

# INHERITANCE OF BRANCHING HABIT IN GRAM (*CICER ARIETINUM*)

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Among the several types of gram (*Cicer arietinum*) raised on the Cotton Breeding Station, Coimbatore, two distinct differences in the method of branching were noticed. One type had no axillary branches till about the ninth node but had higher up strong laterals with the result that well developed plants assumed the form of an open umbrella. In the other, secondary branches occurred even from the ground level, which in their turn quickly developed equally strong tertiaries (Plate I). Both types were found to breed true. There was practically very little variation from season to season and when found, it was within narrow limits. The types isolated by the Economic Botanist, Pusa, generally exhibited greater branching tendencies as would be noted in the accompanying table against Pusa types T. 6 and T. 8.

With a view to study their mode of inheritance, the umbrella-shaped type (No. 19) isolated from the local variety was crossed with three strains with branching habit viz. one (No. 468) from the local and the other two (T. 6 and T. 8) from Pusa types. The  $F_1$  plants showed dominance in the basal branching character. In the  $F_2$  there was a clearcut segregation conforming to a simple monohybrid ratio (vide table on the reverse). It might be mentioned that in the case of the cross 468  $\times$  19, the number of basal branches in each plant was not counted in the  $F_2$ . They were only classified into branching and non-branching categories. Their  $F_3$  progenies were however, studied in greater detail; and the mode of behaviour was quite in agreement with the expected ratios confirming that only a single pair of factors was responsible for the differences noticed in their phenotypic expression. These were designated by the symbols Br-br.

The higher range noticed in the Pusa types seems to be influenced by modifying factors. These are being studied.

That habit in plants is controlled by a single pair of genes has been observed by Shull (1908) in *Helianthus annuus* and by Abe' (1919) in *Sesamum indicum*. The data presented here form another instance along that line.

## Reference.

- Abe' (1919). Preliminary note on inheritance studies of some characters in *Sesamum indicum*. Bot. Abst. 3, pp. 303.  
Shull, G. H. (1908). Some new cases of Mendelian inheritance. Bot. Gaz. 45, pp. 103.

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F. 1 of (19  $\times$  468)





Table.

Parents.	Generation.	Parental branching habit.	Number of families studied.	Actual number of plants in							Non-branched.	Total number of plants.	Expected ratio.	Value of P.
				Branched.										
				No. of basal branches.										
				Total branched.										
				1	2	3	4	5	6	7				
19	...	...	...	...	...	...	...	...	30	30	...	...	...	
T. 6	...	...	...	9	10	9	10	13	12	6	69	...	...	...
T. 6 × 19	F <sub>1</sub>	...	...	9	2	...	5	...	...	...	16	...	...	...
"	F <sub>2</sub>	Branched	10	152	162	63	12	5	1	1	396	142	3:1	>0.70
T. 8	...	...	...	11	13	7	6	10	6	10	63	...	...	...
T. 8 × 19	F <sub>1</sub>	...	...	2	1	1	...	...	...	...	4	...	...	...
"	F <sub>2</sub>	Branched	4	69	73	43	4	4	...	...	193	65	3:1	>0.90
468	...	...	...	32	15	...	...	...	...	...	47	...	...	...
468 × 19	F <sub>1</sub>	...	...	...	...	Not counted.		...	...	...	1	...	...	...
"	F <sub>2</sub>	Branched	1	...	...	Not counted.		...	...	...	72	27	3:1	>0.50
"	F <sub>3</sub>	"	8	100	17	1	...	...	...	...	118	...	...	...
"	F <sub>3</sub>	"	21	540	74	...	...	...	...	...	614	220	3:1	>0.30
"	F <sub>3</sub>	Non-branched	7	...	...	...	...	...	...	...	...	248	...	...