

# CONFERENCE ABSTRACT (SESSION SPEAKER)

Plant & Environment

## METABOLOMICS-BASED STUDIES FOR UNDERSTANDING OF PLANT METABOLISM

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### Abstract

Plants assimilate inorganic compounds such as carbon dioxide into a wide variety of organic compounds, which support human lives as nutrients, medicines, biofuel, etc. As plants are sessile, they have evolved elaborate mechanisms to cope with biotic (e.g. herbivores and pathogens) and abiotic (e.g. drought and nutrient deprivation) stresses. My major research interest is on how plants manage their complicated metabolic system in response to various environmental stresses. To understand molecular mechanism of plant metabolisms and its regulation, We have established a novel method that we named widely-targeted metabolomics [1]. This highly-sensitive and high-throughput technique has enabled us to obtain large-scale metabolome datasets, which can be utilized for phenotyping of large-scale bioresources [2], quantitative trait locus analysis and genome-wide association study to identify genes regulating metabolite contents [3], and functional identification of genes [4]. This technique also has a potential to obtain time-series metabolome data with a sufficient number of data points for mathematical Owing to maturity of metabolomics technology and successful examples of metabolomics studies, metabolomics has come to be widely used in not only basic studies but also application studies. We analyzed the metabolome of greenhouse tomato and identified candidate metabolites which can be used as a biomarker to improve tomato yield in plant factory.

In this presentation, I will introduce our ongoing studies based on metabolomics.

### REFERENCES

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