



# Plant Sciences Core Facility

## What we do

Plant Sciences Core Facility is an open CEITEC laboratory providing access to the research infrastructure for basic plant growth, environmental simulation and phenotyping analyses.

### Regulatory network underlying plant stress adaptation

Using the Core Facility researchers from the Plant Stress Signaling and Adaptation group in CEITEC investigate hormonal regulations and genome stability in plant stress response. The obtained knowledge is useful in pinpointing potential candidate genes for innovative biotechnology approaches to optimize crop performance in changing environmental field conditions via manipulation of photosynthesis and morphological processes, which are the most relevant traits in plant breeding programmes.

### Genome evolution across the plant kingdom

Researchers from the Plant Cytogenomics group in CEITEC carrying out research in the field of comparative and evolutionary plant cytogenetics to get new insights into the mechanisms and constraints of chromosome and karyotype evolution in plants, and to amalgamate comparative plant cytogenetics, genomics and phylogenetics.

### Telomeres in chromosome stability and plant speciation

Researchers from the Chromatin Molecular Complexes group of the Mendel Center for Plant Genomics and Proteomics in CEITEC are currently running projects in the field of telomere biology, chromatin structure and epigenetics. Using unique features of plant systems (namely their high developmental plasticity), and their comparison to yeast or animal models, the aim is to characterise pathways involved in control of chromosome stability and distinguish between specific and general mechanisms involved. Outcomes of the studies (e.g., understanding mechanisms contributing to genome stability, aging or adaptation to changing environmental conditions) can be applied in agriculture, biotechnologies or medicine.

#### CEITEC

Kamenice 753/5, Brno, 625 00  
University Campus Bohunice  
Buildings A2 and A26  
Czech Republic  
[www.ceitec.cz/plants-sciences](http://www.ceitec.cz/plants-sciences)  
[plants@ceitec.muni.cz](mailto:plants@ceitec.muni.cz)



Walk-in plant growth chamber (FytoScope, PSI) that utilizes LEDs as a sole light source.



Greenhouse chamber enable maintaining controlled growing conditions of temperature and humidity.



Cultivation banks serve for precisely controlled plant cultivation and comparison studies.



Plants in closed growth bank grown under the high light stress.

## Services and Methodologies Provided

The Core Facility provides academic community with access to advanced environmental simulation technologies and highly trained staff. We operate 15 fully controlled walk-in growth chambers (phytotrons) and 10 greenhouses to provide defined environment for controlled plant growing to conduct many types of controlled environment experiments, from the simplest to the most complex. We are able to control: temperature, humidity, light intensity and light quality, day and night length. For optimum plant growth light-emitting diodes (LEDs) as a sole light source are used. Thus provides excellent spectral quality with high irradiance for plant physiology applications. In some chambers the different light wavelengths are possible to combine: UV<sub>365, 385</sub>, blue<sub>400, 450</sub>, green<sub>525</sub>, amber<sub>590</sub>, red<sub>665</sub> and far-red<sub>730</sub>. We also have chambers where different gas conditions (e.g. ethylene and CO<sub>2</sub>) can be adjusted.

## Equipment

- Growth chambers with cultivation shelves and LEDs
- Growth chambers with closed cultivation banks and LEDs
- Greenhouses

## Contact and Location

### CEITEC

Kamenice 753/5, Brno, 625 00, Czech Republic  
University Campus Bohunice  
Buildings A2 and A26  
[www.ceitec.cz/plant-sciences](http://www.ceitec.cz/plant-sciences)  
[plants@ceitec.muni.cz](mailto:plants@ceitec.muni.cz)



CEITEC

Central European Institute of Technology  
BRNO | CZECH REPUBLIC

