

3. A chromosomal technique used in biochemical studies on the developing endosperm of maize.

Biochemical studies on the developing endosperm of maize required an ontogenetic series of starchy and sugary seeds from the same ear. This separation does not become apparent until near maturity while a separation of yellow and white endosperm can be made by the early milk stage about two weeks after pollination. The separation of starchy and sugary seeds was accomplished by the use of translocation T 4-6a which linked the genes Y_1 and su with only 4.5 percent crossing-over.

In translocation T 4-6a, the cytological positions of the two breaks are 4L.33 and 6L.44. The break in chromosome 4 is between su and Tu . No crossovers were found with Y_1 in chromosome 6.

In the heterozygous translocation there is suppression of crossing-over as shown by a comparison with the normal linkage maps.

Chromosome 4

Standard $Is_5 - 15 - su - 29 - Tu$

Translocation $Is_5 - 14.9 - su - 4.5-T- 5.2-Tu$

Chromosome 6

Standard $Y_1 - 28 - Pl - 10 - sm$

Translocation $T - 4.2 - Pl - 5.2 - sm$

Linkage tests with the homozygous translocation gave the following maps:

Chromosome 4^{6a} $Ts_5 - 12.5 - su - 19.7 - Pl - 11.4 - sm$

Chromosome 6^{4a} nucleolus - - - - Tu

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