

## **Chromatin and cytoskeleton reorganization in meiosis of wheat-rye substitution line (3R3B)**

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Meiosis is a type of cell division that halves the chromosome number. This phenomenon shows a considerable degree of diversity among species. Unraveling molecular mechanisms of the meiotic machinery has been mainly based on meiotic mutants, where the effects of a change were assessed on chromosomes of the particular species. An alternative approach is to study the meiotic behavior of the chromosomes introgressed into different genetic backgrounds. The effect of rye chromosomes in meiosis of wheat-rye substitution lines is studied actively. Previously various groups of scientists studied the rye chromosome effect in substitution lines. It is known that chromosomes 1R, 3R, and 7R showed a regular meiotic behavior, and, based on the finding, polyembryony was regarded as a phenotypic expression of nuclear-cytoplasmic interactions where an important role is played by rye chromosomes 1R and 3R. Moreover, asynapsis was observed in 3R3B substitution line. The behavior of individual pair of rye homologues added to wheat (3R3B) has been monitored in first and second meiotic division. Using Navashin's modified fixative and immunostaining with  $\alpha$ -tubulin and CENH3 antibodies we observed such abnormalities as curved spindle, prolonged prometaphase in the first meiotic division. Moreover 20–50 % of meiocytes have an abnormal shape of the cell in late meiotic prophase. In the second telophase 50–20 % of the cells show such abnormalities as unequal division, absence of spindles and chromosomes in the second cell from a pair. In the stage of tetrads we observed monads, dyads, tetrads and unequal tetrads as a result. Thus there are some differences that we found by this study.

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