

a tassel for 48 hours in the mutagen solution, which was replaced periodically (6 hours interval), and collecting pollen from these tassels for pollination. For pollen treatment mineral oil was used for suspension of the chemicals. Concentrations and mutation frequencies are presented in Table 1 (see preceding page). NG appears to be the best treatment in these studies.

J.K.S. Sachan and K.R. Sarkar

Interesting chlorophyll mutants — In the course of our mutagenesis studies, we came across two interesting chlorophyll mutants. The first one was luteus type, having fine green spots on shining lemon yellow leaves. It originated from 15 Kr gamma ray seed treatment. The spots were sharp and present in all leaves, and the mutants survived up to the 4 to 5 leaf stage only. Number of green spots per leaf varied from 5 to 15. The mutant segregated in a 3:1 ratio in M₂ (116 normal:34 mutant seedlings) and was maintained in heterozygous condition. In M₃ and M₄ families this mutant also appeared, but in addition to the spotted-luteus (1*-sp) types, luteus (no spots) and albino seedlings were also obtained. This may be a case of an unstable gene under the influence of controlling elements. In an attempt to locate this mutant, crosses with waxy translocation lines were made. Linkage indications with Wx were obtained in crosses involving T4-9g, T5-9a and T6-9 4505.

We called the second mutant "yellow virescent," as it differed from yellow-green and virescent. In M₂, it was very weak with narrow leaves, unbranched tassels and no silk. There was 50% mortality before flowering, but the appearance and performance improved in M₃ and M₄. This mutant was crossed with the waxy translocation series and linkage data showed significance in crosses with T4-9c, T4-9b and T9-10b.

J.K.S. Sachan and K.R. Sarkar

Pollen grain diameter in maize — Studies on the pollen grain size in a number of inbred lines of maize revealed some interesting findings. Fully mature anthers which would shed pollen in an hour's time were collected from the main axis of the tassel on the second day of pollen shedding and preserved in 70% alcohol. Pollen samples from ten anthers from a tassel were stained in acetocarmine, and 25 random grains were measured. Thus, means of 50 observations from two plants constituted the pollen grain size of each inbred. Mean pollen diameter in two separate sets of inbreds, the first set comprising 41 lines grown in the summer at Delhi and the second set of 73 inbreds grown in the winter at Hyderabad, showed wide and significant line-to-line differences. Pollen diameter in these lines ranged from 81.9 to 114.1 micra. The frequency distribution was quite normal.