

7. A new method of identifying cherry pericarp alleles.

The standard procedure for testing an R allele for cherry pericarp is to cross the stock with Pl and then to examine the pericarp of F_1 plants. In a series of studies on R^{ch}, Pl has been found to be unstable in its capacity to condition cherry pericarp. This unpredictability associated with Pl caused confusion in the beginning, but an accidental finding that even pl R^{ch} or pl r^{ch} plants develop cherry pericarp color if the ears are exposed to light resulted in a new method of identifying cherry alleles. Ears exposed to sunlight about two to three weeks after pollination by removing husks develop intense pigment within forty-eight hours if the plants carry a cherry allele. This pericarp will develop color even under artificial light in the laboratory. If the ears are exposed at a more advanced stage practically no pigment develops. The pigment developed under both artificial and sunlight resembles closely the pigment produced by Pl R^{ch} or Pl r^{ch} plants. All cherry stocks collected from different areas and maintained at Wisconsin responded positively to this test. One important precaution is that the stocks under question should not carry B in their genomes since B pl stocks, even without cherry alleles, develop some pericarp pigment when exposed to the sun.

G. R. K. Sastry

8. Is Pl a compound locus?

With appropriate genotypic constitutions Pl gives purple color to stems, glumes, anthers, and pericarp (Emerson, 1921). Plant color appears when plants are half grown, and classification on W22 background is clear just before anthesis. As a by-product of the experiments to study the nature of R^{ch}, a series of Pl cultures has been isolated with: (1) pl expression in the stems but reacting with R^{ch} to produce cherry pericarp (2) Pl expression in stems but not with R^{ch} to produce cherry pericarp (3) Pl expression in stems and pericarp but giving only red anthers like pl plants and (4) Pl expression in stems and anthers but not with R^{ch}. The fact that it was possible to isolate these different classes from normal Pl stocks raises the question whether Pl is a compound locus.

G. R. K. Sastry