

2. Fluorescent compounds in Bf-1.

Isolation and identification of the anthranilic acid-containing blue fluorescent substances in anthers of Bf-1 are being carried out (see MGCNL 32:28, 1958). Extraction of strongly fluorescent fatty substances has been found to improve paper chromatography and chemical fractionation of the blue fluorescent components. The main fluorescent compounds are easily oxidized during purification. One of the substances has been obtained in crystalline form.

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1. Recombination values for 11 alleles at the Wx locus.

Presented here are the recombination values (Wx pollen grains x 10^{-5}) for 54 of the possible 55 F_1 's between 11 wx alleles of independent origin. The results of intercrosses between the alleles C, a, H21, 90, and B have been reported previously. Of the new alleles 1, 2, 4, 6, and 8 were kindly supplied by Dr. R. A. Brink who detected the mutations in an experiment designed to test mutation rate in a P^{VV} stock. After being received at Purdue the mutant alleles were separated from the allele (probably C) in the tester stock used to detect the mutational event. The R allele was furnished by Dr. D. W. Richardson who found the mutation in a stock of popcorn.

The recombinational values for the crosses between the new alleles and between the new alleles and the old alleles are given with considerable reservations. In the first place, the stocks are very heterogeneous with respect to background. We now know that in crosses between two different wx alleles, differences in genetic background can have a pronounced effect upon recombination values. In the second place, data for these new crosses have come from only two plants for each cross. For these reasons, it is felt that the recombination values given may be poor estimates of the frequency of recombination that would be shown by 2 alleles in a common genetic background.

It is felt, however, that a reliable datum for each cross is whether or not any recombination is observed (frequencies below 2×10^{-5} are considered as not showing recombination since some of the parental stocks may have a frequency this high). Table 1 presents the data in both forms for each cross. The order of the alleles is arbitrary as will be shown.

Inspection of the table will show that using lack of recombination as a criterion, one can separate the alleles into three distinct sets. They are (1) C which recombines with every other allele; (2) the set delimited by R and including H21, 4, and 2, none of which recombine with R; and (3) the set delimited by B and including a, 1, 90, 6, and 8, none of which recombine with B. Any member of a set will recombine with all alleles in the other 2 sets. Within a set, 2 alleles may or may not show recombination.