

3. Degree of spread of mutation along the chromosome induced by Ds.

When Ds is located immediately to the left of Sh in chromosome 9 it induces, in the presence of Ac, changes in action of genic materials located to either side of it. Ds is retained following such an event and it is unaltered in its location. A number of mutations of Sh and simultaneous mutations of both Sh and Bz have been examined in the past, as well as those changes that affect the genic materials located to its left and extending into the I locus. In order to expand the study of spread of mutational change along the chromosome, plants having Ds-induced modifications of gene action in the segment which extends to its left and includes the I locus were used in crosses in order to isolate from these plants some cases in which Sh or both Sh and Bz, located to the right of Ds, were subsequently modified. Three cases of modification of Sh expression but not that of Bz were isolated and examined. In two other examined cases, both Sh and Bz were modified in their expression to give the recessives, sh and bz. In none of these 5 cases was the position of Ds detectibly altered as a consequence of the modifications in gene action it induced, nor was the previously modified action of genetic materials, located to its left, altered by these events. Cytological examination of plants carrying these 5 modifications gave no detectible evidence of alteration of chromosome components within the affected segment. These cases indicate that Ds-induced change in gene action can spread along the chromosome to include a segment of chromosome extending from the locus of Bz to and including that of I.