

17. A possible clue to the nature of Dt action.

From individuals homozygous for A^b (known to consist of separable elements each with greater than recessive a effect) and crossed with pollen from aa plants, individuals with recessive a phenotype occur with great rarity. One such derivative from an A^b/A^b , Dt individual has been tested in preliminary fashion. Its phenotype is similar to that of recessive a and it is likewise mutable. Moreover it is associated with recessive brown pericarp whereas A^b has a dominant brown pericarp effect. While the occurrence of such an individual is reminiscent of changes of the type allele, A , to a in the presence of Dt it appears necessary in the present case to account for the simultaneous change to the null condition of both the alpha and beta components of A^b , a requirement not easily satisfied on the hypothesis of gene mutation induced by Dt . Rather, it is contemplated that Dt may control an inhibiting element capable of influencing the adjacent alpha and beta components simultaneously. Critical evidence bearing on this hypothesis will await studies of reversions from the exceptional derivatives. McClintock based a similar argument on studies in which recessive a , in genetically dt dt background, was held to yield somatic reversions as scored in the endosperms of individuals in which chromosome 9 aberrations had been induced. It is hoped that the findings reported here will afford a means of testing this hypothesis in studies dealing directly with an analysis of Dt -induced changes at the a locus.