

**Development, cytochemistry and ultrastructure of the chalazal endosperm haustorium
in selected species of the genus *Sedum* (Crassulaceae)
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The endosperm in *Sedum* develops according to cell type. The unicellular mononuclear haustorium develops on the chalazal side of the endosperm and elongates as the seed grows. The objects of the study were three species of the genus *Sedum*: *S. acre* L., *S. hispanicum* L. and *S. sediforme* (Jacq.) Pau. belonging to the family Crassulaceae.

The purpose of this study was to conduct a comparative analysis on the anatomy, ultrastructure and cytochemistry of the chalazal endosperm haustorium, during its development, using cytochemical techniques (light microscopy) and electron microscopy. Three stages were distinguished in the development of the chalazal endosperm haustorium of the studied species: differentiation, full development and function, and degeneration. The study showed that the chalazal endosperm haustorium in *Sedum* undergoes changes during its development. Many of these changes are likely linked to meeting the needs of the developing endosperm proper. The haustorium is a transfer cell, as evidenced by the transfer outgrowths of the wall at the chalazal pole of the cell. Ultrastructural analysis revealed the presence of numerous organelles in the haustorium's cytoplasm, such as mitochondria, active dictyosomes, various types of vesicles, rough and smooth endoplasmic reticulum and plastids. Plasmodesmata were found in the cell wall between the haustorium and the endosperm proper, indicating the role of this cell in transporting metabolites into the endosperm. Results of cytochemical studies at all stages of haustorium development showed the presence of macromolecules: proteins, polysaccharides and lipids. They were most abundant at the stage of full haustorium development.

The results obtained in the presented dissertation complement and provide new knowledge in the field of cytoembryology of three species of the genus *Sedum*. The results of the present work testify to the important role of the chalazal endosperm haustorium as the site of intensive metabolic processes, related to the function of meeting the needs of the developing endosperm proper. The presence of a transfer wall confirms that the haustorial cell is involved in the absorption and transport of nutrients into the endosperm. They are accumulated there and, as needed, consumed by the developing embryo.