pollen is selected against because of competition with normal pollen (Ghidoni, Atti A.G.I., 1965; and M.N.L., 1966).

2. Hyperploidy for the B^4 results in poor growth of the plant which becomes more pronounced with increased doses.

3. When two homologues B^4 are present the transmission is still not ensured to all gametes; some meiotic losses are possible as well as a low rate of non-disjunction either during meiosis or in the microspore divisions. This seems to preclude the possibility of fixing lines with such specific hyperploidy, since this attempt of altering permanently the genotype results in a deleterious unbalance of genetic factors.

Achille Ghidoni

4. An improved method for detecting monoploids from different inbred lines.

A considerable number of methods have been used to screen for maternal monoploids. Most of them were suggested by S. S. Chase (PNAS, 1947 and Agr. J., 1952) and successfully carried out by E. H. Coe, Jr. (J. Her., 1964).

Recently A. Ghidoni and E. Ottaviano (Genetica Agraria, Proc. 1966) suggested (as did R. W. Briggs independently in the M.N.L. 1966) that the colored scutellum stocks, i.e., homozygous for $A_1 A_2 C R$ and the scutellum color markers (S_1, either two of the $S_2 S_3 S_4$ series, and the recessive s_5), can be used as male parent to pollinate several colorless inbred lines used as female parents. Monoploids can obviously be detected in those lines not carrying C^I, and carrying the recessive s_5. It should be easy to recognize in which lines these two conditions are satisfied, since:

1. the lines carrying C^I, pollinated as mentioned above, should have the F_1 fully colorless (endosperm and embryo);

2. the lines carrying S_5 (dominant) should have, in the absence of C^I, F_1 seeds with colorless scutellum only.

These two categories can be easily recognized and therefore discarded. Those showing both endosperm and scutellum color are to be scored for putative monoploids, which would have colored endosperm and colorless embryo. Crosses were made on 25 colorless inbred lines, but the colored scutellum stock used as the male parent was not homozygous for all factors and therefore no data were available. However, Briggs' data showed the effectiveness of the method.

This method of testing different lines as potential producers of monoploids is similar to those involving in the male parent either the dominant colored plumule factors ($Pu_1 Pu_2$) or the dominant "Purple Embryo Marker" (which is R^{nj} in a proper background) as they were developed by Chase and I. Greenblatt (M.N.L. 1965, 1966 and Crop Sci., 1966). However, it has the advantage that colored scutellum classification is normally less

ambiguous than that of the plumule in dormant seeds; thus, the recognition of monoploids would be made easier since a more restricted class of seeds would need to be certified cytologically or by other means.

The improved method described here consists of combining a stock with both the Purple Embryo Marker and the scutellum color factors. This will be used as male parent to test several inbred lines. The introduction of $\underline{R}^{nj}$ into a colored scutellum stock is easy and would overcome the limitation imposed by $\underline{s}_c$ which is required by the method of colored scutellum used as the male parent. Also, the presence of scutellum color factors will be of considerable help in detecting monoploids where the Purple Embryo Marker alone could be sometimes ineffective.

As Chase designated the Purple Embryo Marker PEM, it is proposed to call such a combined stock PEMS, with addition of an "S" to indicate the presence of scutellum color factors.

Achille Ghidoni

5. The "diffuse stage" in meiotic prophase I of maize PMC.

A microsporocyte sample taken from a plant of an Indian race of maize from Ecuador was found to be knobless. A more intensive study of this sample showed, after a normal pachytene, a stage in which the chromosomes lost their visible individuality, assuming an interphase-like appearance. A brief diplotene stage was also observed, and a perfectly normal diakinesis followed.

This feature, unusual in maize, seems to be comparable to the so-called "diffuse stage" which is common in female meiosis of many species of animals, mainly insects and mammals. However, it has been reported in a few cases in the Plant Kingdom, namely in Hyacinthus by C. D. Darlington (J. Gen., 1929) and more recently in some species of mosses by F. J. Dill under the name of "dictyotene" (Science, 1964). The "diffuse stage" was also reported in tomato by P. B. Moens (Chromosoma, 1964). According to Moens this stage should precede diplotene rather than follow it.

The phenomenon is still not understood. Poor stainability of the chromosomes (the so-called "achromatic stage") which is sometimes observed, but less intensively, in diplotene of maize PMC, does not seem to account for the phenomenon described.

(The sample, kindly furnished by Dr. Bianchi, was obtained from the personal collection of Dr. A. Brandolini, Como, Italy).

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