

reaction might be catalyzed by peroxidase, but appropriate peroxides are apparently missing in the silks and this reaction requires the addition of hydrogen peroxide. Enzyme preparations from the brown and colorless phenotype both have polyphenol oxidase activity. However, polyphenol preparations from silks of the brown and colorless phenotypes differ. The polyphenol preparation from the brown phenotype turns brown when added to enzyme preparations from either the brown or colorless phenotype. But, the polyphenol preparation from the colorless phenotype remains colorless when added to enzyme preparations from the brown or colorless types. These results indicate the presence of a polyphenolic compound in the brown phenotype which is oxidized by polyphenol oxidase that is not present in the colorless phenotype. This compound has been isolated but not rigorously identified. It is tentatively identified as a flavonol based upon the following results. The compound has a yellow color; it turns yellow with a base and is unstable in air, becoming brown; it is orange in concentrated H_2SO_4 ; and it is magenta in alcoholic Mg plus HCl.

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2. Segregation for colored nodes.

A plant was found in the variety, Jarvis Golden Prolific, which had a red stripe approximately 1/8" wide encircling the culm at each node. The color appears beneath the leaf sheath and varies in intensity up and down the plant. The stripe is usually most vivid on 2 or 3 of the nodes immediately below the ear. The trait segregates as a single dominant gene; out of 597 progeny, 458 showed the red stripe and 139 had normal colored nodes. In testcrosses to normal plants, 200 plants had the stripe and 190 were normal. Tests for possible allelism with known loci which affect plant color are planned.

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