

Table (1): The means of the 6 parents (diagonal) and their F₁ hybrids for all studied traits.

The average of plant height (cm)							The average of number of branches						
lines	ASS.174	Gold.	ASS.99	ASS.12	ASS.195	ASS.16	Lines	ASS.174	Gold.	ASS.99	ASS.12	ASS.195	ASS.16
ASS.174	116.3	115.5	111.5	125.3	107.0	100.0	ASS.174	1.33	1.78	2.17	2.83	1.50	2.00
Gold.		78.33	105.2	121.2	106.4	105.6	Gold.		1.33	1.58	2.33	1.72	1.83
ASS.99			88.33	109.0	107.3	82.61	ASS.49			2.00	2.78	2.50	2.55
ASS.12				81.25	81.00	109.7	ASS.12				2.92	2.00	3.03
ASS.195					77.67	97.92	ASS.195					1.50	2.67
ASS.16						94.53	ASS.16						2.47
Parent mean=89.407 Hybrids mean=105.702							Parent mean=1.926 Hybrids mean=2.218						
The average of green pod length (cm)							The average of green pod width (cm)						
Lines	ASS.174	Gold.	ASS.99	ASS.12	ASS.195	ASS.16	Lines	ASS.174	Gold.	ASS.99	ASS.12	ASS.195	ASS.16
ASS.174	7.09	8.14	7.90	8.53	7.89	7.17	ASS.174	1.46	1.45	1.55	1.53	1.57	1.30
Gold.		7.00	7.82	8.98	8.52	7.31	Golden		1.42	1.50	1.61	1.63	1.41
ASS.99			7.68	9.63	8.64	8.21	ASS.49			1.48	1.68	1.58	1.53
ASS.12				10.40	9.17	9.18	ASS.12				1.91	1.82	1.62
ASS.195					7.33	8.68	ASS.195					1.63	1.51
ASS.16						7.96	ASS.16						1.36
Parent mean=7.908 Hybrids mean=8.385							Parent mean=1.543 Hybrids mean=1.552						
The average of number of dry pods/plant							The average of weight of dry seeds/plant						
Lines	ASS.174	Gold.	ASS.99	ASS.12	ASS.195	ASS.16	Lines	ASS.174	Gold.	ASS.99	ASS.12	ASS.195	ASS.16
ASS.174	23.00	26.53	41.67	40.00	28.33	28.00	ASS.174	29.00	57.56	71.17	81.00	51.33	45.00
Gold.		15.00	22.67	32.36	29.33	27.83	Gold.		24.67	49.67	77.92	65.67	53.69
ASS.99			21.67	30.11	37.50	22.00	ASS.99			36.00	89.44	64.33	50.28
ASS.12				14.11	14.00	36.33	ASS.12				33.53	35.00	70.22
ASS.195					18.00	30.78	ASS.195					20.00	61.00
ASS.16						30.00	ASS.16						40.25
Parent mean=20.27 Hybrids mean=29.90							Parent mean=30.57 Hybrids mean=61.33						
The average of protein content (%)													
Lines	ASS.174	Gold.	ASS.99	ASS.12	ASS.195	ASS.16							
ASS.174	31.15	26.22	25.45	27.86	25.55	26.40							
Gold.		23.18	29.19	29.53	29.49	27.72							
ASS.99			26.00	28.18	24.94	31.10							
ASS.12				26.23	31.66	29.19							
ASS.195					30.00	26.70							
ASS.16						25.17							
Parent mean=26.90 Hybrids mean=28.00													

Table (2): Analyses of variance for 7 characters in a 6x6 diallel cross of faba bean.

Item	d.f.	Plant height	Number of branches	Green pod length	Green pod width	number of dry pods/plant	Weight of dry seeds/plant	Protein content
Blocks	2	60.937	0.466	1.909	0.0305	117.734	408.421	0.777
Genotypes	20	969.044**	1.395**	3.446**	0.0913**	390.199**	2126.81*	27.962**
Error	40	97.328	0.275	0.140	0.0016	48.418	333.602	0.372

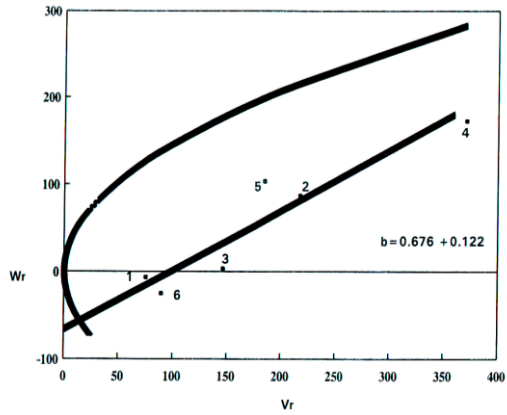
Table (3): The diallel analysis of variance for the seven 7 characters.

Item	d.f.	Plant height	Number of branches	Green pod length	Green pod width	number of dry pods/plant	Weight of dry seeds/plant	Protein content
		MS	MS	MS	MS	MS	MS	MS
a	5	1248.35**	4.016**	10.511**	0.309**	258.815*	960.85*	9.031**
b	15	875.950**	0.522*	1.091**	0.0187**	433.993**	2515.46*	34.271**
b ₁	1	3982.899**	1.279*	3.401**	0.0013	1608.357**	14863.08**	35.082**
b ₂	5	595.387**	0.072*	1.010**	0.0183**	149.434*	1058.709*	65.828**
b ₃	9	686.601**	0.687*	0.880**	0.02083**	461.597**	1952.82*	16.649**
Error	40	97.328	0.257	0.140	0.0016	48.418	333.602	0.372

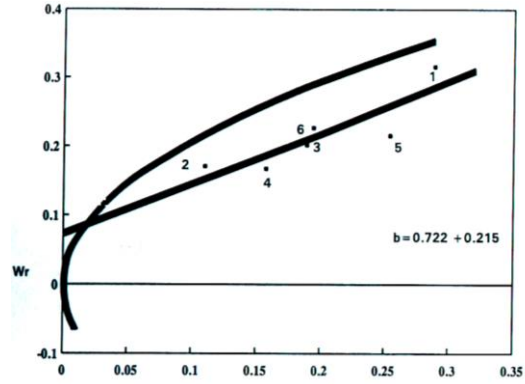
Table (4): Components of the genetic variation for the seven characters.

Item	Plant height	Number of branches	Green pod length	Green pod width	number of dry pods/plant	Weight of dry seeds/plant	Protein content
D	160.261	0.2869	1.535	0.0404	54.024	33.097	9.306
H ₁	567.96	-0.0280	0.738	0.0141	248.75	1403.89	36.908
H ₂	475.82	0.0620	0.571	0.0106	235.53	1306.30	22.433
F	135.329	-0.192	0.565	0.0098	49.252	98.062	22.860
(H ₁ /D) ^{1/2}	1.88	0.312	0.693	0.590	2.145	6.517	1.991
Heritability in broad-sense	76.14%	58.8%	89.8%	95.5%	71%	64%	96%
Heritability in narrow-sense	25.00%	54.4%	71.7%	82.5%	9.4%	3.5%	7.3%

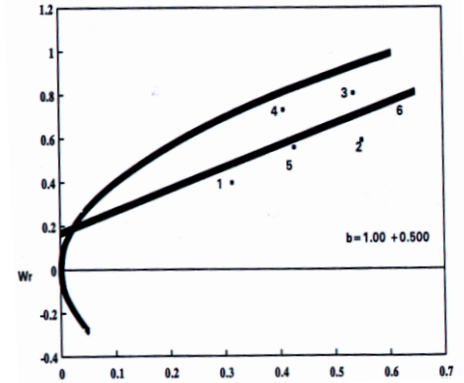
**Significant at 0.05 probability level



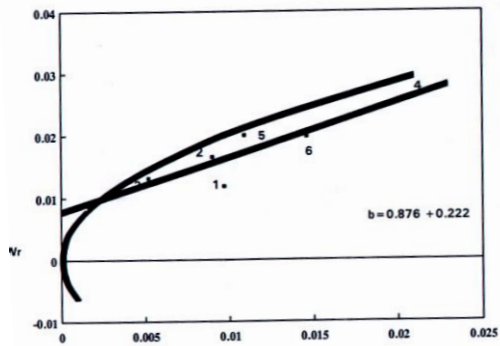
Plant height (cm)



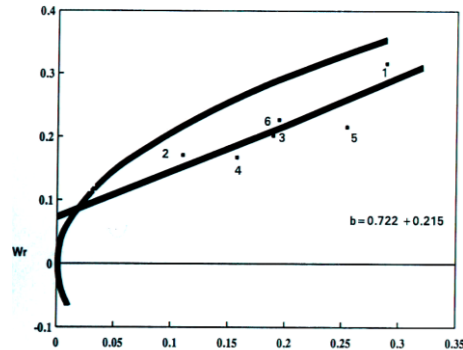
Number of branches/plant



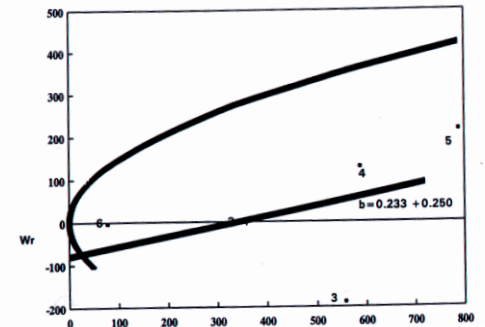
green pod length



green pod width (cm)



Weight of dry pod/plant



Weight of dry seeds

Fig.(1) (cont.): W_r , V_r graphs for all characters studied in faba bean.