

Supplementary Materials

Table S1. Mass Calculation for Putrescine, Spermidine and Spermine bound with Dansyl Chloride. Each nitrogen on the chemical structure were replaced with one Mass of Dansyl Chloride.

Study Compound	Molecular Mass	Addition of 2 MMass of Dansyl chloride	Addition of 3 MMass of Dansyl chloride	Addition of 4 MMass of Dansyl chloride
Putrescine	88.15	556.6		
Spermidine	145.2		846.9	
Spermine	202.2			1138.3
Dansyl chloride	269.74			

Table S2. Mean Square Value from Analysis of Variance (ANOVA) of Polyamines Contents⁺ and Quality Traits⁺⁺ in Tomato Samples as Affected by Genotype and Maturity Stage.

Source	DF ^a	Tpa ^b (10 ⁵)	DF	Put ^c (10 ⁴)	DF	Spd ^d (10 ⁴)	DF	Spm ^e (10 ²)	DF	Aa ^f (10 ¹)
Genotype	7	97.8***	7	439.9***	7	161.4***	7	70.7***	7	1.3
Maturity Stage	5	1.6	5	83.9***	5	54.5***	5	252.3***	5	29.6***
Genotype x Maturity Stage	35	15.7***	35	76.2***	35	22.2***	32	20.7***	35	1.8
Residuals	125	1.6	125	7.3	125	3.0	101	4.1	134	1.9
	DF	Firmness	DF	Ta ^g (10 ⁻²)	DF	pH (10 ⁻²)	DF	Tss ^h	DF	Tss:Ta ⁱ
Genotype	7	4.3***	7	3.0***	7	9.0***	7	2.1***	7	46.6***
Maturity Stage	5	162.7***	5	4.0***	5	52.0***	5	4.3***	5	17.8***
Genotype x Maturity Stage	35	1.4**	35	1.0***	35	3.0**	35	0.4***	35	8.8***
Residuals	125	0.6	143	0.3	140	1.5	142	0.2	135	2.9
	DF	a* value (10 ¹)	DF	b* value (10 ¹)	DF	L*value (10 ¹)	DF	Chroma (10 ¹)	DF	Weight (10 ²)
Genotype	7	7.15***	7	5.0**	7	7.6***	7	3.6***	7	115.3***
Maturity Stage	5	767.6***	5	195.6***	5	89.6***	5	247.6***	5	89.4***
Genotype x Maturity Stage	35	2.9***	35	4.1***	35	3.9***	35	1.9***	35	5.9***
Residuals	136	1.1	141	1.4	141	1.0	139	0.4	131	1.6

^aDF=degrees of freedom, ^bTpa=Total polyamines ^cPut=Putrescine ^dSpd=spermidine ^eSpm=spermine ^fAscorbic acid, ^gTitrateable acidity, ^hTotal soluble sugars. ⁱTotal soluble sugars and titrateable acidity radio. *, **, *** significant at p<0.05, 0.01, 0.001, respectively.

⁺Polyamines contents refers to a polyamine profile for each genotype. ⁺⁺Quality traits refers to Ascorbic Acid (Aa), Firmness (Fir), Titrateable acidity (Ta), pH, Total soluble sugars (Tss), Total soluble sugars and titrateable acidity radio Tss:Ta, weight a* value, b* value. L values and Chroma.

Table S3. Mean values (µg/g DW) of Polyamines in Tomato at Different Maturity Stages from Various Studies.

Poliamine	Maturity stage (Aprox. Time)	Present study	Yahia et al [36]	Nambeesan et al [72] ^a	Nishibori et al [76] ^b	Anwar et al [74] ^c	Goyal et al [75] ^d	Moret et al [77] ^e
Putrescine	20 d	306.7	0 to 100	0 to 33.4	No data	0 to 26.4	No data	No data
Spermidine	20 d	352.1	0 to 100	0 to 27.5	No data	29.04	No data	No data
Spermine	20 d	41.4	100 to 200	5.7 to 11.4	No data	0 to 29.04	No data	No data
Putrescine	40 d	390.5	100 to 200	33.4 to 66.97	No data		0 to 502.45	No data
Spermidine	40 d	281.2	100	0 to 27.55	No data		0 to 206.15	No data
Spermine	40 d	15.5	300 to 400	No detected	No data		0 to 47.5	No data
Putrescine	50 d	544.0	300 to 400	No data	50.16 to 191.61		0 to 502.4	275.5
Spermidine	50 d	195.9	0 to 100	No data	13.78 to 34.48		0 to 206.2	57
Spermine	50 d	16.9	100 to 200	No data	1.9 to 3.8		0 to 19.2	9.5

Original data units: ^anmol/g FW. ^bnmol/g. ^cµmol/g FW. ^dnmol/g FW. ^emg/100g FW

Table S4. Mean values ($\mu\text{g/g DW}$) of Polyamines in Tomato at Different Maturity Stages

Cultivar	Maturity stage	<i>Tpa</i>	<i>Put</i>	<i>Spd</i>	<i>Spm</i>
Huichol	Green	1930q	84lmn	101lm	11ghij
	Break	222pq	130jklmn	87lm	7ghij
	Turning	270opq	170hijklmn	93lm	9ghij
	Pink	214pq	146jklmn	64m	5ij
	Light red	351mnopq	280defghijklm	66m	4ij
	Red	193pq	155ijklmn	32m	5hij
RG	Green	207pq	66mn	125klm	16fghij
	Break	187pq	60mn	114lm	17fghij
	Turning	143q	53mn	96lm	-
	Pink	147q	61mn	85lm	-
	Light red	181pq	84lmn	98lm	-
	Red	242pq	134jklmn	102lm	26defgh
HT23	Green	949defghij	339defghijk	551bc	59abc
	Break	797fghijk	258defghijklmn	479bcde	59abc
	Turning	808fghijk	335defghijk	449bcdefg	23efghij
	Pink	767fghijk	399defghi	342efghi	16fghij
	Light red	762fghiljk	403defghi	343efghi	16fghij
	Red	798fghijk	507d	270hijk	21fghij
HT37	Green	1044cdefg	433defg	568b	42cde
	Break	947defghij	464defg	441bcdefg	41cde
	Turning	767fghjki	485def	269hijk	13ghij
	Pink	1511b	1040b	447bcdefg	23efgi
	Light red	874hijkl	423defg	239ijkl	18gfghij
	Red	1204bcde	784c	396defghi	24defghi
Lia	Green	983defghi	348defghijk	565b	69ab

	Break	607jklmno	234fghijklm	329efghi	44cd
	Turning	536klmnop	232ghijklmn	291ghij	14ghij
	Pink	683ghijklm	284defghijklm	381efghi	18fghij
	Light red	898frghijk	409defgh	399cdefghi	13ghij
	Red	733fghijkl	409defgh	303fghij	20fghij
Shanty	Green	774fghijk	286defghijklm	412cdefgh	76a
	Break	932defghij	421defg	457bcdef	53abc
	Turning	618ijklmn	301defghijklm	290ghij	27defg
	Pink	196pq	107klmn	81m	8ghij
	Light red	173q	102klmn	69m	4j
	Red	322nopq	259defghijklmn	59m	4j
HT25	Green	1370bc	498de	796a	77a
	Break	1015defgh	399defghi	542bcd	74a
	Turning	626hijklmn	429defg	172jklm	26defg
	Pink	867efghijk	371defghij	472bcde	8ghij
	Light red	652hijklmn	320defghijkl	307fghij	4ij
	Red	388lmnopq	249efghijklm	125klm	4ij
HT36	Green	44q	23n	20m	2j
	Break	889efghijk	487de	367efghi	35def
	Turning	1168cde	776c	371efghi	21fghij
	Pink	1091cdef	715c	365efghi	16fghij
	Light red	1260bcd	860bc	376efghi	23efghi
	Red	2155a	1855a	280hij	20fghij

Numbers in a column followed by the same letters are not significantly different a $P < 0.05$ with the Tukey post-hoc test

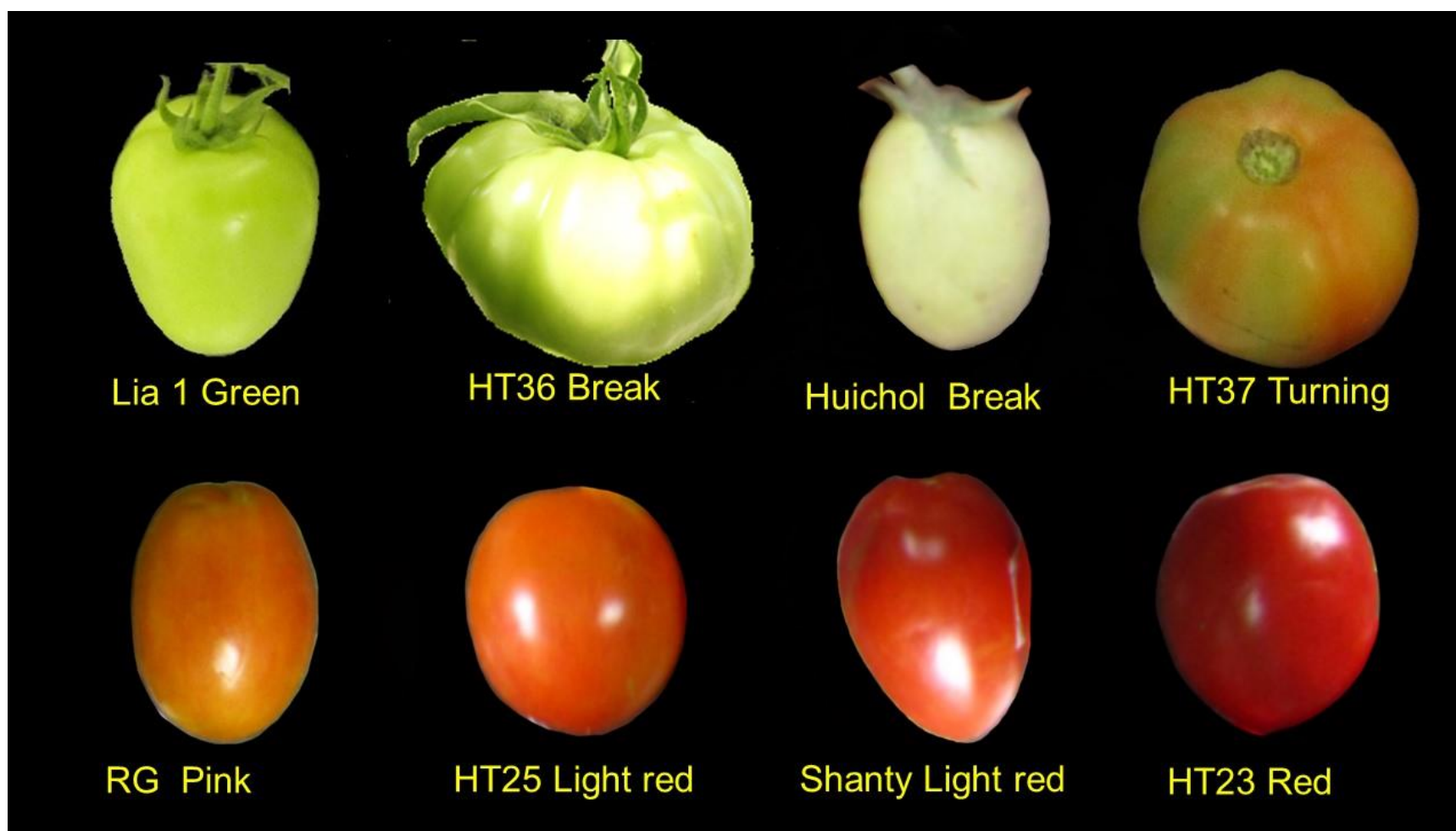


Figure S1. Representative samples showing the different maturation stages of tomatoes from various genotypes ('Huichol', 'Rio Grande' (RG), 'HT23', 'HT37', 'Lia', 'Shanty', 'HT25' and 'HT36').

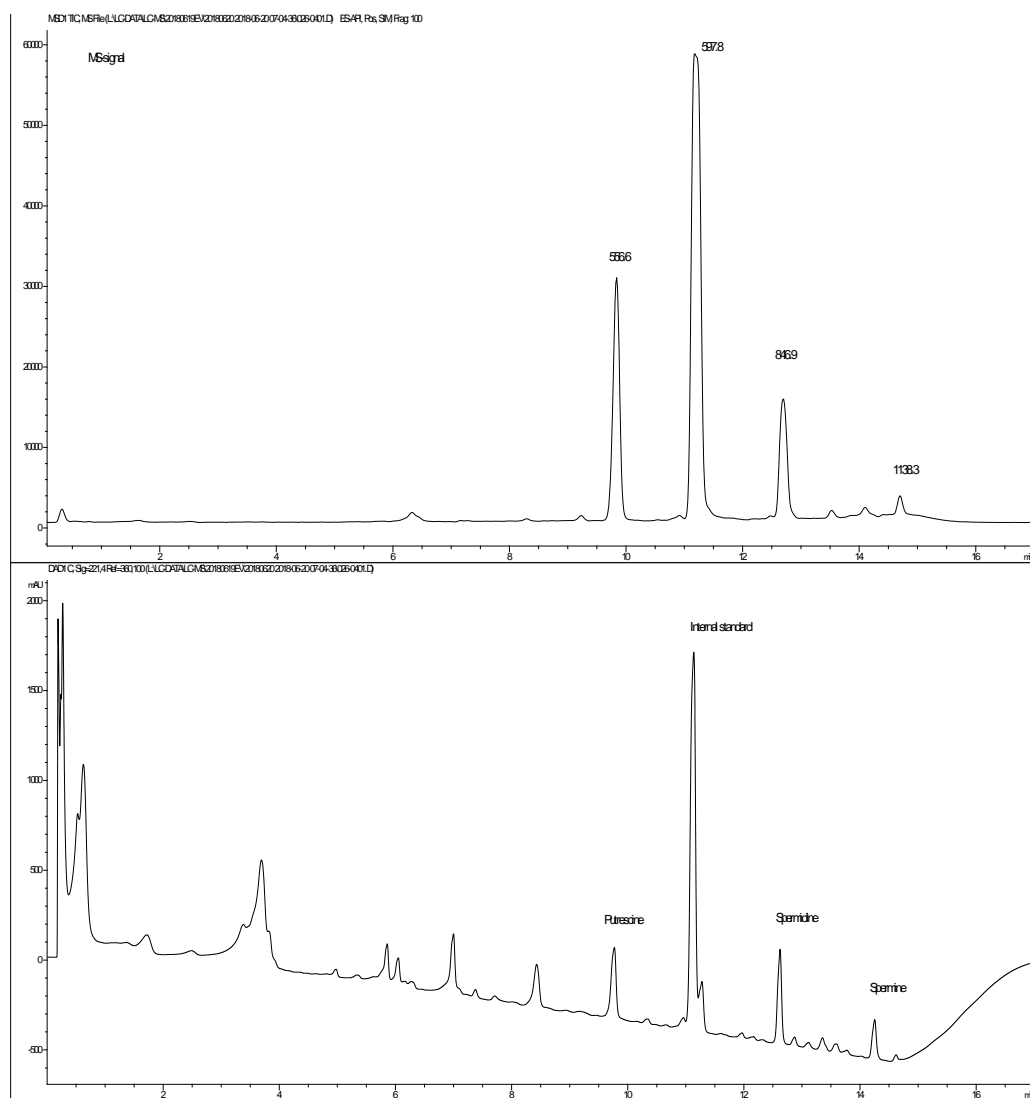


Figure S2. Polyamines chromatogram. A: MS-signal of Putrescine (Put), 1,7-diaminoheptane as an Internal standard (IS), Spermidine (Spd) and Spermine (Spm) standards. B: DAD-LC-MS signal at 221 nm ± 4 nm of a representative sample. Retention time: Put at 9.867; IS at 11.245, Spd at 12.730 and Spm at 14.753.

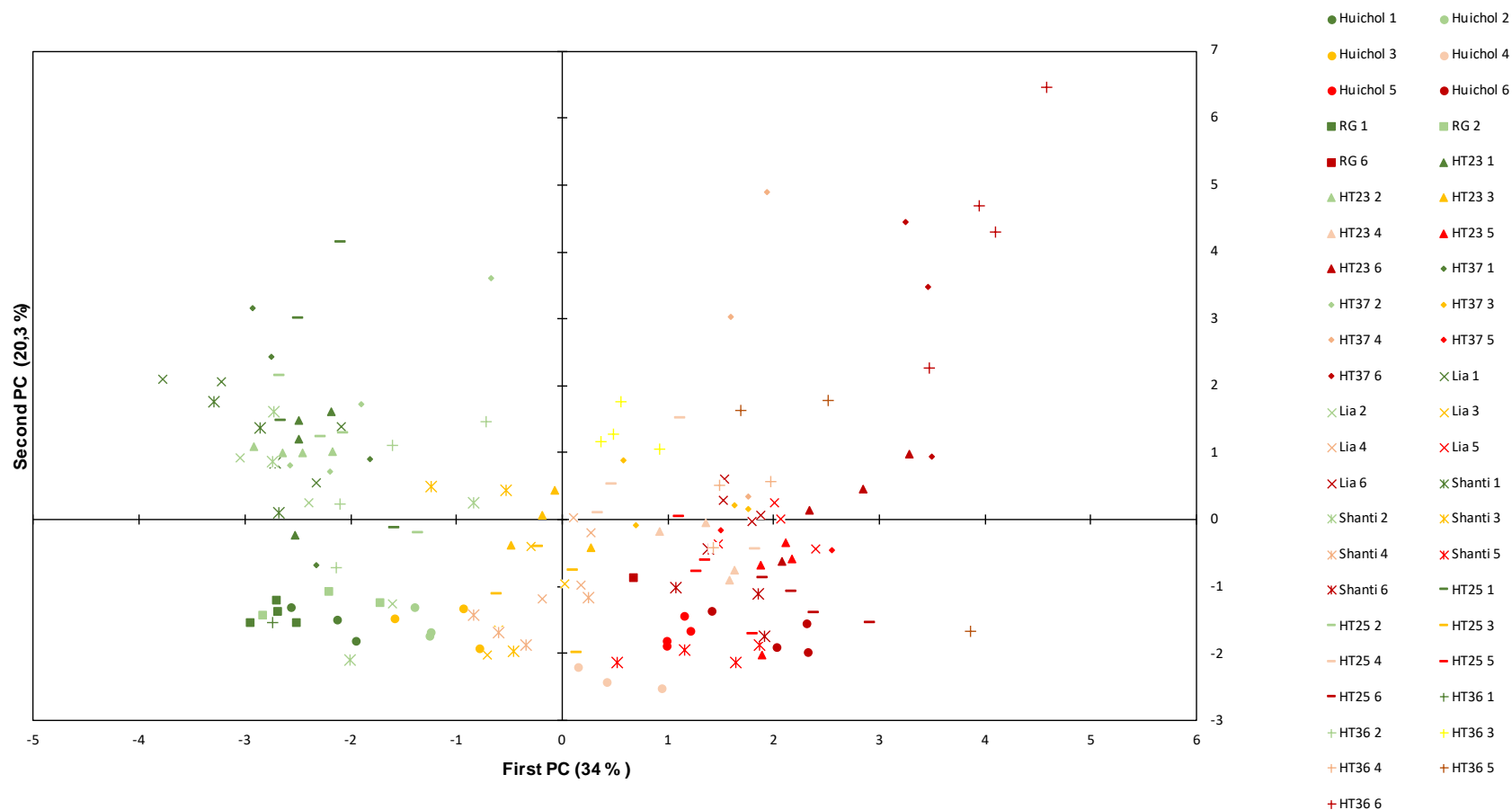


Figure S3. Loading plot generated from PCA on values of each tomato evaluated, from quality traits (Chroma (brightness), a^* value (redness), b^* value (blueness), L^* value (lightness), TSS (total soluble sugar), Ta (titratable acidity), TSS/Ta (total soluble sugar and titratable acidity ratio), Aa (ascorbic acid), Firmness, pH and Weight) and polyamines contents (Tpa (Total content of polyamines), Put (putrescine), Spd (spermidine), Spm (spermine) of eight genotypes 'Huichol= ●', 'Rio Grande (RG)= ■', 'HT23= ▲', 'HT37= ◆', 'Lia= ×', 'Shanty= ✱', 'HT25= - ', and 'HT36= + ' at six maturity stages (marked with different colours; green= green tomatoes, light green= break, yellow= turning, pink= pink, light red=light red, red=red).