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Using knowledge networks to decipher mechanisms of potato tolerance to abiotic stress

Stress Knowledge Map (SKM, https://skm.nib.si) is a publicly available resource containing two complementary knowledge graphs describing current knowledge of molecular interactions in plants: a highly curated model of plant stress signaling (PSS, 543 reactions) and a large comprehensive knowledge network of molecular interactions (CKN, 488,390 interactions). Both were constructed by domain experts through the systematic curation of diverse literature and database resources. SKM provides a single entry point for plant stress response investigations and the related growth trade-offs, through interactive exploration of current knowledge, as well as integration of experimental omics data. We will here present the data how these knowledge networks can be used to decipher responses of potato to multiple stresses, drought, heat, waterlogging and combined stresses. The samples were analysed on multiple omics levels, from chromatin remodeling, transcriptomics, metabolomics and proteomics, to high throughput phenotyping. Knowledge networks offer a unique way to integrate these data and identify regulatory hubs.