

strains with higher amylose contents will be found in this or in later generations. The amylose was determined by potentiometric titration with iodine at the Northern Regional Utilization Branch, Peoria, Illinois.

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1. Distribution of transposed Modulator.

Modulator (M_p), the element postulated by Brink and Milan as responsible for the suppression of P^{RT} (red pericarp, red cob) action to give the P^{VV} (variegated pericarp, variegated cob) allele, frequently undergoes transposition from the P locus. A transposed-Modulator (tr-M_p) when present in the genome with an unaltered P^{VV} allele (P^{RT}M_p) gives the light variegated phenotype.

An experiment was designed to study the distribution of these transposed Modulators. Independent transpositions of M_p (new mutations from medium variegated to light variegated) were collected, and the linkage relations of tr-M_p then studied.

It was found that tr-M_p could occupy positions both linked and non-linked to the P locus. Cases were observed in which tr-M_p showed linkage to reciprocal translocations marking chromosomes 4 and 5, and 5 and 9. In the majority of cases, however, tr-M_p shows some degree of linkage with the P locus on the first chromosome. Among 67 independent transpositions of M_p from the P locus, 64 per cent of the new positions were linked to the P locus. This percentage is much higher than would be expected if moves were at random. The frequency with which tr-M_p occupies any given position on chromosome 1 increases sharply as the distance from the P locus decreases. Modulator, after becoming transposed from the P locus, often undergoes further transposition. Limited data were obtained suggesting that tr-M_p is less likely to undergo secondary moves if the position first held is close to the P locus.

2. Cytological positions of reciprocal translocations involving chromosome 1 and linkage with the P locus.

During the course of an experiment in which various reciprocal translocations were used as markers, the data given below were collected showing the linkage between the P locus and several reciprocal