

**PROJECT TITLE**

Combining high-throughput Phenotyping with Transcriptomics to identify Drought tolerant Maize inbred lines at the vegetative stage

**CONSORTIUM**

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## SUMMARY OF THE REPORT

Maize Research Institute “Zemun Polje” (MRIZP) and Institute of Molecular Genetics and Genetic Engineering, University of Belgrade (IMGGE UB) initiated a collaboration to improve the selection for drought tolerant maize through genetic tools. By use of Next Generation Sequencing (NGS) the analysis of leaf total transcriptomes conducted for 46 maize inbred lines (ILs) from MRIZP in optimal conditions in the seedling stage revealed a number of differentially expressed genes (found to be associated to drought directly or indirectly) in these ILs. A subset of 26 maize ILs from MRIZP, previously NGS genotyped at IMGGE UB has been chosen for dynamic phenotypical characterization of biomass under optimal and drought conditions during vegetative growth in the APS. Multiple sampling of leaves tissue for 15 out of 26 MRIZP ILs for RNA isolation has been done at two time points (stress peak and recovery) to perform qPCR for the chosen differentially expressed genes with the aim to improve our understanding of maize drought tolerance.