

IN VIVO POLYEMBRYONY INDUCTION IN SPECIES OF *CAPSICUM*

IWONA JĘDRZEJCZYK* AND PAWEŁ NOWACZYK

Department of Genetics and Plant Breeding,
University of Technology and Life Sciences,
Al. Kaliskiego 7, 85-789 Bydgoszcz, Poland

*e-mail: jedrzej@utp.edu.pl

Received October 1, 2008; revision accepted February 20, 2009

Haploid plants after doubling the chromosomes can give rise to diploid homozygote lines, which can be used as DH lines in breeding new varieties or as initial plant material in creating F1 hybrids. This work studied natural polyembryony and the effect of growth regulators on induction of polyembryonic seeds and haploid embryogenesis in five species of the genus *Capsicum*. Water solutions of the following growth regulators were used: 2,4-D (2,4-dichlorophenoxyacetic acid) and BNOA (beta-naphthoxyacetic acid) at 0.001% used separately or combined with BAP (benzylamino-purine). Twin seed frequency was highest in *C. chinense* and lowest in *C. baccatum* var. *pendulum*. In *C. annuum* the share of twin embryos was highest in the 'Corno di toro' variety; 2,4-D clearly increased the number of twin plants only in 'Corno di toro' seeds. Treatment with combinations of 2,4-D or BNOA with BAP increased the frequency of polyembryonic seeds in the 'ATZ1' line. In *C. frutescens* the frequency of polyembryony increased following application of BNOA with BAP. Of all the seeds tested, seven haploid plants were obtained, representing *C. frutescens*, *C. chacoense* and *C. baccatum* var. *pendulum*. The differences in the frequency of polyembryony in the studied genotypes points to genetic control of this phenomenon. The presence of monoploid plants definitely depends on the genotype, as a high frequency of polyembryony is not always accompanied by a high share of haploid plants. For most genotypes evaluated, the effect of growth regulators was disadvantageous, resulting in a considerable decrease in the share of twin plants among germinated seeds.

Key words: *Capsicum* spp., growth regulators, haploid, pepper, polyembryony.