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Short Communication

Inheritance of moderate pod-reticulation in groundnut (*Arachis hypogaea* L.)

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Pod characteristics like reticulation, constriction, beak, pod size etc. are important traits associated with identification of varieites in groundnut. The reports in literature show that prominent reticulation of the pods was reported to be dominant to absence of pod reticulation [1-4]. Badami [1] hypothesized at least four factors for deep reticulation whereas Manoharan and Ramalingam [4] reported two factors for the same. Using three crosses involving parents with pods with moderate reticulation and with smooth pod, Radhakrishnan et al. (personal communication) proposed a digenic inhibitory gene action system for pod reticulation.

The cultivar GG 2, an advanced breeding line PBS 12143 and the germplasm line NCAc 343, all having pods with moderate reticulation, were used as the female parents in this study. The cultivar JL 24 used as the male parent, has smooth pods (absence of reticulation). The F_1's were raised in medium black calcareous soil (vertisol) during *kharif* 1999 at National Research Centre for Groundnut, Junagadh. The F_1 plants were harvested individually and were raised in plant to progeny rows in F_2 during *kharif* 2000. Pods were critically observed for presence or absence of reticulation (score 0 for no reticulation and 5 for moderate reticulation on 0 to 9 scale) as per the descriptors for groundnut [5]. The goodness of fit between the observed and expected segregation pattern in different crosses in F_2's was tested by using χ^2 test (Table 1).

Table 1. F_2 segregation of pod reticulation in groundnut

Cross	F_1	F_2 progeny			χ^2	P
		Smooth	Moderately reticulated	Total	(13:3)	
GG 2 × JL 24	Smooth	126	32	158	0.234	0.50-0.95
PBS 12143 × JL 24	Smooth	37	14	51	2.530	0.10-0.20
NC Ac 343 × JL 24	Smooth	44	6	50	1.490	0.20-0.30
Total		207	52	259	0.299	> 0.95
Heterogeneity					3.955	0.10-0.20

In all the crosses F_1's produced smooth pods. It is evident from the F_2 segregation data of these crosses that the segregation of smooth pod *vs.* reticulation fit well to the 13:3 ratio in all the three F_2's. Out of a total of 259 progenies over the families, 207 produced smooth pods and rest 52 produced reticulated pods. Thus, overall segregation fitted well to ratio 13 smooth pods: 3 reticulated pods. Therefore, it is evident that the reticulation of pods in the parents studied is under the control of digenic inhibitory gene action. Patil [2] found monogenic inheritance of pod reticulation in groundnut and proposed the gene symbol *rp* for the locus. However, the present study suggests the presence of an inhibitor gene in the control of reticulation. Hence, the gene symbol *rp* proposed for reticulation [2] locus may be retained and the symbol of the inhibitory gene for the character may be proposed as I^r/i^r. Thus, the common male parent (JL 24) used in this study having genotype of $I^r I^r$ rprp had smooth pod. Similarly the genotypes of the three reticulated parents used were $I^r I^r RpRp$.

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