Curriculum Vitae

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Educational Background

09/06-06/08 Master of Institute of Plant Science, National Taiwan University, Taiwan

Courses: food carbohydrates, introduction of biochip technologies, plant carbohydrate metabolism and gene regulation.

09/02-06/06 Undergraduate student of Department of Life Science, National Tsing Hua University, Taiwan

Courses: Biochemistry, Cell biology, Plant physiology, Organic chemistry, Statistics and Probability, etc.

09/00-06/02 National Yan Ping Senior High School, Taiwan

Research Background

09/06-06/08 Starch synthesis: the function of starch branching enzyme

Master in lab of Prof. Shih-Tong Jeng in NTU for 2 years

Starch branching enzymes catalyze the formation of theα-1,6 linkages within the starch polymer. In regard to their peptide sequences, these SBEs are categorized into three classes named SBEI, SBEII, and SBEIII. Three starch branching enzymes, SBE2.1, SBE2.2, and AtSBEIII, have been found in the genome of *Arabidopsis thaliana*. In the previous studies, no impact in starch structure was observed in the null *AtsbeIII* mutants, while only slight modifications in amylopectin structure were detected in *sbe2.1* and *sbe2.2*. Instead of knocking out both *SBE2.1* and *SBE2.2*, which leads to no starch accumulation, the strategy adopted in this study is to knock down both *SBE* 2.1 and *SBE* 2.2 in order to analyze the effects of SBE on the characteristics of starch granules. The mutants, resulted from RNA interference, decrease the

activity of SBE 2.1 to 20~30% and SBE2.2 to 70~80%, compared to those of wild type. On the whole, the decrease of SBE activity may have more severe effects on SBE RNAi mutants than that of *sbe2.1* or *sbe2.2* alone. In this regard, the dwarf mutants, namely SBE RNAi mutants, contain less amount of starch than that of wild type. Starch granules from plants with SBE RNAi mutants show slight difference from those from wild type regarding to morphology as well as diameter. In terms of amylopectin structure, the distribution of chain lengths of amylopectin from SBE RNAi mutants are reduced at DP 6-10 and are comparably high at DP 26-35, compared to those of wild type. The thermal behaviors of the starches isolated from SBE RNAi mutants have greater gelatinization temperature range than those of wild type, indicating the starch structure from SBE RNAi mutants is less regular.

Work Experience

09/06-01/07 Teaching Assistant in Institute of Plant Science, National Taiwan University, Taiwan

Working as an assistant teacher was one of the training in institute of Plant Science. Our students were the freshmen in university. We master students learned how to express the course contents in class, and how to guide them conducting every step of the experiments.

09/09-11/09 Research Assistant in Prof. Jeng's lab, Institute of Plant Science, National Taiwan University, Taiwan

The main task of this position was to accomplish the publication about starch branch enzyme, including setting new protocol for the new HPAEC, repeating part of the experiments on new machine, editing the articles, and modifying figures.

Extracurricular activities

07/04-07/05 Leader of volleyball team in Department of Life Science

I love to play volleyball. I played volleyball since high school, and I joined both the volleyball teams of my department and school team. Because I was the best player, I became the leader in the team of my department for one year. In this position, I taught younger team members to improve their skills, and held some competitions with teams from other departments or other schools.