

Megagametophyte development in *Lotus corniculatus* X
L. conimbricensis and their protoplast fusion hybrid.

by

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A protoplast fusion of *Lotus corniculatus* (broadleaf birdsfoot trefoil) ($2n=4x=24$) with *L. conimbricensis* ($2n=2x=12$), was generated to attempt the transfer of pod indehiscence of *L. conimbricensis* to birdsfoot trefoil (Wright et al., 1987). The development of the early ovules, megasporogenesis, and megagametogenesis in the parents, *L. corniculatus* and *L. conimbricensis*, and their protoplast fusion hybrid were compared. The protoplast fusion hybrid was known to be completely male sterile and appeared female sterile. Our objective was to determine if the protoplast fusion hybrid was female sterile. The normal development of the ovules and megagametophytes of *L. corniculatus*, *L. conimbricensis*, and their protoplast fusion hybrid were similar to those of several other species of Fabaceae. Similarities between megasporogenic and megagametic features observed in this investigation and other Fabaceae include: 1) a bitegmic ovule, 2) a multicellular archesporium, 3) functional chalazal (D) megaspore, 4) linear tetrads, 5) short-lived antipodals, and 6) Polygonum-type megagametophyte. The abortion of ovules in the protoplast fusion hybrid can occur at any time of megasporogenesis or megagametogenesis, but most abortions appeared to be due to the post-meiotic failures. Approximately 24% of the protoplast fusion hybrid ovules developed into apparently normal megagametophytes beyond the critical reduction divisions. Aborted embryo sacs were identifiable by the degeneration of the nuclei of the megagametophyte or by the compression of nucellar tissues where the embryo sac commonly resides. The compression of nucellar tissues appeared to be due to the failure of expansion by the megagametophyte. Many different causes seem to be involved in the ovule abortions. Additional cytological examinations are needed; 1) to understand those causes of female sterility before fertilization, and 2) to determine whether the normal appearing megagametophytes are fertile and capable of zygote (sporophyte) formation.

Sand dune stabilization in the Gaza Strip. D. E. Tsurieil (ministry of Agriculture, Hauaginstreet 13, Hafia, Kiryat Shmuel 26383, Israel), Cahirman of the International Cooperation Group on Sand Dune Reclamation and Management, reports that among the herbaceous species being used in sand dune stabilization is *Lotus creticus*.