

MOLECULAR BREEDING FOR THE PRODUCTION OF HIGH-VALUE BIO-MOLECULES IN PLANTS

Innovations and benefits - Plant organisms represent an almost inexhaustible source, but not yet fully explored, of high added-value substances that can be used in many sectors of industrial production such as pharmaceuticals, cosmetics, nutraceuticals and biomaterials. Molecular breeding methods, based on genomics and functional proteomics, allow to create, quickly and in a highly efficient manner, plant genotypes with better characteristics for the biosynthesis of these substances in a sustainable manner, according to the concept of green chemistry.

Uses - Creation, selection and use of plant systems for autologous and heterologous production of high added-value compounds.

Past and present activities - Through molecular screening with RNA-seq (transcriptomics) approaches in Russian dandelion genotypes (*Taraxacum kok-saghyz*), genes involved in the production of natural rubber that are produced by the roots of these plants have been identified. The activity of these genes will be enhanced through genetic engineering techniques such as the over-expression through the use of constitutive promoters and / or genomic editing approaches (CRISPR / Cas9) in order to improve qualitatively and quantitatively the rubber biosynthesis in the studied genotypes.

