 ^{ab}	2.2 ^b	12.4 ^{a-d}	3.6 ^{abc}	3.5 ^{b-g}	2728.3 ^{a-e}	44.9 ^{a-d}	23.7 ^{ab}
17546	14.8 ^{b-f}	26.9 ^{a-d}	13.2 ^{a-e}	81.7 ^{k-q}	95.5 ^{c-k}	176.0 ^{a-g}	181.5 ^{abc}	18.2 ^{a-d}	12.8 ^{ghi}	34.7 ^{ab}	2.3 ^{ab}	10.1 ^{bcd}	3.1 ^{abc}	2.5 ^{h-q}	1960.2 ^{h-o}	45.5 ^{abc}	24.9 ^{ab}
17547	10.7 ^{h-o}	25.0 ^{a-d}	11.8 ^{a-g}	72.2 ^{pqr}	90.5 ^{g-m}	178.5 ^{a-g}	193.0 ^{abc}	15.7 ^{a-g}	11.4 ^{hi}	40.2 ^a	2.6 ^{ab}	15.6 ^a	3.0 ^{abc}	2.9 ^{d-n}	2031.2 ^{g-n}	39.9 ^{cd}	28.2 ^{ab}
17548	15.5 ^{b-e}	32.1 ^{ab}	13.1 ^{a-e}	88.6 ^{g-p}	96.0 ^{c-k}	180.0 ^{a-f}	186.0 ^{abc}	19.9 ^{ab}	16.8 ^{d-i}	33.5 ^{ab}	2.2 ^b	12.6 ^{a-d}	3.1 ^{abc}	3.8 ^{a-e}	2895.7 ^{ab}	37.4 ^d	31.5 ^a
17562	11.9 ^{f-n}	27.2 ^{abc}	13.1 ^{a-e}	74.0 ^{n-r}	85.5 ^{lmn}	171.0 ^{a-h}	186.5 ^{abc}	17.5 ^{a-e}	18.8 ^{c-i}	31.3 ^{ab}	2.1 ^b	9.8 ^{cd}	3.1 ^{abc}	3.8 ^{a-e}	2704.5 ^{a-f}	41.9 ^{a-d}	29.4 ^{ab}
19959	10.8 ^{h-o}	29.2 ^{abc}	14.6 ^{a-e}	88.7 ^{g-p}	85.5 ^{lmn}	172.5 ^{a-g}	200.0 ^a	12.2 ^{c-h}	32.8 ^a	27.9 ^{ab}	2.3 ^{ab}	12.9 ^{a-d}	3.1 ^{abc}	3.8 ^{a-e}	2735.8 ^{a-d}	40.9 ^{bcd}	27.9 ^{ab}
20222	15.2 ^{b-e}	29.4 ^{abc}	13.9 ^{a-e}	89.5 ^{f-o}	94.0 ^{d-l}	177.0 ^{a-g}	174.0 ^{abc}	13.3 ^{a-h}	20.6 ^{c-h}	35.5 ^{ab}	2.5 ^{ab}	9.5 ^d	3.1 ^{abc}	2.9 ^{d-m}	2213.7 ^{d-l}	44.5 ^{a-d}	26.7 ^{ab}
202489	2.6 ^u	7.0 ^d	5.3 ^g	113.3 ^{ab}	66.0 ^q	150.5 ^{hi}	114.0 ^d	8.0 ^h	23.9 ^{a-f}	23.5 ^{ab}	2.1 ^b	15.0 ^{abc}	2.5 ^{bc}	1.9 ^{m-q}	1343.0 ^{pqr}	42.6 ^{a-d}	26.7 ^{ab}
207923	18.0 ^{ab}	33.4 ^{ab}	15.9 ^{abc}	87.8 ^{h-p}	94.0 ^{d-l}	175.0 ^{a-g}	199.5 ^a	13.9 ^{a-h}	13.7 ^{ghi}	28.0 ^{ab}	2.4 ^{ab}	12.4 ^{a-d}	3.3 ^{abc}	2.2 ^{k-q}	1466.3 ^{n-r}	42.6 ^{a-d}	27.9 ^{ab}
208403	9.6 ^{n-q}	22.9 ^{a-d}	11.8 ^{a-g}	70.1 ^{qr}	89.5 ^{i-m}	168.5 ^{a-i}	198.5 ^a	10.9 ^{d-h}	28.4 ^{abc}	27.5 ^{ab}	2.6 ^{ab}	11.3 ^{a-d}	2.9 ^{abc}	3.5 ^{b-h}	2313.1 ^{b-k}	44.2 ^{a-d}	25.2 ^{ab}
208404	9.8 ^{m-p}	23.0 ^{a-d}	11.3 ^{b-g}	92.6 ^{c-m}	93.5 ^{e-l}	179.0 ^{a-g}	215.5 ^a	13.3 ^{a-h}	25.0 ^{a-d}	24.0 ^{ab}	2.6 ^{ab}	13.0 ^{a-d}	3.3 ^{abc}	3.8 ^{a-e}	2533.6 ^{a-h}	45.5 ^{abc}	25.1 ^{ab}
208407	7.2 ^{p-s}	18.8 ^{a-d}	10.2 ^{c-g}	72.1 ^{pqr}	90.5 ^{g-m}	175.0 ^{a-g}	208.5 ^a	15.6 ^{a-g}	24.8 ^{a-e}	20.3 ^b	2.3 ^{ab}	11.2 ^{a-d}	2.7 ^{abc}	3.2 ^{c-k}	2202.7 ^{d-l}	44.2 ^{a-d}	25.8 ^{ab}
208412	9.6 ^{n-q}	25.5 ^{a-d}	12.8 ^{a-e}	105.6 ^{a-f}	90.5 ^{g-m}	173.5 ^{a-g}	206.0 ^a	12.5 ^{b-h}	20.9 ^{b-h}	25.8 ^{ab}	2.2 ^b	11.8 ^{a-d}	3.3 ^{abc}	3.0 ^{d-l}	2122.9 ^{f-m}	46.0 ^{abc}	23.7 ^{ab}
208413	10.2 ^{k-p}	24.7 ^{a-d}	11.9 ^{a-g}	92.7 ^{c-m}	88.5 ^{klm}	173.0 ^{a-g}	201.0 ^a	10.6 ^{c-h}	14.9 ^{e-i}	27.2 ^{ab}	2.4 ^{ab}	15.2 ^{ab}	2.8 ^{abc}	1.8 ^{opq}	1173.8 ^r	44.8 ^{a-d}	24.5 ^{ab}
208423	9.6 ^{n-q}	22.1 ^{a-d}	11.8 ^{a-g}	88.3 ^{h-p}	89.5 ^{i-m}	171.5 ^{a-g}	200.0 ^a	13.2 ^{a-h}	22.8 ^{a-g}	23.4 ^{ab}	2.5 ^{ab}	11.7 ^{a-d}	3.4 ^{abc}	3.4 ^{b-i}	2432.7 ^{a-i}	42.9 ^{a-d}	26.4 ^{ab}
208588	8.9 ^{n-r}	24.8 ^{a-d}	10.9 ^{c-g}	70.6 ^{qr}	90.0 ^{h-m}	175.0 ^{a-g}	199.5 ^a	14.7 ^{a-h}	20.1 ^{c-h}	23.5 ^{ab}	2.4 ^{ab}	14.7 ^{a-d}	2.2 ^c	2.8 ^{e-o}	1918.0 ^{i-p}	45.9 ^{abc}	23.1 ^{ab}
208590	9.8 ^{l-p}	23.2 ^{a-d}	11.4 ^{b-g}	113.0 ^{ab}	86.0 ^{lmn}	172.0 ^{a-g}	183.0 ^{abc}	15.6 ^{a-g}	18.1 ^{d-i}	28.3 ^{ab}	2.7 ^{ab}	14.6 ^{a-d}	2.4 ^c	3 ^{d-l}	2117.6 ^{f-m}	41.2 ^{bcd}	28.2 ^{ab}
208593	8.9 ^{n-r}	21.0 ^{a-d}	10.6 ^{c-g}	115.7 ^a	93.0 ^{f-l}	180.0 ^{a-f}	174.5 ^{abc}	15.9 ^{a-g}	13.8 ^{f-i}	26.3 ^{ab}	2.4 ^{ab}	13.4 ^{a-d}	2.5 ^{bc}	2.5 ^{g-q}	1869.1 ^{i-p}	43.2 ^{a-d}	25.6 ^{ab}
208597	13.4 ^{c-j}	31.2 ^{ab}	14.6 ^{a-e}	113.8 ^{ab}	99.5 ^{b-g}	186.0 ^{ab}	189.5 ^{abc}	16.1 ^{a-f}	14.1 ^{f-i}	26.5 ^{ab}	2.2 ^b	13.5 ^{a-d}	2.4 ^c	2.0 ^{l-q}	1679.7 ^{l-r}	42.7 ^{a-d}	27.3 ^{ab}
208609	13.1 ^{e-l}	38.2 ^a	18.0 ^{ab}	105.1 ^{a-g}	103.5 ^{bc}	188.5 ^a	189.5 ^{abc}	15.5 ^{a-h}	22.5 ^{b-g}	25.6 ^{ab}	2.5 ^{ab}	12.0 ^{a-d}	3.2 ^{abc}	3.9 ^{a-d}	2744.2 ^{a-d}	42.2 ^{a-d}	27.9 ^{ab}
208612	13.2 ^{c-k}	30.9 ^{abc}	13.4 ^{a-e}	104.2 ^{a-h}	97.5 ^{b-k}	181.0 ^{a-e}	188.5 ^{abc}	13.4 ^{a-h}	19.1 ^{c-i}	25.4 ^{ab}	2.5 ^{ab}	13.8 ^{a-d}	2.8 ^{abc}	2.9 ^{d-m}	2313.4 ^{b-k}	44.3 ^{a-d}	23.8 ^{ab}
209055	16.6 ^{abc}	34.6 ^{ab}	14.7 ^{a-e}	112.5 ^{abc}	96.5 ^{c-k}	178.0 ^{a-g}	208.5 ^a	17.3 ^{a-e}	13.9 ^{f-i}	30.1 ^{ab}	2.2 ^b	10.8 ^{a-d}	3.5 ^{abc}	3.2 ^{b-k}	2190.0 ^{d-l}	42.0 ^{a-d}	28.2 ^{ab}
20913	11.9 ^{f-n}	27.1 ^{abc}	13.2 ^{a-e}	84.5 ^{k-q}	94.0 ^{d-l}	176.0 ^{a-g}	180.5 ^{abc}	14.9 ^{a-h}	17.0 ^{d-i}	38.4 ^{ab}	2.5 ^{ab}	10.8 ^{a-d}	3.0 ^{abc}	3.7 ^{a-f}	2420.0 ^{a-j}	43.1 ^{a-d}	25.8 ^{ab}

Supplemental Table 5. Cont.

Accession	LPL	LL	LW	LPP	FD	MD	PH	PB	SPMR	SL	SW	SPS	TSW	SYppl	SYpha	OIL	PRO
20914	9.5 ^{n-q}	25.0 ^{a-d}	11.6 ^{b-g}	80.2 ^{l-q}	90.5 ^{g-m}	179.0 ^{a-g}	187.0 ^{abc}	14.4 ^{a-h}	9.9 ⁱ	38.1 ^{ab}	3.1 ^a	12.5 ^{a-d}	4.1 ^a	2.3 ^{i-q}	1775.4 ^{k-p}	42.7 ^{a-d}	26.8 ^{ab}
212665	10.4 ^{i-p}	25.6 ^{a-d}	13.3 ^{a-e}	72.8 ^{o-r}	89.0 ^{j-m}	174.5 ^{a-g}	219.5 ^a	14.8 ^{a-h}	17.4 ^{d-i}	25.8 ^{ab}	2.8 ^{ab}	13.9 ^{a-d}	3.6 ^{abc}	3.6 ^{a-f}	2445.6 ^{a-i}	48.4 ^{ab}	24.9 ^{ab}
21285	3.6 ^{tu}	11.2 ^{cd}	5.8 ^{fg}	97.7 ^{b-k}	69.5 ^{pq}	148.5 ⁱ	141.5 ^{cd}	8.4 ^{gh}	18.9 ^{c-i}	36.9 ^{ab}	2.4 ^{ab}	11.5 ^{a-d}	2.2 ^c	1.6 ^q	1179.6 ^{qr}	42.2 ^{a-d}	26.7 ^{ab}
212899	16.5 ^{a-d}	34.8 ^{ab}	14.4 ^{a-e}	110.5 ^{a-d}	99.5 ^{b-g}	184.5 ^{abc}	189.0 ^{abc}	13.0 ^{a-h}	13.1 ^{ghi}	35.9 ^{ab}	2.5 ^{ab}	15.1 ^{abc}	3.4 ^{abc}	2.2 ^{j-q}	1492.2 ^{n-r}	43.4 ^{a-d}	27.1 ^{ab}
212904	13.3 ^{d-k}	32.1 ^{ab}	15.2 ^{a-d}	82.3 ^{k-q}	114.5 ^a	185.5 ^{ab}	182.5 ^{abc}	14.1 ^{a-h}	19.2 ^{c-i}	29.2 ^{ab}	2.6 ^{ab}	13.7 ^{a-d}	2.7 ^{abc}	2.8 ^{d-n}	2036.7 ^{g-n}	43.4 ^{a-d}	26.9 ^{ab}
21310	4.4 ^{stu}	15.9 ^{bcd}	8.1 ^{efg}	59.5 ^r	74.5 ^{opq}	161.5 ^{e-i}	186.0 ^{abc}	8.5 ^{gh}	21.0 ^{b-h}	23.8 ^{ab}	2.2 ^b	13.7 ^{a-d}	2.5 ^{bc}	1.8 ^{n-q}	1471.2 ^{n-r}	41.0 ^{bcd}	27.3 ^{ab}
21330	7.3 ^{p-s}	16.6 ^{bcd}	8.7 ^{d-g}	101.9 ^{a-j}	83.0 ^{mno}	167.0 ^{b-i}	170.0 ^{abc}	12.9 ^{a-h}	18.0 ^{d-i}	27.6 ^{ab}	2.3 ^{ab}	12.4 ^{a-d}	2.3 ^c	2.1 ^{l-q}	1769.0 ^{k-q}	44.3 ^{a-d}	24.1 ^{ab}
21367	8.0 ^{o-r}	21.6 ^{a-d}	9.2 ^{c-g}	79.0 ^{m-q}	81.5 ^{mno}	165.5 ^{b-i}	143.0 ^{bcd}	12.5 ^{b-h}	11.1 ^{hi}	37.4 ^{ab}	2.4 ^{ab}	12.4 ^{a-d}	2.6 ^{abc}	1.6 ^{pq}	1472.2 ^{n-r}	42.8 ^{a-d}	25.1 ^{ab}
21373	14.1 ^{c-g}	34.2 ^{ab}	13.8 ^{a-e}	92.0 ^{e-m}	96.5 ^{c-k}	177.5 ^{a-g}	203.0 ^a	14.9 ^{a-h}	20.5 ^{c-h}	30.8 ^{ab}	2.5 ^{ab}	15.6 ^a	3.7 ^{abc}	4.7 ^a	2942.8 ^a	44.5 ^{a-d}	25.5 ^{ab}
21378	12.8 ^{c-m}	24.0 ^{a-d}	12.2 ^{a-f}	94.6 ^{d-m}	89.5 ^{i-m}	177.0 ^{a-g}	190.0 ^{abc}	12.5 ^{b-h}	25.0 ^{a-d}	28.0 ^{ab}	2.5 ^{ab}	12.9 ^{a-d}	2.9 ^{abc}	4.2 ^{abc}	2767.3 ^{a-d}	42.9 ^{a-d}	25.9 ^{ab}
21383	8.5 ^{o-r}	21.5 ^{a-d}	10.1 ^{c-g}	79.5 ^{l-q}	83.5 ^{mno}	160.0 ^{f-i}	195.5 ^{ab}	19.7 ^{abc}	17.7 ^{d-i}	34.2 ^{ab}	2.4 ^{ab}	11.1 ^{a-d}	3.2 ^{abc}	3.5 ^{b-h}	2427.9 ^{a-j}	45.5 ^{abc}	23.6 ^{ab}
21384	14.6 ^{c-f}	28.8 ^{abc}	13.3 ^{a-e}	108.5 ^{a-e}	90.5 ^{g-m}	164.0 ^{c-i}	182.5 ^{abc}	18.5 ^{abc}	17.0 ^{d-i}	28.9 ^{ab}	2.3 ^{ab}	14.4 ^{a-d}	2.9 ^{abc}	3.3 ^{b-j}	2284.4 ^{c-k}	44.1 ^{a-d}	25.1 ^{ab}
215824	14.4 ^{c-f}	27.5 ^{abc}	12.6 ^{a-e}	94.1 ^{d-m}	101.5 ^{b-f}	178.5 ^{a-g}	202.5 ^a	14.8 ^{a-h}	17.5 ^{d-i}	25.6 ^{ab}	2.1 ^b	10.7 ^{a-d}	3.5 ^{abc}	2.7 ^{f-p}	1957.9 ^{h-o}	45.6 ^{abc}	24.2 ^{ab}
216845	9.9 ^{l-p}	23.9 ^{a-d}	11.9 ^{a-g}	110.4 ^{a-d}	93.5 ^{c-l}	176.0 ^{a-g}	188.0 ^{abc}	19.8 ^{abc}	18.5 ^{c-i}	35.7 ^{ab}	2.3 ^{ab}	12.2 ^{a-d}	2.7 ^{abc}	4.3 ^{ab}	2807.8 ^{abc}	46.5 ^{abc}	27.3 ^{ab}
216848	9.8 ^{m-p}	21.0 ^{a-d}	12.2 ^{a-g}	102.8 ^{a-h}	98.0 ^{b-j}	181.5 ^{a-e}	181.5 ^{abc}	16.4 ^{a-f}	13.6 ^{ghi}	39.1 ^a	2.5 ^{ab}	12.8 ^{a-d}	3.2 ^{abc}	2.5 ^{g-q}	1784.0 ^{k-p}	43.4 ^{a-d}	28.8 ^{ab}
23593	9.9 ^{l-p}	28.8 ^{abc}	12.1 ^{a-g}	108.5 ^{a-e}	99.5 ^{b-g}	180.5 ^{a-f}	169.0 ^{abc}	18.4 ^{a-d}	13.8 ^{ghi}	31.6 ^{ab}	2.7 ^{ab}	13.5 ^{a-d}	3.2 ^{abc}	3.2 ^{c-k}	2142.2 ^{c-m}	43.4 ^{a-d}	25.9 ^{ab}
23597	12.9 ^{c-m}	30.0 ^{abc}	13.9 ^{a-e}	102.2 ^{a-i}	99.0 ^{b-h}	178.5 ^{a-g}	175.0 ^{abc}	16.7 ^{a-f}	13.2 ^{ghi}	30.0 ^{ab}	2.4 ^{ab}	12.3 ^{a-d}	2.8 ^{abc}	2.8 ^{e-o}	1579.2 ^{m-r}	48.4 ^{ab}	22.7 ^b
23602	10.9 ^{g-o}	22.0 ^{a-d}	10.9 ^{c-g}	88.6 ^{g-p}	88.5 ^{klm}	177.5 ^{a-g}	179.0 ^{abc}	14.3 ^{a-h}	16.2 ^{d-i}	34.9 ^{ab}	2.3 ^{ab}	11.4 ^{a-d}	3.2 ^{abc}	2.6 ^{f-p}	1836.2 ^{j-p}	44.5 ^{a-d}	26.4 ^{ab}
24203	13.7 ^{c-h}	30.7 ^{abc}	12.9 ^{a-e}	85.2 ^{j-q}	99.0 ^{b-h}	177.5 ^{a-g}	179.5 ^{abc}	20.3 ^a	17.5 ^{d-i}	30.9 ^{ab}	2.4 ^{ab}	10.9 ^{a-d}	3.5 ^{abc}	4.3 ^{ab}	2929.2 ^a	45.0 ^{a-d}	24.6 ^{ab}
24484	18.8 ^a	35.4 ^{ab}	13.0 ^{a-e}	111.8 ^{abc}	103.0 ^{bcd}	170.0 ^{a-h}	183.5 ^{abc}	9.4 ^{fgh}	12.1 ^{hi}	33.4 ^{ab}	2.7 ^{ab}	14.3 ^{a-d}	2.9 ^{abc}	1.6 ^{pq}	1378.6 ^{o-r}	45.0 ^{a-d}	26.0 ^{ab}
24491	15.0 ^{b-f}	30.2 ^{abc}	14.2 ^{a-e}	89.0 ^{f-o}	106.0 ^{ab}	182.5 ^{a-d}	202.0 ^a	13.0 ^{a-h}	19.0 ^{c-i}	28.9 ^{ab}	2.7 ^{ab}	13.1 ^{a-d}	4.0 ^{ab}	3.8 ^{a-e}	2657.3 ^{a-f}	47.1 ^{abc}	25.3 ^{ab}
24493	19.4 ^a	35.7 ^{ab}	18.4 ^a	89.7 ^{f-n}	98.5 ^{b-i}	181.0 ^{a-e}	209.0 ^a	15.5 ^{a-h}	21.0 ^{b-h}	36.4 ^{ab}	2.2 ^b	14.4 ^{a-d}	3.3 ^{abc}	4.2 ^{abc}	2606.5 ^{a-g}	45.0 ^{a-d}	25.4 ^{ab}
24494	10.9 ^{h-o}	28.5 ^{abc}	12.6 ^{a-f}	94.3 ^{d-m}	101.5 ^{b-f}	176.0 ^{a-g}	218.0 ^a	13.7 ^{a-h}	20.2 ^{c-h}	32.7 ^{ab}	2.5 ^{ab}	11.8 ^{a-d}	3.3 ^{abc}	3.5 ^{b-g}	2384.8 ^{a-j}	46.4 ^{abc}	23.9 ^{ab}
24495	13.7 ^{c-i}	32.2 ^{ab}	15.2 ^{a-d}	86.0 ^{i-q}	100.0 ^{b-f}	179.5 ^{a-g}	189.0 ^{abc}	10.4 ^{c-h}	24.9 ^{a-e}	29.6 ^{ab}	2.6 ^{ab}	12.8 ^{a-d}	4.0 ^{ab}	3.5 ^{b-h}	2323.1 ^{b-k}	49.1 ^a	24.5 ^{ab}
H1	6.1 ^{rst}	19.3 ^{a-d}	10.7 ^{c-g}	118.1 ^a	69.0 ^{pq}	163.0 ^{d-i}	203.0 ^a	13.2 ^{a-h}	24.4 ^{a-e}	29.5 ^{ab}	2.3 ^{ab}	11.1 ^{a-d}	2.8 ^{abc}	3.6 ^{a-g}	2406.4 ^{a-j}	46.0 ^{abc}	27.1 ^{ab}
S-67	6.4 ^{q-t}	20.2 ^{a-d}	10.8 ^{c-g}	80.3 ^{l-q}	77.0 ^{nop}	159.0 ^{ghi}	201.5 ^a	13.2 ^{a-h}	30.8 ^{ab}	34.2 ^{ab}	2.5 ^{ab}	11.9 ^{a-d}	3.0 ^{abc}	3.7 ^{a-f}	2950.5 ^a	43.0 ^{a-d}	24.6 ^{ab}
Mean	11.4	26.3	12.4	92.9	92	174.4	188.7	14.5	18.6	30.3	2.4	12.7	3.1	3.1	2161.6	44	26
MSD (0.05)	3.2	20	6.9	16.7	9.4	21	53.8	7.5	10.1	18.6	0.8	5.4	1.5	1.1	592.4	7.8	8.3

LPL; leaf petiole length (cm), LL; leaf length (cm), LW; leaf width (cm), LPP; leaves per plant, DF; days to flowering, DM; days to maturity, PH; plant height (cm), PB; primary branches per plant, MRL; main raceme length (cm), SPMR; number of siliques per main raceme, SL; silique length (mm), SW; silique width (mm), SPS; number of seeds per silique, TSW; thousand seed weight (gm), SYppl; seed yield per plant (gm), SYpha; seed yield per hectare (kg), OIL; oil content (%), PRO; protein content (%), TG; total glucosinolate content ($\mu\text{mol/g}$), MSD; minimum significant difference. Letters indicate Tukey HSD groupings ($p \leq 0.05$); means sharing a letter are not significantly different.



Supplemental Figure 1. Mean Seed yield per hectare (SYpha, in kg) comparison of 49 *Brassica carinata* accessions in two locations: Asela vs. Holeta