The foregoing criteria have allowed placement of 16 new male-sterile sources and tentative placement of a 17th. The uncertainty in the latter case is due to the fact that the only diagnostic line thus far crossed with this source is N6, which produced fertile F_1 progeny. Further testing will allow placement of this source. The results of analyses of the 17 new sterile strains are presented in Table 1.

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Unusual occurrence of phlobaphenes: the non-anthocyanic co-pigments in maize embryo

Investigations on a number of R alleles have shown that the R-nj allele conditions pigmented crown and embryo (plumule). Chemico-genetical studies on the unusual presence of the pigments in the embryo could help in studying gene action. During characterization of these reddish-purple pigments it was found that, apart from anthocyanins, some other water-insoluble co-pigments of non-anthocyanic nature were also present and could be isolated from embryo tissue in ethyl acetate. The solubility of these reddish-purple pigments is ethyl acetate and their degradation during acidic hydrolysis indicate them to be non-anthocyanic. Unlike anthocyanins and anthocyanidins, the absorbance of the pigments does not decrease on standing in the unacidified solvents even after several weeks, and hence they do not undergo pseudo-base transformation. Upon exposure to ammonia vapours, the new pigments darken but do not turn blue; they are insoluble in alkali, and addition of acid results in green colour. Paper chromatographic analysis in Forestal (acetic acid-conc. HCl-water, 30:3:10 V/V) and BAW (butanol-acetic acid-water, 4:1:5 V/V, upper phase) solvent systems gave one spot near the solvent front.

Some colourless hydroxyflavans such as hydroxyflavan-3-ols and hydroxyflavan-3:4-diols are known to occur in nature. On treatment with dilute acids they are easily converted into insoluble phlobaphenes. Dehydrogenative polymerisation of polyhydroxyflavans occurs with formation of brown or red insoluble phlobaphenes, and in nature self-condensation of polyhydroxyflavans proceeds without the assistance of enzymes (non-enzymically). Also, since phlobaphenes of the 3:4-diol series may form considerable amounts of anthocyanidin under acidic conditions, their possible involvement in anthocyanin biosynthesis through 'interconversions' cannot be ruled out unless they play some sole key role in meeting other metabolic demands.

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Biosynthesis of anthocyanins in maize: action spectra and role of phytochromes

Physiological studies on anthocyanin biosynthesis '*in laboratorium*' were carried out to study action spectra and phytochrome reversibility for several alleles of the R locus (R-g:Canada, R-r:Em, R-r:Standard and r-r) using red and far-red filters of predetermined absorption maxima. When exposed for a period of two days with light of restricted wavelengths in the red and far-red regions, maximum anthocyanin synthesis (determined spectrophotometrically) was found at 730 nm. Thus, wavelength dependence for anthocyanin biosynthesis in seedlings given prolonged exposures to light of approximately equal energy shows a main peak at 730 nm and a minor peak at 660 nm. These results indicate complexity of photo-control of anthocyanin synthesis, and that it is controlled by