

**PROJECT TITLE**

Seed priming using natural chemical compounds and advanced nanomaterials for improved growth and protection against drought and salinity in tomato and basil

**CONSORTIUM**

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## SUMMARY OF THE REPORT

The CUT Plant Stress Physiology group is carrying out ongoing research in the field of plant and seed priming, with the aim to optimize crop tolerance against abiotic stress factors. The current experiment examined the effects of drought and salt stress in tomato



and basil



plants using seed priming with natural

metabolites (melatonin, salicylic acid) as well as with functionalized advanced nanomaterials (chitosan functionalized with melatonin, chitosan functionalized with salicylic acid). Phenological responses to severe drought and salinity stress conditions and the potential protective effective effect of seed priming was monitored in the APS by non-invasive thermo-, multireflectance- and multifluorescence imaging. In addition, this was combined with the examination of physiological phenotyping to evaluate the effect of the growing conditions on photosynthesis, while also examining potential growth promoting effects of the seed priming technology under control conditions as evidenced by increased seed germination and plant biomass. Leaf samples during stress and at recovery time were collected and frozen at -80 °C for analysis of stress-related cellular parameters at CUT.