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Cover Illustration

Shown is a castor bean (*Ricinus communis*) seedling with the endosperm laterally attached to the cotyledons. The living endosperm stores oil and proteins that are mobilized during germination. Endosperm cells undergo programmed cell death (PCD) after their reserves have been depleted. PCD is detected by nuclear DNA fragmentation and by the concomitant appearance of a new organelle, the ricinosome. In the final stage of germination, nuclear DNA fragmentation is detected in all endosperm cells (green colour). Counterstaining of nucleic DNA with DAPI (blue colour) demonstrates that nuclei are present in all cells and remain undegraded in the cotyledons. Ricinosomes accumulate the proform of a papain-type cysteine endopeptidase and desintegrate in the final stage of PCD, thereby releasing the mature peptidase. The ricinosome is a novel organelle involved in programmed cell death in plants.

Source: Gietl and Schmid (2001) 88:49–58

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