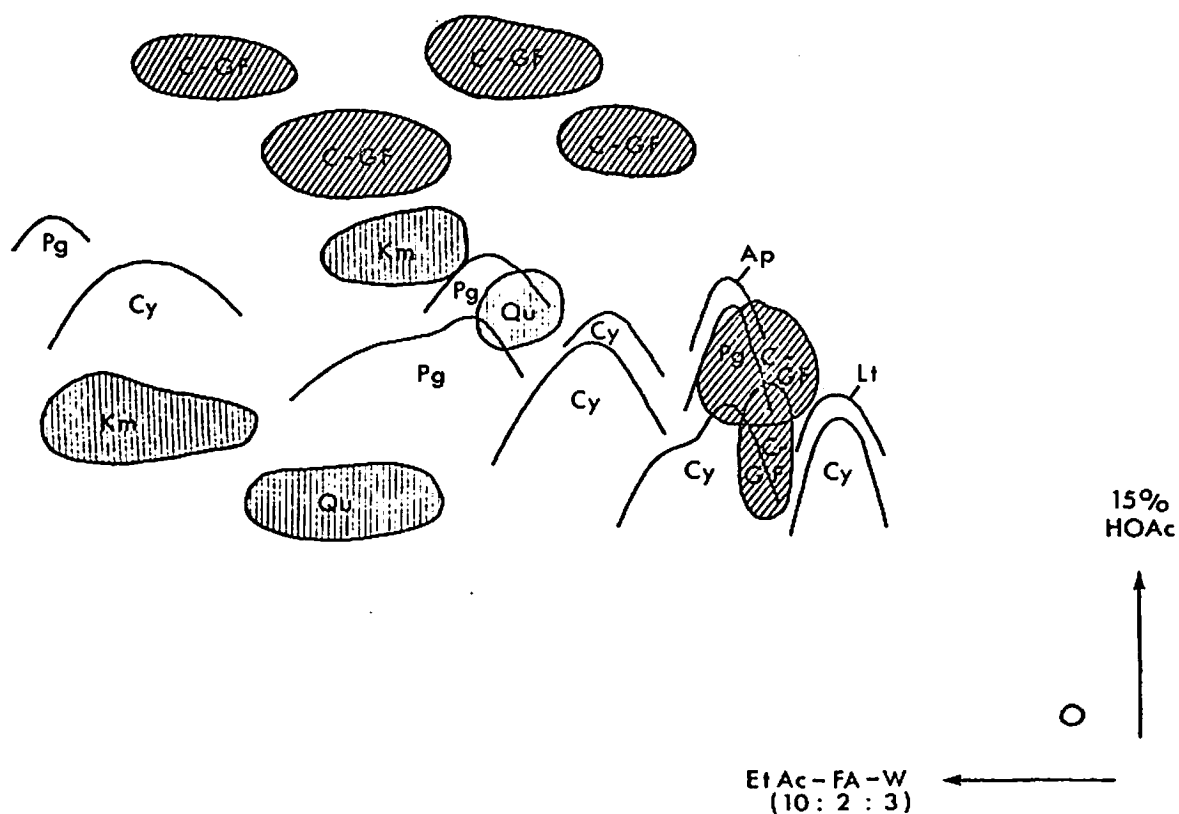





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### Flavonoids in maize seedlings

W22 stocks carrying known combinations of pigmentation genes have been characterized by thin-layer chromatography for the presence of flavonoids in seedlings (see figure). We are also screening other lines carrying the same gene combina-

Flavonoids in maize seedlings (two leaf stage). Tissue extracted in 1% HCl in MeOH and the flavonoids separated by two-dimensional thin-layer chromatography. Representative chromatogram of flavonoids in seedlings of genotype A A2 C C2 R-r P Bz Bz2 sm pr In.



-  CGF: C-Glycosylflavones
-  Flavonols: Qu = Quercetin glycosides; Km = Kaempferol glycosides
-  Anthocyanins: Cy= Cyanidin glycosides; Pg= Pelargonidin glycosides  
Lt= Luteolinidin glycoside; Ap= Apigeninidin glycoside

tions to be sure we are analyzing for gene-specific compounds. So far, we can report the following:

P: required for presence of C-glycosyl flavones. P-RR seedlings have traces of 3-deoxyanthocyanins; P-WR and P-RW have C-glycosyl flavones only. Some stocks designated P-WW have traces of C-glycosyl flavones in the seedlings, but close examination of the pericarp of such stocks shows some weak pigmentation, indicating that the alleles are not true amorphs. In general, the C-glycosyl flavone concentration in the seedlings is a good indication of P locus potential.

R or B (alleles that give seedling pigment): required for flavonols and 3-hydroxyanthocyanins. Concentrations of these two classes of flavonoids vary together in most stocks, according to the level of R or B action. So far we have found only one stock (of unknown genotype with respect to pigmentation genes) that has anthocyanins but not flavonols in the seedlings.

A: required for all anthocyanins. The intermediate alleles A-d and a-p have reduced amounts of anthocyanins relative to the concentration of flavonols; a stocks have no anthocyanins at all.

A2: required for 3-hydroxyanthocyanins.

Bz: required for flavonols and 3-hydroxyanthocyanins. Traces of leucocyanidin and 3-deoxyanthocyanin (5-glycosylated) are found in bz P-WR seedlings. We have not yet tested a bz P-WW combination to see if the 3-deoxyanthocyanins are formed independently of the P locus action.

Sm: P-WR sm stocks have traces of 3-deoxyanthocyanins, whereas P-WR Sm stocks have none.

c2-Idf: the c2-Idf allele in our W22 stocks prevents the formation of all flavonoids.

Pr: all flavonoids are predominantly 3',4' hydroxylated in Pr stocks, although traces of 4' hydroxylated compounds are usually present also. Seedlings of pr stocks vary as to the relative proportions of 3',4' and 4' compounds, but most have approximately equal amounts of both.

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