

Photosynthetic pigment accumulation and degradation during embryogenesis and seed maturation in *Acer platanoides* and *A. pseudoplatanus*

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Photosynthetic pigments were examined in developing seeds of desiccation-tolerant (*orthodox*) *Acer platanoides* and desiccation-sensitive (*recalcitrant*) *A. pseudoplatanus*. In both species, chlorophyll *a* level exceeded chlorophyll *b*, particularly in cotyledons. The accumulation of chlorophyll *a* and chlorophyll *b* reached maximum values during seed morphogenesis, then subsequently declined with a more pronounced reduction observed in *A. platanoides* (eight-fold) compared with *A. pseudoplatanus* (three-fold). Total chlorophyll content was higher in the *A. pseudoplatanus* seeds only during the three weeks before the start of morphogenesis in the *A. platanoides*. The measurement of photosystem II activity suggested that photosynthesis might be more active in *A. pseudoplatanus* at the initial and final stages of seed development. The carotenoid content was increased during *A. pseudoplatanus* embryogenesis. The carotenoid-to-chlorophyll ratio demonstrated a significant contribution of carotenoids to the pigment pool during the early stages of development. The chlorophyll autofluorescence signal in mature embryonic axes was irregular and diffuse, whereas a spherical and compact signal was observed in *A. platanoides* cotyledons. Differences in photosynthetic pigments are discussed in relation to seed orthodoxy and recalcitrance, with potential implications for longevity variations.