

These data suggest a map position in the general neighborhood of lineate but they do not tell which side of the centromere.

E. G. Anderson  
Ron Burkholder

## 2. Blue fluorescence.

Blue fluorescence under ultraviolet light is due to the accumulation of anthranilic acid or very closely allied substances in the seedlings and in the anther walls and filaments. The two blue fluorescent genes which have been isolated both lead to the accumulation of anthranilic acid or related compounds but otherwise differ markedly.

Blue fluorescent-1, when homozygous gives fluorescent seedlings which increase in fluorescence until about the third or fourth leaf, after which there is a gradual weakening or fading out. The plants increase in size very rapidly, and there is little, if any, further accumulation of anthranilic acid until anther development. The anther walls and filaments fluoresce brilliantly although the pollen itself shows no fluorescence.

Paper chromatograms of fresh material show three closely associated fluorescent spots, one of which is anthranilic acid. From extracts, all the fluorescent material appears as a single spot of anthranilic acid. When the gene is heterozygous the seedlings do not fluoresce, but the anther walls and filaments show a strong fluorescence as in the homozygote. Thus the gene can be handled as a recessive in the seedlings, as a dominant in the anthers. In most of the linkage tests and stock building, it has been convenient to use it as a dominant. Thus it is perhaps more appropriate to list the gene as a dominant for which the symbol  $Bf_1$  can be used. This gene has been located in the distal portion of the long arm of chromosome 9. It shows about 45 or 46 percent recombination with  $wx$ . By linkage tests with translocations, it has been placed at or near 9L.9.

Blue fluorescent-2, when homozygous gives a brilliant fluorescent in the early seedling stage with its maximum brilliance immediately after germination. The coleoptile tip is brilliant, and the first seedling leaf has its maximum fluorescence as soon as unfolded. The succeeding leaves show decreasing fluorescence. The chromatographic picture shows most of the fluorescent substance concentrated in a single spot which is identical with one of the three spots shown by fluorescent-1. The fluorescence of anthers and filament is less pronounced. In the heterozygote, the seedlings do not fluoresce, and the anther fluorescence is somewhat weaker than in the homozygote. For most purposes, it is most conveniently handled as a seedling character. So we prefer to list this gene as a recessive, with the symbol  $bf_2$ .

E. G. Anderson