

## Addendum:

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1. Pigmented silk scar.

A pericarp variant in maize, characterized by the development of red pigmentation around the silk scar, has been repeatedly collected from the local Bombay markets. When crossed with either  $P^{RR}$  or  $P^{WW}$  (or even when self-pollinated), the original phenotype is seldom recovered. The  $P^{RR}$  allele is apparently extracted unaltered. On the other hand, when crossed (after selfing for one generation) with a highly inbred homozygous coloured aleurone stock (kindly supplied by Prof. R. A. Brink), it disclosed an unusual property of inhibiting the aleurone pigmentation. Thus, (1) when crossed as the male parent, the resulting kernels were considerably weaker in pigmentation, and (2) when mated as the female parent, the resultant kernels with a few exceptions were completely colourless. This property seems somewhat similar to that of Greenblatt's Diffuse (MNL 33:129-130), wherein  $Df/df$  pollen placed on silks of A C R plants produces 5-10% smoky kernels, with the remainder self-coloured. In the present case, however, pigmentation in all the kernels seems to be weakened, although the intensity of pigmentation is not uniform.

Table 1

Types and numbers of kernels obtained from backcrossing the  $F_1$  between Red Silk Scar Pericarp and a colored aleurone stock, Wis.  $A_1 A_2 C R$ , as female parent to the colored aleurone stock.

Cob no.	Pedigree no.	Genotype	Aleurone pigmentation grades					Total	Color index
			Full color- ed	Color- less					
				5	4	3	2		
1	$\frac{B60-33-21}{29-12A}$	Red Silk Scar Pericarp / Wis. $A_1 A_2 C R$ Wis. $A_1 A_2 C R$	36	27	27	32	16	138	3.25
2	$\frac{B60-33-30}{29-21}$	"	8	5	4	4	6	27	3.18
3	$\frac{B60-35-2}{29-12B}$	Red Silk Scar Wis. $A_1 A_2 C R$ / Pericarp Wis. $A_1 A_2 C R$	38	8	8	13	16	83	3.47

Table 2

Types and numbers of kernels obtained on selfing the  $F_1$  between Red Silk Scar Pericarp and a colored aleurone stock (Wis  $A_1 A_2 C R$ ).

Cob no.	Pedigree no.	Genotype	Aleurone pigmentation grades					Total	Color index	
			Full colored	Colorless						
				5	4	3	2			1
1	B60-33-23 (X)	Red Silk Scar Pericarp (X) Wis. $A_1 A_2 C R$	--	--	--	--	298	298	1.0	
2	B60-33-25 (X)	"	21	15	11	5	111	163	1.9	
3	B60-33-26 (X)	"	--	--	--	--	114	114	1.0	
4	B60-33-27 (X)	"	31	14	9	14	107	175	2.1	
5	B60-33-30 (X)	"	50	13	32	10	149	254	2.2	
6	B60-34-1 (X)	"	56	17	25	21	209	328	2.05	
7	B60-34-2 (X)	"	13	2	4	2	56	77	1.9	
8	B60-34-3 (X)	"	32	11	12	7	189	251	1.8	
9	B60-34-4 (X)	"	33	21	30	14	180	278	2.0	
10	B60-34-5 (X)	"	44	20	20	20	233	337	1.84	
11	B60-34-6 (X)	"	61	31	15	42	169	318	2.2	
12	B60-34-7 (X)	"	65	29	22	21	144	281	2.4	
13	B60-34-8 (X)	"	53	24	21	36	142	276	1.9	
14	B60-34-9 (X)	"	35	34	22	37	191	319	2.01	
15	B60-35-1 (X)	Wis. $A_1 A_2 C R$ Red Silk Scar Pericarp (X)	83	4	15	46	153	300	2.4	
16	B60-35-6 (X)	"	50	23	19	18	207	317	2.02	
17	B60-35-9 (X)	"	34	9	7	9	68	127	2.4	
18	B60-35-10 (X)	"	53	21	20	25	131	250	2.3	
19	B60-33-29 (X)	"	Red Pericarp							
			Average color index:							
Wis. $A_1 A_2 C R$ Red Silk Scar Pericarp			= 2.28					Red Silk Scar Pericarp Wis. $A_1 A_2 C R$ = 1.88		

Backcross of the  $F_1$  with the colored aleurone stock as the recurrent male parent yielded kernels giving a whole spectrum of aleurone pigmentation ranging from completely colored to completely colorless. Kernels were scored against a set of standards of 5 intensities of pigmentation. The data are given in Table 1. If a simple partially dominant inhibitor is postulated to explain the  $F_1$  data, the backcross data show a preponderance of colored kernels (when all colored grades are lumped together). Various two factor hypotheses also do not seem to reconcile the  $F_1$  and backcross data.

The  $F_2$  data are recorded in Table 2. Attention is drawn to the fact that 2 cobs gave only colorless kernels. Secondly, the average score of pigmentation for the crosses  $\frac{A \ C \ R}{\text{Pigmented Silk Scar}} \textcircled{x}$  is somewhat higher than that of the crosses  $\frac{\text{Pigmented Silk Scar}}{\text{Wis. A C R}} \textcircled{x}$ .

The differences, however, are not statistically significant.

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## 2. Extreme modifications in radiosensitivity of maize seeds stabilized for different moisture contents.

Maize seeds of inbred Oh57, when irradiated with gamma radiation doses of 10 to 50 Kr. following their stabilization for moisture contents ranging from 1.87 to 10.55%, showed extreme modifications of radiosensitivity as measured by seedling height and survival. The radiation sensitivity varied by a factor of about 5. The maximum differential in radiosensitivity was attained at 10 Kr. In contrast, hulled barley seeds of a local variety, stabilized similarly for their moisture content (1.97 to 12.01%) and irradiated with the same doses gave a differential in radiosensitivity of a factor of less than 2. Furthermore, the maximum differential was obtained at the dose of 40 Kr. Barley seeds, in addition, showed an increase in radiosensitivity at the highest moisture level (12.01%). It was inferred that when the full range of moisture contents of the seeds is examined, the seeds show an increase in radiosensitivity both at low and very high moisture levels.

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