KATALIN SOLYMOSI

Eötvös Lorand University,
Faculty of Science, Institute of Biology

Address: Pázmány Péter sétány 1/c.,
H-1117 Budapest, Hungary

RESEARCH AREA

My research focuses on unraveling correlations between structure and function of the plant organelles called plastids and their interconversions under various conditions in the wider context of climate change, anthropogenic pollution and sustainable agriculture. These include the effect of abiotic (heavy metal, light, salt, drought and desiccation) stress and biotic interactions (e.g., mycorrhization) on the structure and function of plastids. I am also interested in the functional characterization and roles of ion channels and transporters in the organization of the thylakoid membranes, in photosynthesis and adaptation to stress; in thylakoid biogenesis; chlorophyll biosynthesis, etiolated plants grown under natural conditions or in the laboratory and their greening, and in plastid-derived natural products used by the food industry and medicine. In collaboration with Ádám Solti, we are also working on understanding the essential metal (Fe, Mn) homeostasis of plants, including their uptake, tissue-level and subcellular localization and remobilization within plants during their various developmental stages including plant senescence and autophagy-related processes.

TECHNIQUES AVAILABLE IN THE LAB

Transmission electron microscopy, light, fluorescence and confocal microscopy, small-angle neutron scattering, fluorescence and absorption spectroscopy, measurement of photosynthetic activity (chlorophyll fluorescence parameters and gas exchange), gele electrophoresis, Western blotting, transcriptomics, HPLC of photosynthetic pigments and plant active ingredients, secondary metabolites, biostatistics

SELECTED PUBLICATIONS

Böszörményi, A., Dobi, A., Skribanek, A., Pávai, M., & **Solymosi, K.** (2020). The Effect of Light on Plastid Differentiation, Chlorophyll Biosynthesis, and Essential Oil Composition in Rosemary (Rosmarinus officinalis) Leaves and Cotyledons. **Front Plant Sci 11:** 196.

Hembrom, R., Ünnep, R., Sárvári, É., Nagy, G., & **Solymosi, K.** (2025). Dynamic in vivo monitoring of granum structural changes of Ctenanthe setosa (Roscoe) Eichler during drought stress and subsequent recovery. **Physiol Plant 177(1):** e14621.

Ounoki, R., Ágh, F., Hembrom, R., Ünnep, R., Szögi-Tatár, B., Böszörményi, A., & **Solymosi, K.** (2021). Salt Stress Affects Plastid Ultrastructure and Photosynthetic Activity but Not the Essential Oil Composition in Spearmint (Mentha spicata L. var. crispa „Moroccan"). **Front Plant Sci 12:** 739467.

Ounoki, R., Sóti, A., Ünnep, R., Sipka, G., Sárvári, É., Garab, G., & **Solymosi, K.** (2023). Etioplasts are more susceptible to salinity stress than chloroplasts and photosynthetically active etio-chloroplasts of wheat (Triticum aestivum L.). **Physiol Plant 175(6):** e14100.

Sóti, A., Ounoki, R., Kósa, A., Mysliwa-Kurdziel, B., Sárvári, É., & **Solymosi, K.** (2023). Ionic, not the osmotic component, is responsible for the salinity-induced inhibition of greening in etiolated wheat (Triticum aestivum L. cv. Mv Béres) leaves: a comparative study. **Planta 258(5):** 102.