

3.3.2 - Dente Branco Paulista							
SP V (1)	36	9	3	0	-	-	
(2)	5	0	0	60	-	-	
3.4 - Semi-Dentado							
3.4.1 - Semi-Dentado Riograndense							
RGS XV	18	5	0	10	15	30	
RGS XVI	41	5	0	-	-	-	
3.4.2 - Semi-Dentado Paulista							
SP IX	19	5	1	0	0	0	
MT VII	2	0	0	-	-	-	
3.5 - Cravo							
3.5.1 - Cravo Riograndense							
RGS VII	58	3	0	30	-	-	
RGS VIII	39	0	0	20	20	-	
3.5.2 - Cravo Paulista							
SP I (1)	24	0	0	70	20	-	
(2)	18	1	0	80	-	-	
SP II	18	0	0	15	-	-	
4. EXOTIC COMMERCIAL RACES							
4.1 - Hickory King							
RGS IX	53	0	0	20	20	-	
4.2 - Cuõa Yellow Dent							
BA III	14	7	4	-	-	-	

\*) - Subjective classification

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1. Ethyl methanesulfonate induced mutations in maize.

To understand the genetic effects of radiations, the frequency of mutations induced by  $\gamma$ -rays and ultraviolet light was reported in our earlier works following treatment of Su pollen grains in maize. The present work is concerned with the mutations induced by ethyl methanesulfonate (EMS).

Mature pollen grains carrying the dominant gene (Su) were spread in a monolayer on a round plastic plate. Each plate was then placed on a glass supporter inside a petri-dish containing 25 ml of 0.5% EMS solution at  $30^{\circ} \pm 2^{\circ}\text{C}$ . The EMS solution was prepared in deionized distilled water without buffer before its application. The pollen was exposed to EMS vapor for 0.5, 1.0 and 1.5 hours. The treated pollen was then dusted on ears having the recessive gene (su). After maturity, endosperms were scored for whole or chimeral (partial) mutations and data thus obtained are shown in Table 1. Comparison was made of the mutation rate of the treatments with control.

Table 1  
Frequency of mutations at the sugary locus from EMS  
exposed pollen grains of maize

Treatment	No. of seeds tested	Mutation rate per 100 gametes			Percent of chimeras
		Whole	Chimeras	Total	
Control	2525	.04 $\pm$ .03	.04 $\pm$ .03	.08 $\pm$ .05	50.0
EMS*					
0.5 hr	9684	.05 $\pm$ .02	.32 $\pm$ .06	.37 $\pm$ .06	86.1
1.0	7751	.05 $\pm$ .08	.45 $\pm$ .08	.50 $\pm$ .08	89.7
1.5	8171	.05 $\pm$ .07	.59 $\pm$ .08	.64 $\pm$ .09	92.3

\*EMS: 0.5%

Seed setting was not affected by EMS treatment. The dose response curve against mutation rate showed a non-linear relationship. This saturation effect is not due to the reduction of seed fertility. The frequency of whole mutations was not significantly increased by treatments. On the other hand, the frequency of chimeral mutations increased significantly with the prolongation of treatment hours. This predominance of chimeral mutations was more or less similar to that found by Neuffer and Ficsor (1963) and Chatterjee et al., (1965).

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