

# Plant Genomics

July 14-15, 2016 Brisbane, Australia

## Differential metabolic profiles and transcriptomic profiles during different color stages of albino tea plant (*Camellia sinensis*)

**Liang Chen**

Tea Research Institute of the Chinese Academy of Agricultural Sciences, China

**A**nji Baicha is an elite albino tea cultivar of very high quality and popularity in China, with white shoots at low air temperature and green shoots at high temperature in early spring. Metabolomic analysis found that the main differential metabolic pathways between the albescent stage and the green stage included carbon fixation in photosynthetic organisms and the phenylpropanoid and flavonoid biosynthesis pathways. Compared with the green stage, the carbohydrate and amino acid metabolic pathways were disturbed during the albescent stages. There were higher levels of  $\beta$ -carotene and theanine but lower level of chlorophyll a, in the white stage than in the green stage. During the albescent stages, the sugar (fructofuranose), sugar derivative (glucose-1-phosphate) and epicatechin concentrations decreased, whereas the amino acid (mainly glycine, serine, tryptophan, citrulline, glutamine, proline, and valine) concentrations increased. Transcriptomic analyses were applied to analyze the expression profiles changes in the different color stages. The transcriptomes of the plant leaves were highly divergent between different colors stages, as approximately three-quarters of all unigenes were differentially expressed between different color stages. Functional classification based on Gene Ontology enrichment and KEGG enrichment analyses revealed that these differentially expressed unigenes were mainly involved in metabolic pathways, biosynthesis of secondary metabolites, phenylpropanoid biosynthesis and carbon fixation in photosynthetic organisms. Furthermore, differentially expressed unigenes involved in carotenoid biosynthesis, chlorophyll biosynthesis and theanine biosynthesis were identified. These results provide a further understanding of the molecular mechanisms underlying albino phenomena.

### Biography

Liang Chen has completed his PhD in Tea Science from Zhejiang University, China and Postdoctoral studies from Cornell University, USA. Presently, he is the Associate Director of National Center for Tea Improvement, TRICAAS. He has published more than 30 papers in reputed journals and has been serving as an Editorial Board Member of repute.

[liangchen@tricaas.com](mailto:liangchen@tricaas.com)

### Notes: