
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 $R$ in their genomes since $B$ $Pl$ stocks, even without cherry alleles, develop some pericarp pigment when exposed to the sun.

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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.

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