BULGARIAN-SWISS COOPERATION PROGRAMME
БЪЛГАРО-ШВЕЙЦАРСКА ПРОГРАМА ЗА СЪТРУДНИЧЕСТВО

PRENYLQUINONES AND CAROTENOIDS - POTENTIAL MEDIATORS OF TOLERANCE OF HIGHER PLANTS TO COMBINED LIGHT AND TEMPERATURE STRESS

Starting Date 01.12.2013

Duration 36 Months

Discipline Plant Biology

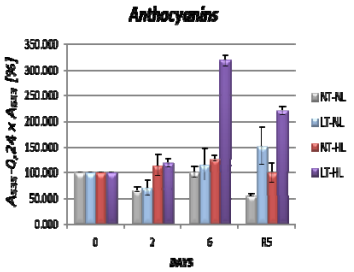
Main Goals

Contributing to our understanding of the mechanisms that determine plant tolerance to combined temperature and light stress

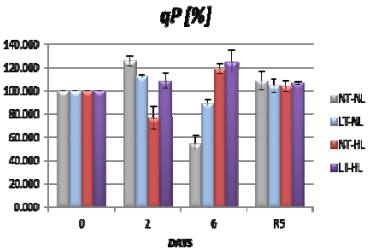
To investigate the protective mechanisms at the photosystem, membrane and lipid levels

To educate 3 PhD students.

Normal temperature - normal light



Low temperature - high light



Activities

Lipidomic, physiological and biophysical methods to investigated the temperature-light stress on tomato and *Arabidopsis thaliana* plants

Prenylquinone, carotenoid and lipid remodeling under temperature and high light stress

Temperature dependent effects on chloroplast ultrastructure and changes in number and size of plastoglobules.

Determination of activity and stoichiometry of both photosystems at different combinations of light-temperature

Tolerance improvement of photosynthesis to photoinhibition by combination of growth temperature-light regimes

Expected results

To discover how the photosynthetic system performs under increased temperatures and light intensities

To investigate the protective mechanisms at the photosystem, membrane and lipid levels

Educating three PhD researchers (one in Switzerland, two in Bulgaria)

Establishing a long-lasting cooperation between the Swiss and the Bulgarian partners

Swiss Coordinator
Prof. Dr. Felix Kessler
Institute of Biology
University of Neuchatel
http://www.uni-ne.ch
felix.kessler@unine.ch

Bulgarian Coordinator
Prof. Dr. Maya Velitchkova
Institute of Biophysics and Biomedical Engineering
Bulgarian Academy of Sciences
http://biomed.bas.bg
mayav@bio21.bas.bg