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# INHERITANCE OF CRESENT COLOUR ON STANDARD PETAL IN GROUNDNUT *(Arachis hypogaea* L.*)*

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The study of F2 plants of intraspecific hybrid between the varieties having purple veins in the standard petal and varieties lacking the purple colour showed a segregation in the ratio of 3:1 for purple colour and for its absence. Hence it is evident that the character is governed by single dominant gene. Since the ratio is identical in both direct and reciprocal crosses, the influence of cytoplasm is ruled out.

In groundnut (*Arachis hypogaea* L.) improvement programme, use of multiple crosses was suggested by many workers, as the broader genetic base will have more chance of locating transgressive segregants (Arunachalam *et al.*, 1980). However lack of marker genes to identify the real hybrids in early stages is a lacuna in programming multiple crosses. Any marker in the flowers is a real boon for implementing, the programme. In this investigation the inheritance of purple veins radiating from the basal cresent on standard petal is studied and this character would be of use in locating the real hybrids.

## METERIALS AND METHODS

The standard petal of the groundnut is described as suborbicular, tip emarginate deflexed at about 90±C above the gibbose, thickned claw like base. Purple veins radiate upwards from the top of the thick base. However, the purple colour is absent in some varieties. Based on the purple cresent on standard petal, it was classified into five grades (John *et al.*, 1954). NCAC 17090 variety having flowers without purple cresent (grade V) was crossed with varieties having purple veinns Viz., JL 24 and VG 5 (grade III) in reciprocal ways and the progenies were studied in F1 and F2 generations for the segregation of cresent colour. The segregation ratio was confirmed with chi square test for goodness of fit.

## RESULTS AND DISCUSSION

The flowers of F1 plants exhibi-

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ted purple veins on standard petal indicating the dominance of this character In F2 generation the occurrence of purple veins and its absence was observed in the ratio of 3:1 in all the crosses (Table) confirming the involvement of single dominant gene for purple veins. Since the chi square values were not significant between direct and reciprocal crosses the influence of cytoplasm is ruled out.

Inheritance of flower colour has been studied by various workers. Deep colour was dominant over light (Hayes, 1933) and yellow colour was incompletely dominant over white (1:2:1) in one cross and controlled by additive genes (9:6:1) (Habib *et al.*, 1980) in another cross. The deep colour of the flower has pleiotropic effect on seed coat by having purple colour. Since the purple pigment is water soluble and it will spoil the colour of the oil and hence not preferred by trade. However, the purple vein marker may be an ideal index if the parents without purple veins are involved in hybridization programme.

Table Chi square test for 3:1 monohybrid ratio

| Name of the cross | Filial generation | Presence of purple veins | Absence of purple veins | Ratio | x2 value | P Value between |
|---|---|---|---|---|---|---|
| NCAC 17090xJL 24 | F1 | 56 | — | — | — | — |
| | | | | | Ns | |
| | F2 | 776 | 251 | 3:1 | 0.52 | 0.5-0.3 |
| JL 24xNCAC 17090 | F1 | 43 | — | — | — | — |
| | | | | | Ns | |
| | F2 | 1033 | 347 | 3:1 | 0.05 | 0.5-0.3 |
| NCAC 17090xVG 5 | F1 | 32 | — | — | — | — |
| | | | | | Ns | |
| | F2 | 484 | 149 | 3:1 | 2.16 | 0.2-0.1 |
| VG 5xNCAC 17090 | F1 | 36 | — | — | — | — |
| | | | | | Ns | |
| | F2 | 636 | 226 | 3:1 | 1.95 | 0.2-0.1 |

NS-Not significantly deviating from zero : 1 and 3 are direct crosses and 2 and 4 its reciprocals.

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# EFFECT OF LEAFHOPPER, *Amrasca devastans* (DIST.) FEEDING ON THE RESPIRATORY ACTIVITY OF OKRA, *ABELMOSCHUS ESCULENTUS* (L.) MOENCH LEAVES

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Leafhopper infestation in okra leaves has altered the respiratory activity of leaves. A. E. 22, a resistant variety, respired less compared to highly susceptible (Pusa Sawani) and susceptible (F1 hybrid) varieties. Rate of respiration in the infested leaves was more compared to healthy leaves in all the varieties.

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