


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MMS-Induced Cytomixis in Pollen Mother Cells of Broad Bean (*Vicia faba* L.)

Tariq Ahmad BHAT, Sahba PARVEEN, Ainul Haq KHAN
Cytogenetics and Mutation Breeding Research Laboratory, Department of Botany,
Aligarh Muslim University, Aligarh-202 002 - INDIA

 [Keywords](#)
 [Authors](#)



bot@tubitak.gov.tr

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Abstract: Cytomixis was recorded during microsporogenesis in broad bean (*Vicia faba* L.), a member of the family Fabaceae. It is an important pulse crop used as vegetable, silage, forage and stock feed. The phenomenon of cytomixis was observed in various stages of meiosis in methyl methane sulphonate (MMS) treated populations of *Vicia faba* L. Cytomixis was observed to occur through various methods, i.e. by forming cytoplasmic channels, and direct fusion of pollen mother cells (PMCs), the former was more frequent than the latter. Both types were observed at different stages of microsporogenesis. The migration of nuclear content involved all the chromatin/chromosomes or part of it from donor to recipient cell/cells. The occurrence of PMCs with chromosome numbers deviating from the diploid number ($2n = 12$) through the process of cytomixis may lead to the production of aneuploid and polyploid gametes. Stickiness of chromosomes was observed in all the populations treated with various concentrations of MMS. Increasing the concentration of MMS had a positive effect on the percentage of PMCs showing cytomixis. The level of pollen fertility was found to be affected by cytomixis and chromosome stickiness. It seems possible that genetic factors might have also contributed towards pollen sterility.

Key Words: *Vicia faba*, MMS, microsporogenesis, cytomixis, pollen fertility, stickiness

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