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**Use of automated high-throughput bioassaying and phenotyping for identification of biostimulants and studies of their mode of action**

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A complex methodologic pipe-line as a tool for identification of new biostimulants as well as studies of their potential mode of action using automated high-throughput approaches will be presented. The pipe-line consists of sequence of automated assays determining the effect of a biostimulants on different traits in one run, including overall *Arabidopsis thaliana* performance under different growth conditions and the response to different abiotic stress treatments. Using transgenic plants harbouring plant hormone responding markers potential mode of action is studied in the following step. The next approach combines various methods of automated, non-destructive and simultaneous analyses of plant growth, morphology and photosystem efficiency using RGB and chlorophyll fluorescence imaging (CFIM) sensors. The translation of the use of biostimulants into the crops is finally studied using crop representatives such as maize, wheat, barley, rapeseed and tomato. The presented advanced integrative

system allows performing large screening campaigns of biostimulants followed by studies of their potential mode of action and applicability in crops through collecting a huge amount of automatically analysed data of quantitative plant phenotyping traits.



**Biography**

Lukas Spichal has completed his PhD at the age of 27 years from Palacky University in Olomouc, Czech Republic. He is the senior researcher of Centre of the Region Hana for Biotechnological and Agricultural Research. He has published more than 55 in impacted journals (with over 1000 citations, h-index 17) and 3 book chapters. He is highly interested in applied aspects of science and is (co)author of 18 granted patents. He is involved in commercialization activities and collaboration with industrial partners, mainly with agrochemical companies. In 2011 he established and is CEO of a spin-off company Agro BioChem, Ltd.

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