

Table (3): Percentage of heterosis of the 21 F1 hybrids over their better-parents for each trait.

Crosses	Plant height	No. of branches per plant	No. of clusters per plant	Fruit weight	No. of fruits per plant	Early yield	Total yield	T.S.S	Callus induction %	Callus fresh weight	Callus dry weight
P1 x P2	-23.84*	-8.77**	75.00**	-7.83**	32.85**	-47.26**	59.60**	-19.72**	-37.25**	-67.39**	-77.08**
P3	16.28	-4.63**	4.80	-26.37**	27.78**	-41.79**	44.95**	-3.35**	-37.25**	-62.21**	-87.50**
P4	-23.29*	-15.79**	1.65	-14.89**	0.00	-28.36**	-5.56**	-6.71**	-29.41*	-62.50**	-84.38**
P5	-4.66	-10.53**	59.65**	0.00	3.56	-65.67**	19.70**	15.77**	-52.94**	-33.05**	21.88**
P6	10.96	14.05**	117.39**	-32.73**	10.71**	-79.10**	60.10**	-10.65**	-37.25**	-25.86**	-76.04**
P7	-15.05	-12.26**	16.50**	-6.29**	0.71	-38.81**	-5.56**	-12.28**	-21.57	-7.86**	-29.17**
P2 x P3	-26.74*	-18.47**	38.45**	-25.00**	-16.67**	-23.08**	29.02**	-22.94**	-4.76	23.39**	136.36**
P4	30.63**	44.13**	42.87**	2.42	25.83**	-33.33**	29.27**	19.31**	0.01	-2.53**	-47.62**
P5	33.78**	30.58**	14.50**	11.57**	-27.27**	46.67**	-10.83**	14.08**	-21.74	79.10**	185.71**
P6	10.36	26.47**	-10.14**	-24.68**	-25.83**	7.89	-9.76**	1.20**	51.73**	272.58**	242.86**
P7	-22.58*	-5.46**	1.12	-28.31**	42.09**	153.85**	9.15**	-19.82**	-20.00	-51.31**	327.78**
P3 x P4	-1.16	1.52	13.44**	-15.60**	-22.69**	7.69	14.51**	18.78**	4.76	56.72**	184.85**
P5	-34.88**	-18.46**	-19.24**	-22.51**	-6.48*	0.00	29.56**	25.18**	-39.13**	27.99**	51.52**
P6	-20.00	-13.84**	-8.66**	-43.69**	-38.43**	-36.84**	18.13**	6.05**	23.81	0.18**	72.73**
P7	-38.71**	-20.03**	-21.16**	10.44**	-27.78**	-23.08**	14.51**	-29.82**	-12.00	-59.71**	-42.59**
P4 x P5	21.33*	-16.67**	8.04**	0.67	-7.44**	10.26*	-6.40**	4.88**	-26.09*	-3.13**	-23.81**
P6	-5.50	0.01	11.61**	-23.22**	130.95**	44.74**	77.34**	-0.73**	19.99	45.15**	45.83**
P7	-53.76**	-30.88**	-20.87**	8.87**	20.03**	33.33**	37.70**	-31.58**	-94.80**	-77.55**	-92.98**
P5 x P6	-44.00**	-25.00**	-17.39**	-24.11**	-21.48**	47.37**	7.39**	0.00	-21.74	40.68**	446.67**
P7	-54.41**	-41.79**	17.60**	30.47**	-4.95**	6.67*	24.14**	-35.67**	-20.00	-59.03**	-81.48**
P6 x P7	-73.55**	-45.44**	-45.60**	-28.52**	1.05	-13.16**	63.28**	-29.29**	-28.00*	-87.65**	-81.48**
L.S.D. at 0.05	20.18	2.52	5.96	2.50	5.21	0.19	0.36	0.19	24.78	0.73	0.17
L.S.D. at 0.01	26.89	3.36	7.94	3.33	6.94	0.25	0.47	0.25	33.02	0.97	0.23

*and ** significant at the $P < 0.05$ and the $P < 0.01$ levels of probability, respectively

Table (5): Estimates of the specific combining ability effects for *in vivo* and *in vitro* traits.

crosses	Plant height (cm)	No. of branches per plant	No. of clusters per plant	Earliness of flowering (day)	Fruit weight (gm)	No. of fruits per plant	Early yield (kg)	Total yield (kg)	T.S.S	Callus induction %	Callus fresh weight (gm)	Callus dry weight (gm)
P1 x P2	-79.64**	-3.47*	5.89	-2.69**	10.07**	35.36**	0.09	2.45**	-3.29**	-19.58	-2.28**	-0.48**
P3	55.69**	9.64**	14.33**	-8.69**	-5.69**	58.58**	0.06	0.79**	0.89**	-40.69**	-3.31**	-0.44**
P4	-13.42	2.86**	-20.00**	-0.58	-13.69**	4.14	-0.05	-0.40*	-0.28*	2.64	-1.15**	-0.22*
P5	48.81**	9.53**	14.22**	-3.25**	5.68**	-11.64**	-0.38**	-0.19**	3.00**	-61.81**	-0.43	0.64**
P6	125.92**	16.75**	59.78**	7.08**	-4.91**	28.69**	-0.94**	2.53**	0.04	-30.69*	1.02**	-0.24
P7	5.03	0.97	20.67**	-10.92**	-7.41**	-9.86**	0.15	-0.89**	0.34**	12.64	2.98**	0.04
P2 x P3	-50.75**	-2.69*	46.67**	7.08**	1.40	4.58	-0.01	0.71**	-2.24**	5.97	1.56**	0.15
P4	75.14**	0.53	-13.67**	-1.81*	12.40**	18.14**	-0.22*	1.39**	3.39**	29.31*	-0.64	-0.33**
P5	76.36**	2.19	-16.44**	-1.47	15.97**	-26.64**	0.08	-1.00**	2.47**	4.86	2.05**	0.01
P6	44.47**	-8.58**	-30.89**	2.86**	-6.82**	-18.31**	0.36**	-1.41**	1.60**	28.19*	3.60**	0.18
P7	48.58**	-0.36	4.00	-0.14	-31.32**	26.14**	0.39**	-0.07	-0.90**	19.31	-0.52	1.60**
P3 x P4	123.47**	20.64**	38.78**	-4.81**	5.14**	6.36*	0.13	0.88**	1.87**	36.97**	4.17**	0.65**
P5	-27.31*	11.31**	1.00	7.53**	-8.49**	20.58**	0.08	0.66**	2.05**	-56.25**	1.27**	0.04
P6	56.81**	7.53**	6.56*	2.86**	-15.08**	-18.08**	-0.25*	0.10	0.30**	54.86**	0.72	0.17
P7	-113.08**	2.75**	-1.56	-0.14	20.42**	-19.64**	-0.14	0.39	-0.92**	18.19	-2.22**	-0.26**
P4 x P5	25.58*	-4.47**	-2.33	-10.36**	-7.99**	12.14**	0.18	0.27	-0.62**	-2.92	-0.09	-0.11
P6	-33.31**	-11.25**	2.22	-3.03**	6.42**	27.47**	0.26*	1.88**	-0.29**	58.19**	0.91*	0.14
P7	-32.19**	-4.03**	2.11	-12.03**	12.42**	19.92**	0.44**	0.60**	-1.89**	-178.47**	-3.63**	-0.38**
P5 x P6	-58.08**	-10.58**	-21.56**	0.31	-8.21**	4.69	0.73**	0.16	-0.71**	-6.25	1.11**	0.45**
P7	-40.97**	-6.36**	33.33**	3.31**	44.29**	0.14	-0.21*	1.65**	-2.71**	17.08	-1.31**	-0.44**
P6 x p7	-109.86**	-15.14**	-30.11**	4.64**	-0.80	11.47**	0.03	0.86**	-0.57**	-11.81	-2.90**	-0.38**
L.S.D. at 0.05	22.19	2.72	6.68	1.73	2.75	5.73	0.20	0.39	0.21	27.11	0.80	0.19
L.S.D. at 0.01	29.61	3.62	8.91	2.31	3.66	7.64	0.27	0.52	0.28	36.18	1.07	0.25

*and ** significant at the $P < 0.05$ and the $P < 0.01$ levels of probability, respectively

