

kernels, but is comparable to that of all self-colored mutants (R^{SC}) obtained from the pattern alleles, R^{st} and R^{mb} . In a preliminary test conducted in 1959, these same self-colored alleles were shown to be insensitive to the paramutagenic action of the R^{st} allele in $R^{SC}R^{st}$ heterozygotes. Two of these alleles, designated R^E Bolivia 1160 and R^E Ecuador 1172, were included in a 1960 test for paramutagenic action in heterozygotes with R alleles of contrasting plant color, known from previous trials to be paramutable. Results from testcross matings of these heterozygotes show that the R^E Bolivia 1160 allele is definitely paramutagenic, and is thus in this respect also, comparable to the majority of self-colored mutants from R^{st} or R^{mb} . The R^E Ecuador, however, showed no paramutagenic action. It is the only R allele giving red seedlings and anthers thus far found, that is apparently both non-paramutable and non-paramutagenic. In this respect it resembles certain self-colored mutants from stippled or marbled but differs from them in giving plant color. The latter characteristic would appear to exclude mutation from R^{st} or R^{mb} as the origin of R^E Ecuador 1172.

Derek Styles

UNIVERSITY OF WISCONSIN
Madison, Wisconsin

and

HARROW RESEARCH STATION
Harrow, Ontario, Canada

1. Note on the transposition of Modulator from the variegated pericarp allele.

The P^{VV} allele has been postulated by Brink and Nilan (Genetics 37: 519-544, 1952) to be a compound structure, one component of which is P^{RR} , the top dominant in the multiple allelic series at the P locus on the short arm of chromosome 1, and the other component a genetic element, which suppresses the pigment-producing capacity of P^{RR} , termed Modulator (Mp). The medium variegated phenotype which comprises numerous red stripes of various sizes on a colorless background was assumed to result from the transposition of Modulator from the P locus to a position elsewhere in the genome, thus restoring the normal pigment-producing action of P^{RR} . Progeny tests showed that another phenotype called light variegated often accompanies the mutation to self-red. This variegated phenotype was found to differ from medium variegated in possessing an additional Modulator at some position in the genome other than the P locus.

Van Schaik (Genetics 44: 725-737) studied the sites to which Modulator is transposed when the element is removed from the P locus in the mutation of variegated to red pericarp. The criterion used to identify the transposed Modulator was the capacity of this element to change the pericarp phenotype from medium to light variegated. She found that 64 percent of the new positions of Modulator showed linkage with P, and 29 percent of the transposed Modulators showed no recombination with the P locus.

While conducting another study on the light variegated phenotype, more information on the transposition of Modulator from the P locus was obtained. Independently occurring mutations from medium to light variegated were assembled from mutants on medium variegated ears. These mutants, which were heterozygous for variegated pericarp and hemizygous for transposed Modulator, were crossed to colorless pericarp inbred strains. Progenies were then grown out, and the variegated ears were harvested and classified for pericarp color.

The results of testing for recombination between P and transposed Mp are presented in Table 1. Of the 17 families tested, each representing an independent mutation to light variegated, 7 or 41 percent showed linkage of P and Mp, and 2 or 12 percent showed no recombination between P and Mp. These findings indicate that when Mp is

Table 1. Percentage of medium variegated segregates among the test-cross offspring of independent, newly arisen light variegateds.

Family Number	Number Var. ears	Number Med. Var.	Percent Med. Var.
T13	84	33	39.3*
T14	73	36	49.3*
T15	59	2	3.4+
T16	85	1	1.2+
T18	70	42	60.0*
T21	96	47	49.0*
T24	84	45	53.6*
T28	71	30	42.3*
T30	33	6	18.2+
T31	37	17	46.0*
T34	58	29	50.0*
T35	28	13	46.4*
T36	47	0	0.0+
T39	13	4	30.8*
T41	75	10	13.3+
T42	62	2	3.2+
T44	70	0	0.0+

* Not significantly different from 50 percent ($P > .05$).

+ Differs very significantly from 50 percent ($P < .01$).

transposed from P to another site in the genome, the new site is very frequently located within 50 crossover units on either side of the P locus. These data also indicate that transposed Mp may not be as frequently linked with P as the data presented by Van Schaik indicated. In particular, the number of families showing no recombination between P and Mp was much lower in the data presented here.

G. H. Clark

UNIVERSITY OF ZAGREB
Zagreb, Yugoslavia
Department of Plant Breeding and Genetics

1. Percentage of inbred lines with chlorophyll deficient seedlings in the first generation after selfing of some Yugoslav varieties of maize.

The frequency of inbred lines with chlorophyll deficient seedlings: white (w), luteus (l), virescent (v), virescent luteus (v l) and virescent white (v w), which have developed in the first year after selfing of plants in some Yugoslav varieties, has been studied. For that purpose 7 yellow flint, 4 white flint, 11 yellow dent and 5 white dent varieties have been investigated. Some of these have been improved through individual selection.

The percentage of chlorophyll deficient inbred lines was much greater from unimproved varieties. In flint maize it varied from 25.7% to 33.5% and in dent maize from 22.3% to 31.3%.

From improved varieties the variation was as follows: in flints from 2.8% to 5% and in dents from 2.1% to 5.9%. In flints and in dents the percentage of chlorophyll deficient inbreds in the first generation of selfing increased in the following order: white; white, virescent-white; white, luteus; white, luteus, virescent; white, luteus, virescent-white.

The data are given in the tables appearing on the next two pages.

A. Tavčar