

Similar ratio of 1 resistant:15 susceptible was reported¹ in crosses involving CR 94-MR 1550 as one of the parents. CR 94-MR 1550 is a derivative of the cross IR 8 (Ptb 18 × Ptb 2). Sastry *et al.*⁴ reported a cross involving Phalguna as one of the resistant parents. The present study confirms the earlier findings where Ptb 21 was utilized as one of the parents. Incidentally Ptb 21 was the resistant parent involved in the present cross.

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SOME INTERESTING FEATURES OF MALE MEIOSIS IN *CHLOROPHYTUM TUBEROSUM* BAKER

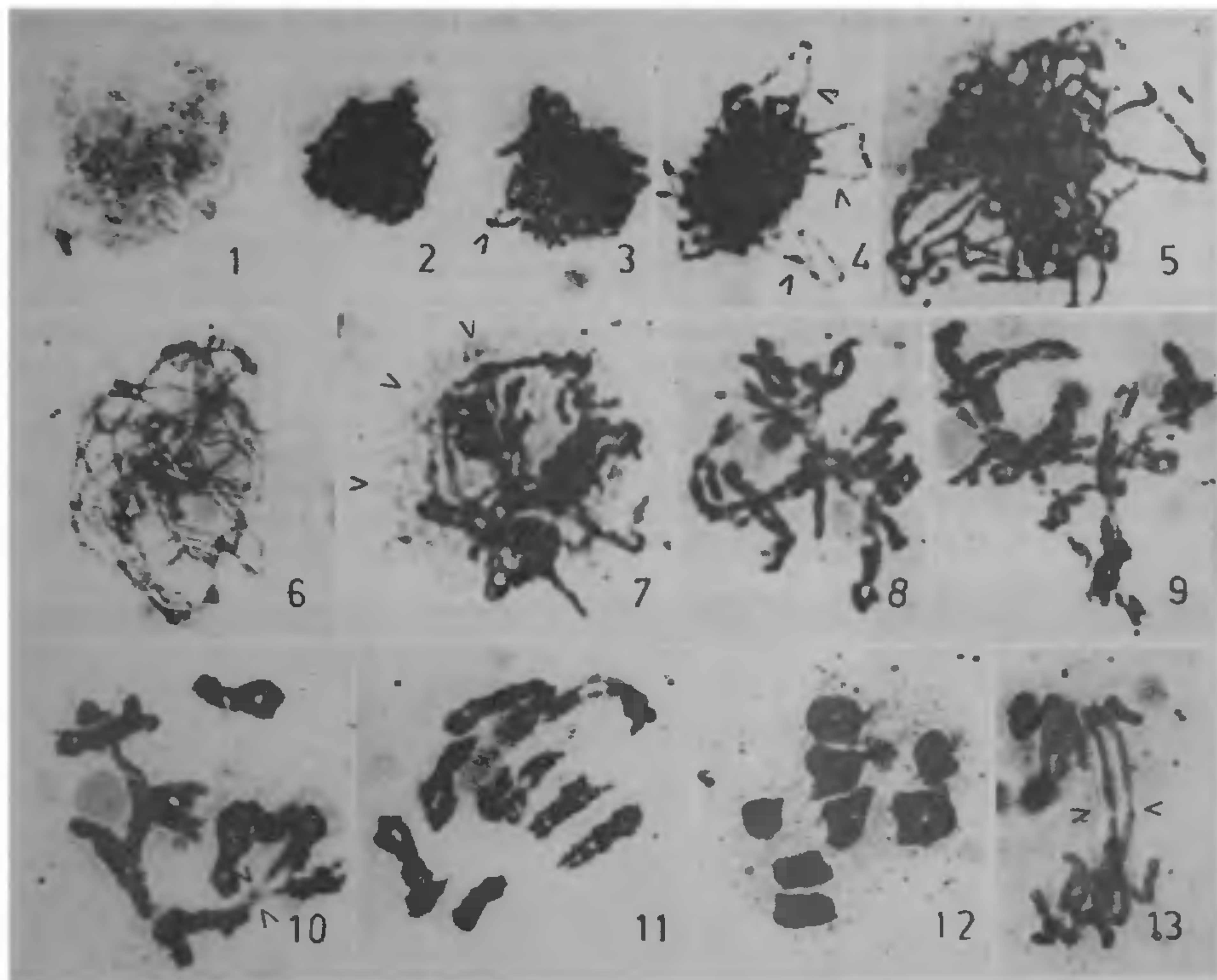
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DEVIATIONS from the regular course of meiosis like the occurrence of a synizetic knot stage, a post-pachytene diffuse stage and a second contraction stage are known in some higher plants¹; but whether these stages are part of a regular course of meiosis and of universal occurrence or whether they are exceptions is not definite^{2,3}. Meiosis was studied in *Chlorophytum tuberosum* Baker., with emphasis on the first prophase.

Flower buds were collected in the forenoon, fixed in acetic ethanol (1:3) overnight and preserved in 70% ethanol at 4°C pending use. All observations were made from squash preparations made in 1% acetocarmine.

The first phase of meiosis observed after premeiotic interphase was early synizetic knot stage (figure 1), where fine strands were noticed drawn partially towards the nucleolus. A regular leptotene-zygotene stage, not observed was followed by further condensation, forming a tightly bundled knot (figure 2). After the synizetic knot unravelled, the strands emerging out were paired structures (figures 3–5). Thus the synizetic knot may be the stage of active synapsis. Well-developed synaptonemal complexes in electron micrographs of this stage are known in *Lilium*⁴. Some of the pachytene chromosomes were found to be connected end to end, exhibiting a relatively continuous appearance (figure 6), as reported earlier in *Alysicarpus rugosus* DC², and *Gloriosa superba* L.³ This phenomenon seems to be of occasional occurrence¹. After pachytene diffusion of some segments of the chromosome complements occurred (figure 7). In *C. tuberosum* the diffusion is partial and seems to be of lesser duration. The sequential position duration and the chromosome structure during the diffuse stage are highly variable. After a short spell of diffusion the chromosomes are further condensed (figure 8) resulting in diplotene (figure 9). At diakinesis, interchromosomal connections were noticed in some of the PMCs (figure 10) and elsewhere^{2,3,5,6}. Such connections are shown to be DNA structures⁵ and as connecting telomeres or a telomere to an interstitial part⁶. Apparently the relatively continuous appearance of pachytene chromosomes is correlated with the diffuse stage and the occurrence of interchromosomal connections at diakinesis^{2,3}. The interconnections disappeared by late diakinesis (figure 11) and the metaphase was normal (figure 12). At anaphase-I, bridge formation (figure 13) was observed but the frequency was very low. The pollen fertility was more than 98% indicating that this deviant course of meiosis is not an abnormality, since it does not hinder the fertility to any considerable extent. The synizetic knot stage, the diffuse stage and the second contraction stage are considered to be part of the regular course of meiosis and as of universal occurrence^{5,7–9}. Earlier cytologists also have reported these stages^{10,11}. Wilson¹⁰ considered the diffuse stage and second contraction stage as highly variable and possibly absent in some organisms.

Our observations of a partial diffusion for a short duration preceding diplotene in *C. tuberosum* provides further evidence for the variable nature of the diffuse stage.



Figures 1–13. 1. Early synizetic knot stage; 2. Synizetic knot stage; 3–5. Unravelling of synizetic knot; 6. Pachytene; 7. Diffuse stage; 8. Condensation after diffuse stage; 9. Diplotene; 10. Diakinesis (note the interchromosomal connections); 11. Diakinesis; 12. Metaphase, and 13. Anaphase showing bridges.

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