

Fertile allopolyploids from the cross Phaseolus vulgaris x Phaseolus  
filiformis

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P. filiformis Benth., a wild species native of California Golf, is particularly interesting for its tolerance to both cold and hot environments and for its level of resistance to various diseases. According to MARECHAL and al. (1978), it is situated within the genus between the two extreme pools represented, on the one hand, by the P. vulgaris L. - P. coccineus L. complex, and on the other hand, by P. lunatus L. and its wild relatives.

Interspecific hybridization between P. vulgaris and P. filiformis has been succeeded for the first time in 1978 by MARECHAL and BAUDOIN (1978). The F<sub>1</sub> hybrid was completely sterile mainly due to the presence of unpaired chromosomes at Metaphase I stage and to the low pollen grains stainability. New combinations were realized in 1985 with and without the aid of embryo-culture. In order to overcome the strong incompatibility barriers between the two species, it was decided to double the chromosome numbers of the resulting hybrids. Colchicine has been applied at 0.5% solution during 36 hours on the apical buds of the young F<sub>1</sub> seedlings through soaked-water cotton wool. This method has allowed to obtain several 6x colchiploids showing larger leaves, flowers and bractlets, compared to the corresponding diploid hybrids. The pollen grains stainability, after squashing the anthers in 45% aceto carmin solution, averages 50%. The most significant result has however been the fertility restoration of some hybrids producing pods and full-grown seeds.

It is now planned to examine the meiotic behaviour of the 6x colchiploids and to multiply through selfed generations the allotetraploid materials with the aim to favour the genetic exchanges between the two parental genomes.

#### References

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