

Development of embryos in *Phaseolus vulgaris* L. (cultivar) and *P. coccineus* L. (wild form) and hybrids between the two species

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Interspecific hybridization is needed to genetically improve *Phaseolus vulgaris* genotypes for traits poorly or not expressed in the primary gene pool of common bean. To overcome post-zygotic incompatibility occurring in the wide crosses, it is essential to study *Phaseolus* embryogenesis at the level of the parental genotypes and the hybrids. Several reciprocal crosses were made between the *P. vulgaris* cultivar NI637 and a wild *P. coccineus* form NI1108, leading to embryo abortion from the day of pollination to 14 days after pollination (DAP). Percent rate of matured pods is 24,73% when NI1108 is female parent and 75,07% when NI637 is female parent. Selfed and hybrid embryos, 3 to 14 DAP, were studied through thin histological sections in HEMA resin. Developmental stages of embryos depend on the genotypes used in self-pollination and the maternal parent involved in the crossing. Selfed embryos are characterized by a regular growth and well balanced development according to the initial apex-basis polarity. The hybrid embryo NI1108 (♀) x NI637, shows a suspensor hypertrophy, resulting in smaller and delayed embryo proper, compared to selfed and NI637 (♀) x NI1108 hybrid embryo. The curves of embryo growth present the evolution of the embryo length in each case. Causes of such abnormalities in embryo development might be related to genes involved in the early embryogenesis stages.

References.

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