

With the T18 line, this does not seem to be true. Some characters (leaf number) are slightly, others (for instance, height of the plant) are strongly mutable. Considering the average values, the 0.25% EMS treatment generally gives lower values in relation to the control than does the 0.10% EMS treatment.

- Summary:
1. EMS treatment increased the variability of 8 investigated quantitative characters in the M₂ progeny of C5 and T18 inbred lines of maize.
 2. In the C5 lines, the 0.10% concentration of EMS was more effective than the 0.25% concentration in changing the variational latitude.
 3. The different quantitative characters do not react uniformly upon mutagen treatment.

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1. B-chromosomes in the Oriental Maydeae.

Supernumerary or B-chromosomes have been reported and studied extensively in the New World Maydeae, maize, teosinte and Tripsacum (c.f. Randolph in Corn and Corn Improvement, pp. 18-19, 1955). In studies of several populations of Oriental Maydeae, we have encountered B-chromosomes in Coix aquatica (n=5) and Chionachne koengii (n=10). In the Coix material two populations, one from Madhya Pradesh and the other from Orissa, exhibited two B-chromosomes in a proportion of plants. The two chromosomes always paired within themselves and organized a single bivalent at meiosis which was more heteropycnotic than the regular A-chromosomes. The B-chromosomes did not show any synaptic relationships with the A-chromosomes.

In two populations of Chionachne koengii from Maharashtra and Andhra Pradesh, B-chromosomes varying from one to two per plant were observed. In crosses

designed to study the genetics of B-chromosomes evidence for non-disjunction on the male side was observed. It was not possible to accumulate more than three B-chromosomes in a given plant. Furthermore, in this species, at pachytene the B-chromosomes were seen to be of two morphological types, one with sub-median and the other with sub-terminal centromeres. Our preliminary studies on the effects of B-chromosomes on the chiasma frequency in the A-chromosomes show that the B-chromosome with sub-median centromere has a depressing effect while the sub-terminal one has an enhancing effect on the chiasma frequency of A-chromosomes. When the two morphologically different B-chromosomes are brought together in one plant they pair with each other and in such a situation only the effect of the B-chromosome with the sub-terminal centromere is manifested with reference to the chiasma frequency of the A-chromosomes.

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2. Apomixis in Coix.

Apomixis is a common phenomenon in grasses and one way of locating it is by attempting crosses between distantly related genera. In a program aimed at understanding relationships between maize and Coix we have made several crosses between the two genera. In none of the crosses true hybrids resulted. But when the cross was made using Coix as the female parent a low frequency of diploid Coix plants was recovered. In about 900 pollinations involving two species of Coix (C. aquatica and C. lachryma-jobi) as the female parents and maize as the male parent, 13 parthenogenetic-diploid Coix plants were obtained.

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3. Spontaneous chromosomal variation in Coix aquatica.

Coix aquatica is characterised by a basic chromosome number of $n=5$ which at meiosis normally organize into five bivalents. In studies on the population dynamics of this species two populations, one from Madhya Pradesh and the other from Orissa, were located which showed high proportions of chromosomal aberrations. The