

SUPPLEMENTARY MATERIALS

to the article M.N. Shapurenko, S.V. Vakula, L.A. Tarutina, T.V. Nikitinskaya, T.V. Pechkovskaya, L.A. Mishin, L.V. Khotyleva "Allelic and epigenetic DNA variation in relation to F₁ heterosis manifestation in F₁ hybrids of *Capsicum annuum* L."

Supplementary material 1

Sweet pepper accessions used for 5×5 and 6×6 mating design

Accessions		Fruit shape / color	Origin (selected from)
Set I	L2889	triangular / red	Zdorove
	L2890	triangular / red	Vesper
	L2891	triangular / red	Druzhok
	L2892	triangular / red	F ₉ (Indalo × Blondi)
	L2893	triangular / red	F ₁₃ (Dobryinya × Fehereson)
Set II	L3163	rectangular / orange	Afrodita
	L3164	rectangular / orange	Orange GU
	L3165	rectangular / orange	N029Li
	L3166	rectangular / orange	Kvadrat G
	L3167	rectangular / orange	Etude
	L3168	rectangular / orange	Orange KM

Supplementary material 2

Characteristics of microsatellites markers under research

Markers	Code	Motif	Linkage group	Lenght of detected alleled, b.p.	No. of alleles	PIC**
Hpm51-5	A	(at) ₁₁ (gt) ₁₇	VI	318–324	4	0.72
Hpm51-143	B	(ag) ₁₂	—	217–230	6	0.81
Hpm51-111	C	(aat) ₁₁	—	142–161	6	0.31
Hpm52-21	D	(at) ₁₁ (ac) ₉	X	283–298	6	0.29
CAMS-864	E	(aga) ₃₂	VII	203–233	7	0.75
Hpm51-168	F	(ta) ₇ (ga) ₁₂	XVI	157–188	6	0.82
CAMS-236	G	(ac) ₁₄ a(ta) ₁₀	II	154–205	6	0.64
CAMS-647	H	(tat) ₆ tg(tta) ₃ ... (tat) ₂₁	III	217–232	3	0.50
CAMS-811	I	(aag) ₃ ... (gaa) ₃ ... (gaa) ₇	IX	232–330	6	0.91
Hpm51-172	J	(ga) ₁₅	XI	280–397	4	0.61
Hpm52-13	K	(ac) ₁₂ (at) ₄	I	247–255	2	0.71
Hpm51-1	L	(ca) ₁₂ (ta) ₄	I	174–255	4	0.69

Supplementary material 3

Characteristics MSAP linkers and markers under research

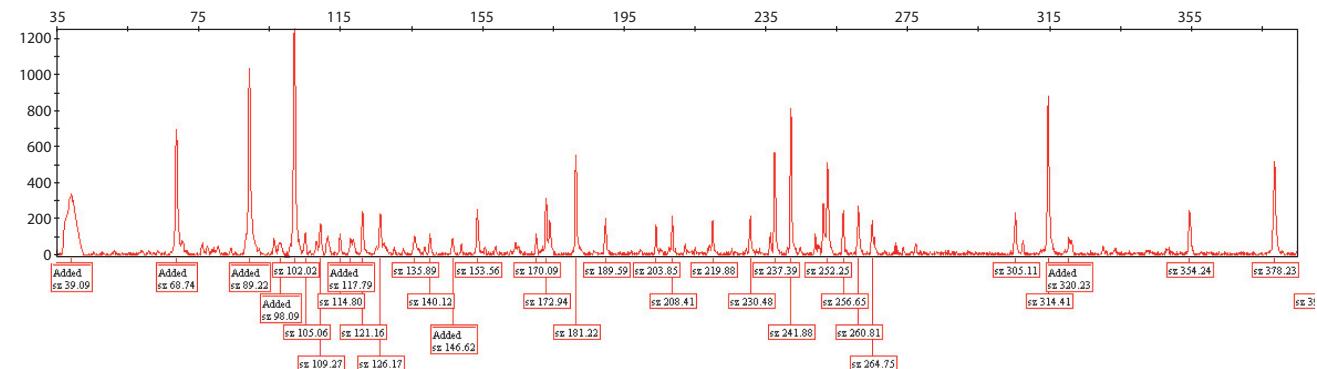
Name	Sequences (5'→3')	Modifications
Mspl / Hpall Linker 1	gat cat gag tcc tgc t	
Mspl / Hpall Linker 2	cga gca gga ctc atg a	
EcoRI Linker 1	ctc gta gac tgc gta cc	
EcoRI Linker 2	aat tgg ttac gca gtc tac	
EcoRI-A	gac tgc gta cca att ca	
Hp/Ms-T	atc atg agt cct gct cgt cgg t	
EcoRI-ACA	gac tgc gta cca att cac a	
Hp/Ms-TCAA	atc atg agt cct gct cgg tca a	ROX
Hp/Ms-TCTC	atc atg agt cct gct cgg tct c	TAMRA-click
Hp/Ms-TCTT	atc atg agt cct gct cgg tct t	R6G
Hp/Ms-TCAT	atc atg agt cct gct cgg tca t	FAM-ACH

Supplementary material 4
Distribution of SSR allelic variants

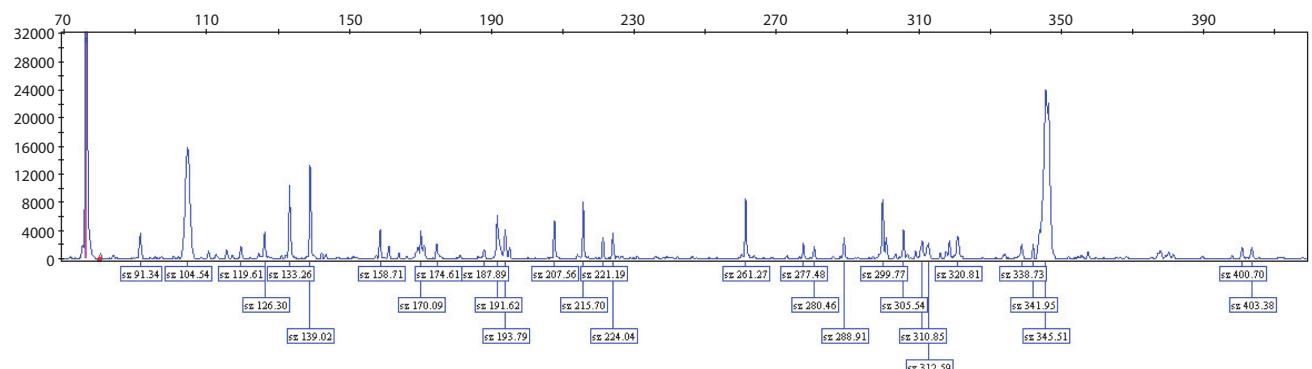
Markers	Allelic code	Accessions	L2889	L2890	L2891	L2892	L2893	L3163	L3164	L3165	L3166	L3167	L3168
	318		+	+	+	+	+						
A	320							+	+	+	+	+	+
	322							+					
	217					+							
B	221		+	+	+			+	+				
	223								+	+	+	+	+
	225					+							
C	230		+	+	+			+	+				+
	149		+				+						
	153		+				+		+	+	+	+	+
	158			+	+			+					
	161		+	+			+	+	+				+
D	283			+									
	287		+			+	+	+	+				
	292			+									
	296		+			+	+	+		+	+	+	+
	203				+								
E	215								+				
	221					+		+					
	227		+	+				+	+				
	230								+		+	+	
	233							+		+			+
F	169		+	+	+	+	+	+	+	+	+	+	+
	174		+	+	+	+	+	+	+	+	+	+	+
	182		+	+	+	+	+	+	+		+	+	+
G	154		+	+	+	+	+	+	+	+	+	+	+
	167		+	+	+	+	+	+	+	+	+	+	+
	188								+				+
H	190		+	+	+	+	+	+	+	+	+	+	
	217		+	+									
	229		+			+	+	+	+	+	+	+	+
I	240			+						+			+
	327		+	+	+	+	+	+				+	+
	330								+	+	+		
J	391		+	+	+	+	+	+	+	+			
	397		+	+	+	+		+	+	+	+	+	+
K	247		+	+	+	+	+						
	255							+	+	+	+	+	+
	174			+	+	+	+					+	+
L	186		+	+	+			+	+		+		+
	193		+					+	+				
	255		+	+					+	+			

Supplementary material 5
MSAP allelic variants plots in seedlings of heterotic hybrid L3165×L3168

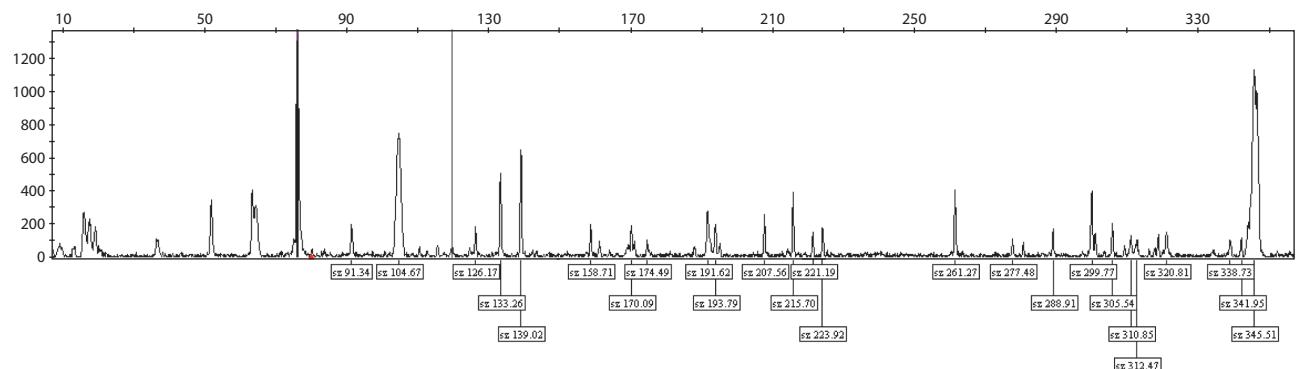
Hp/Ms-TCAA



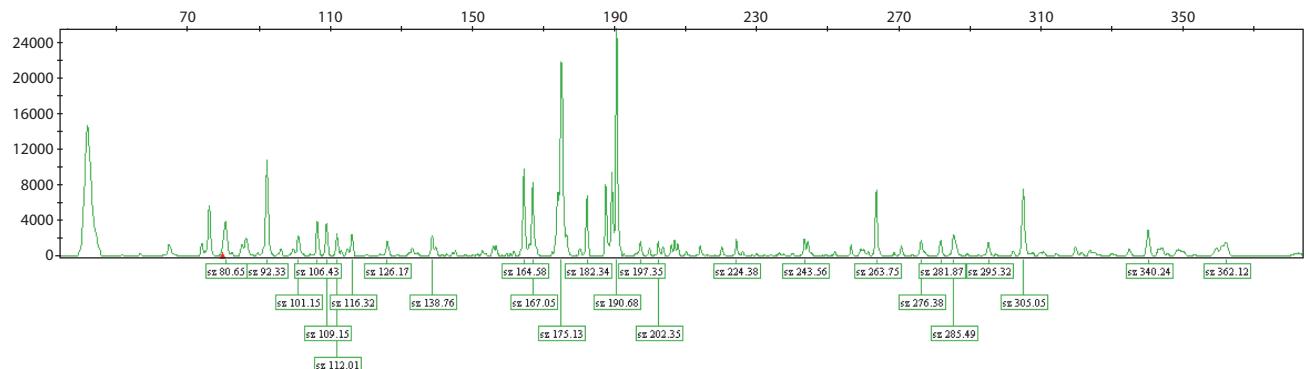
Hp/Ms-TCAT



Hp/Ms-TCTT



Hp/Ms-TCTC



Supplementary material 6

Distribution of MSAP allelic variants in genotypes from EcoRI-ACA and Hp/Ms-TCAA primers combination

Accessions	Izoshisomer	Allelic variants, b.p.																	
		40	54	62	70	82	84	100	110	127	132	173	181	242	252	261	418	437	
L2892	Hpall	1	1	0	1	1	1	1	0	1	1	1	0	0	0	1	0	1	0
	MspI	1	1	0	1	1	1	1	0	1	1	1	0	0	0	1	0	1	0
L2892×L2889	Hpall	1	1	1	1	1	0	1	0	1	0	1	0	0	0	1	0	1	0
	MspI	1	1	1	1	1	0	1	0	1	0	1	0	0	0	1	0	1	0
L2889	Hpall	1	1	0	1	1	0	1	0	1	0	1	0	0	0	1	0	1	0
	MspI	1	1	0	1	1	0	1	0	1	0	1	0	0	0	1	0	1	0
L3165	Hpall	1	1	1	1	1	0	1	0	0	1	0	1	1	1	0	1	0	1
	MspI	1	1	1	1	1	0	1	1	0	1	0	1	1	1	0	1	0	1
L3165×L3168	Hpall	1	1	1	1	1	1	1	0	0	1	0	0	0	1	0	0	1	0
	MspI	1	1	1	0	1	1	1	0	0	1	0	0	0	1	0	0	1	0
L3168	Hpall	1	1	1	1	1	0	1	0	0	1	0	0	0	1	0	0	1	0
	MspI	1	1	1	1	1	0	1	0	0	1	0	0	0	1	0	0	1	0
L2891	Hpall	1	1	1	1	1	0	1	0	0	1	0	1	0	0	0	1	0	1
	MspI	1	1	1	1	1	0	1	0	0	1	0	0	1	0	0	0	1	0
L2891×L2889	Hpall	0	1	1	1	1	0	1	0	0	1	0	1	0	0	0	1	0	1
	MspI	0	1	1	1	1	0	1	1	1	0	1	0	0	0	1	0	1	0
L2889	Hpall	1	1	0	1	1	0	1	0	1	0	1	0	0	0	1	0	1	0
	MspI	1	1	0	1	1	0	1	0	1	0	1	0	0	0	1	0	1	0

Supplementary material 7

Distribution of MSAP allelic variants in genotypes from EcoRI-ACA and Hp/Ms-TCTC primers combination

	40	54	61	71	73	82	84	92	97	101	105	108	115	118	125	128	135	140	145	150	163	165	170	181	188	200	247	252	277	392	412	420
L2892	Hpall	1	1	1	1	0	1	1	1	0	0	1	1	1	1	1	1	1	1	0	1	1	1	0	0	1	1	1	1	0	1	0
	MspI	1	1	1	1	0	1	1	0	1	0	0	1	1	1	1	1	1	0	0	1	0	1	1	1	1	1	0	1	0	1	
L2892×L2889	Hpall	1	1	1	1	0	1	1	1	1	0	0	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0	1	0	0	1	0
	MspI	1	1	1	1	0	1	1	1	1	0	0	0	0	0	0	1	0	0	0	0	1	0	0	0	0	1	0	0	1	0	1
L2889	Hpall	1	1	1	1	0	1	1	1	0	1	0	0	1	0	0	1	1	1	1	0	1	0	0	0	1	0	1	1	1	0	0
	MspI	1	1	1	1	1	0	1	0	1	0	0	0	0	0	1	0	1	0	0	0	1	0	0	0	1	0	0	1	0	1	0
L3165	MspI	1	1	1	1	1	0	1	1	1	0	1	0	1	1	1	0	0	0	0	1	1	0	0	1	0	0	1	0	0	1	0
	Hpall	1	1	1	1	0	1	1	1	1	0	1	0	0	1	0	0	0	0	0	1	0	0	0	1	0	0	1	0	0	1	0
L3165×L3168	Hpall	1	1	1	1	1	1	1	1	1	0	1	1	1	1	1	1	1	1	1	0	1	1	1	1	0	0	0	1	0	0	1
	MspI	1	1	1	1	1	0	1	1	1	1	0	0	0	1	0	0	1	0	0	1	0	1	0	0	0	1	0	0	1	0	1
L3168	Hpall	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0	1	0	0	1
	MspI	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0	1	0	0
L2891	MspI	1	1	1	1	0	1	0	0	0	1	0	0	0	1	1	1	1	1	1	0	0	0	1	0	0	0	1	0	0	1	0
	Hpall	1	1	1	1	0	1	1	1	1	0	1	0	0	1	0	1	1	1	1	1	0	1	0	0	0	1	0	0	1	0	1
L2891×L2889	MspI	1	1	1	1	0	1	1	1	1	0	0	0	1	1	1	1	1	1	1	0	0	0	1	0	0	0	1	0	1	1	1
	Hpall	1	1	1	1	0	1	1	1	1	0	1	0	0	1	1	1	1	1	1	1	0	1	0	0	0	1	0	1	1	1	0
L2889	Hpall	1	1	1	1	1	0	1	1	1	0	1	0	0	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0	1	1	1
	MspI	1	1	1	1	1	0	1	0	1	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0	1	0	1