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Secondary embryogenesis in pollen derived embryos of *Datura metel* L.

In secondary embryogenesis, embryos are formed on the cotyledon and hypocotyls regions of pollen-derived embryos and somatic embryos. They are formed when the primary embryo fails to mature into plantlets, and is similar to zygotic embryogenesis.

Well-developed pollen derived embryos of *Datura metel* were wounded by (i) removal of the apex and (ii) removal of apical and basal ends. The effect of kinetin and illumination on secondary embryo development was also studied. Each treatment had 30 wounded explants. The vessels were incubated at 25 ±2^{o}C. The number of secondary embryos per explant was determined after six weeks.

Fourty percent of the wounded embryos produced secondary embryos. The embryo density was higher towards the cut surface. The presence of light and kinetin affected the induction and was essential for post induction development. In the presence of kinetin (10^{-7} M) and light (450 lux), large greenish, bipolar embryos were produced. In the absence of light with kinetin in the medium, 60% of the embryos were achieved when secondary embryos were separated and cultured on hormone free, soild MS basal medium with3% sucrose. Their germination in MS medium was poor. The secondary embryos did not undergo further embryogenesis.

Wounding of pollen-derived primary embryos offers an efficient method for secondary embryo production. The stimuli caused by the injury may switch on some kind of a signal transduction pathway, which brings about secondary embryogenesis. The presence of kinetin and light play a role in post induction development of secondary embryos. Light seems essential to obtain embryo polarity.