

Talk

Effect of product that are used in postharvest in meiosis



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Keywords: *S. pombe*; meiosis; aneuploidy

ABSTRACT

Motivation: The meiosis is a type of cell division that generates the gametes necessary for the fertilisation. This process is more sensitive to external factors than mitosis. These agents can affect the exact chromosomes' distribution between daughter cells, and this defect causes infertility. It is known that some products that are used to conserve fruits and vegetables and to prevent postharvest's diseases, can generate defects in cell division, both mitosis and meiosis. In this project, we use *Schizosaccharomyces pombe* as meiosis model because it is an easy model system to grow and to manipulate in the laboratory. Also it has only three chromosomes, so we can find defects such as loss of chromosomes easily.

Methods: We have created a *S. pombe*'s strain with a CFP-tagged histone and a mCherry-tagged tubulin to can observe chromosomes and spindle by fluorescence. We have optimised the microscope's settings to observe correctly the meiosis in *S. pombe*.

Results: We film the meiosis by fluorescence microscopy to observe the performance of chromosomes and spindle throughout this process (1). Initially, we quantify the defects of meiosis in a wild type strain and we use this information as negative control of experiment. Then, we use carbendazim (MBC) as positive control of chromosomes' loss in meiosis. This is a fungicide that was used in postharvest (2) and it inhibits the polymerization of microtubules. Finally, we observe the meiosis when we add to the culture other two products used in postharvest currently (3) (thiabendazole and fludioxonil, among others), and we compare these results to the controls in order to identify the products that causes defects in meiosis. In addition, we examine the defects in mitosis in the same conditions as meiosis to verify that meiosis is more sensitive than mitosis.

Conclusion: The optimization of microscope's settings has allowed to identify and to quantify the errors that we have observed in chromosomes' distribution in meiosis.

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