

## Correlations between fruit yield and sensory and nutritional quality of pumpkin (*Cucurbita moschata* Duch.)

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**Table 1SA.** Genotypes evaluated genealogy and characteristics for commercial carotenoids and total carotenoids in the pumpkin breeding program of Embrapa Semiárido.

Genotype	Genealogy (GBC*)	Description
<i>C. moschata</i> 1	545**	Yellow pear-shaped fruit; smooth surface without warts; orange pulp; mean fruit weight 2.36 kg; length and diameter 27.6 and 14.80 cm, respectively; thickness of the apical and equatorial pulp 51.68 and 18.78; total carotenoid content 671.21 $\mu\text{g}\cdot\text{g}^{-1}$ pulp and $\beta$ -carotene of 598.21 $\mu\text{g}\cdot\text{g}^{-1}$ pulp.
<i>C. moschata</i> 2	567**	Greenish globular fruit; smooth surface without warts; light yellow pulp; fruit weight 1.63 kg; length and diameter 16.10 and 14.10 cm, respectively; thickness of the apical and equatorial pulp 17.50 and 12.61; total carotenoid content 39.51 $\mu\text{g}\cdot\text{g}^{-1}$ pulp and $\beta$ -carotene of 19.98 $\mu\text{g}\cdot\text{g}^{-1}$ pulp.
<i>C. moschata</i> 3	545**	Orange pear-shaped fruit; smooth surface without warts; orange pulp; weight 3.44 kg; length and diameter 30.20 and 16.30 cm, respectively; thickness of the apical and equatorial pulp 68.21 and 23.90; total carotenoid content 549.78 $\mu\text{g}\cdot\text{g}^{-1}$ pulp; and $\beta$ -carotene of 496.52 $\mu\text{g}\cdot\text{g}^{-1}$ pulp.
<i>C. moschata</i> 4	545**	Orange pear-shaped fruit; smooth surface without warts; orange pulp; weight 2.02 kg; length and diameter 28.00 and 13.80 cm, respectively; thickness of the apical and equatorial pulp 66.76 and 15.45; total carotenoid content 467.41 $\mu\text{g}\cdot\text{g}^{-1}$ pulp and $\beta$ -carotene of 387.29 $\mu\text{g}\cdot\text{g}^{-1}$ pulp.
<i>C. moschata</i> 5	545**	Orange pear-shaped fruit; smooth surface without warts; orange pulp; 1.95 kg weight; length and diameter 17.30 and 17.60 cm, respectively; thickness of the apical and equatorial pulp 31.49 and 17.85; total carotenoid content 332.72 $\mu\text{g}\cdot\text{g}^{-1}$ pulp and $\beta$ -carotene of 299.10 $\mu\text{g}\cdot\text{g}^{-1}$ pulp.
<i>C. moschata</i> 6	545**	Orange, elliptical fruit; smooth surface without warts; orange pulp; weight 2.23 kg; length and diameter 19.60 and 16.50 cm, respectively; thickness of the apical and equatorial pulp 26.92 and 16.63; total carotenoid content 231.40 $\mu\text{g}\cdot\text{g}^{-1}$ pulp and 198.61 $\mu\text{g}\cdot\text{g}^{-1}$ pulp $\beta$ -carotene.

\*Genebank of Cucurbits; \*\* Second-cycle ( $S_2$ ) selfed progenies

**Table 1SB.** Genotypes evaluated genealogy and characteristics for commercial carotenoids and total carotenoids in the pumpkin breeding program of Embrapa Semiárido (Continuation...).

Genotype	Genealogy (GBC*)	Description
<i>C. moschata</i> 7	569**	Yellow fruit of globular shape; smooth surface without warts; orange pulp; weight 3.69 kg; length and diameter 16.30 and 21.80 cm, respectively; thickness of the apical and equatorial pulp 28.61 and 33.37; total carotenoid content 360.25 $\mu\text{g}\cdot\text{g}^{-1}$ pulp and $\beta$ -carotene of 312.50 $\mu\text{g}\cdot\text{g}^{-1}$ pulp.
<i>C. moschata</i> 8	545**	Orange pear-shaped fruit; smooth surface without warts; orange pulp; weight 2.57 kg; length and diameter 27.40 and 14.50 cm, respectively; thickness of the apical and equatorial pulp 68.33 and 17.05; total carotenoid content 499.08 $\mu\text{g}\cdot\text{g}^{-1}$ pulp and $\beta$ -carotene of 453.64 $\mu\text{g}\cdot\text{g}^{-1}$ pulp.
<i>C. moschata</i> 9	545**	Orange flat fruit with a gummy skin; smooth surface without warts; orange pulp; weight 1.80 kg; mean fruit length and diameter 9.70 and 18.50 cm, respectively; thickness of the apical and equatorial pulp 14.28 and 17.62 cm, respectively; total carotenoid content 263.10 $\mu\text{g}\cdot\text{g}^{-1}$ pulp and $\beta$ -carotene of 234.30 $\mu\text{g}\cdot\text{g}^{-1}$ pulp.
<i>C. moschata</i> 10	545**	Flat-shaped fruit with orange-colored gummy skin; smooth surface without warts; orange pulp; weight 1.80 kg; mean fruit length and diameter 9.70 and 18.50 cm, respectively; thickness of the apical and equatorial pulp 14.28 and 17.62 cm, respectively; total carotenoid content 263.10 $\mu\text{g}\cdot\text{g}^{-1}$ pulp and $\beta$ -carotene of 234.30 $\mu\text{g}\cdot\text{g}^{-1}$ pulp.
<i>C. moschata</i> 11	***432, 567, 498, 504, 545, and 620	Fruit selected by visual evaluation of external traits, orange globular fruit with gummy skin; smooth surface without warts; orange pulp; weight 3.5 kg.
Jacarezinho		Flat-shaped fruit with greyish green hunches, interspersed with beige spots and streaks; smooth shell without warts; yellow pulp; mean weight 2 kg (control).

\*Genebank of Cucurbits; \*\* Second-cycle ( $S_2$ ) selfed progenies; \*\*\*cycle of recurrent bulk selection

**Table S2.** Analysis of variance in fruits of pumpkin progenies (*C. moschata*).

Variation source	D.F.	M.S.								
		FrW	FrL	Dla	Dsm	IDlg	IDmed	AST	EST	APT
Blocks	3	0.07	2.25	1.75	19.44	0.37	1.29	0.20	0.03	16.41
Treatments	11	1.56**	189.38*	30.08**	59.44**	36.66**	12.28**	6.04**	3.35**	160**
Residue	33	0.16	3.67	1.16	7.28	1.47	0.53	0.27	0.23	57.93
Mean		3.10	21.26	18.72	7.10	11.67	13.16	5.54	4.85	42.64
CV (%)		13.02	9.02	5.77	45.56	10.41	5.55	9.44	9.94	17.85
Variation source	D.F.	M.S.								
		EPT	L	C	H	SS	TA	TCar	$\beta$ -car	Rat
Blocks	3	9.05	0.38	1.34	0.54	0.01	0.01	7.10	6.53	16.85
Treatments	11	152.66*	21.95**	9.78**	26.68**	0.17**	0.02**	35.53**	37.09**	205.17*
Residue	33	6.84	1.96	1.32	1.62	0.04	0.01	3.91	3.37	7.87
Mean		24.19	63.12	69.03	58.95	13.17	0.29	365.95	284.79	74.46
CV (%)		10.81	2.22	1.67	2.16	6.05	11.64	10.50	11.11	3.72

\*\* and \* significant at 1 and 5% probability; respectively; by the F test; ns = non-significant; by the F test; CV = coefficient of variation. FrW = fruit weight; FrL = length; Dla = larger diameter; Dsm = smallest diameter; IDlg = longitudinal diameter of the internal cavity; IDmed = median diameter of the internal cavity; AST = apical skin thickness; EST = equatorial skin thickness; APT = apical pulp thickness; EPT = equatorial pulp thickness; L = luminosity pulp color; C = Chroma; H = hue angle; SSC = soluble solids content; TA = titratable acidity; TCC = total carotenoid content;  $\beta$ -car =  $\beta$ -carotene content; and Rat =  $\beta$ -car and TCC ratio.