

ON THE OCCURRENCE OF LOCALISED PARTIAL EARHEAD STERILITY IN A RTCE MUTANT

Several mutant types were developed at the Atomic Energy Establishment, Trombay, from PTB 10, the popular short duration rice variety of Kerala, during an investigation of the cytogenetic effects of thermal neutron irradiation on dry seeds. One of these types, Type 27-2, attained maturity in more or less the same period as PTB 10. This was grown and studied for five consecutive years, upto the N12 generation, in the Division of Agricultural Botany, Agricultural College and Research Institute, Vellayani, Kerala. It recorded an increment in grain yield by about 46.2 percent over the original PTB strain. Further, it was shorter in stature, and possessed better earhead and grain characteristics, which in turn, called for further investigations as to whether it could be economically utilised and popularised. A major drawback revealed itself during these studies and this was the occurrence of a significantly high degree of spikelet sterility (33.6 percent) which was localised in nature, prevailing only towards the basal regions of the earhead (Nair *et al* 1966).

In this type (Type 27-2) the meiotic behaviour of the chromosomes was studied during microsporogenesis. Twelve regular bivalents could be counted during Pachytene, Diakinesis and Metaphase I (Figures 1, 2 and 3). Complete pairing of chromosomes was noticed at Pachytene (Figure 1). During Anaphase I the chromosomes separated into two groups of twelve each (Figure 4). In general, the cytological observations made in this mutant type indicated an absolutely normal meiosis.

It thus appeared, in the light of the above observations, that in this mutant the significantly high and localised spikelet sterility in the earhead was more due to genetical than chromosomal causes.

Reference

- Nair, V. Gopinathan, Pillai, P. Kumara and Sreenivasan, K. 1966. Vellayani I, a new short duration paddy strain. *Agri. Res. J. Kerala*, 4 (2): 1-6

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