Insights in Aquaculture and Biotechnology

Proteomics and Phosphoproteomicsof fruit ripening mechanisms in Tomato(*Solanum lycopersicum*)

Qiaoli Xie[1]

Key Laboratory of Biorheology Science and Technology, Ministry of Education, Chongqing University, Chongqing 400030, China

Abstract: Fruit ripening is a highly programmed regulation process, including a series of physiological and biochemical changes, such as color changes, the formation of aroma, flavor substances, nutrients and fruit softening. Tomato is a research model for fruit ripening. The MADS-box transcription factor RIN has been regarded as a key regulator responsible for the onset of ripening by acting upstream of both ethylene- and non-ethylene-mediated controls. The rin (ripening-inhibitor) mutation that inhibits all measured ripening phenomena, including the respiratory climacteric and associated ethylene evolution, pro-vitamin A carotenoid accumulation, softening, and production of flavor compounds. In this study, the proteomics and phosphoproteomics were used to detect the normal ripening fruits (AC) and rin mutant fruits of tomato, and the translation and post-translational regulation mechanisms of tomato fruit ripening were investigated. A total of 6141 proteins and 4011 sites of 1996 proteins contain quantitative information, mainly in ethylene biosynthesis and signal transduction, photosynthesis regulation, carotenoid and flavonoid biosynthesis, chlorophyll degradation, and ribosomal subunit expression changes, MAPK pathway changes as well as more than 15 transcription factors. Although photosynthesis was inhibited, diverse primary and secondarymetabolic pathways were employed for fruit ripening, such as glycolysis,pentose phosphate pathway, amino acid metabolism, fatty acid metabolism, nucleotidemetabolism, vitamin metabolism, and isoprenoid biosynthesis. These data constitute the protein, protein phosphorylation and metabolic atlas in tomato fruit ripening regulation, which will springboard

Biography: Xie Qiaoli, Ph.D., Lecturer and Master Tutor of the School of Bioengineering, Chongqing University.

Publications:

1.Evaluating the Mechanical Properties of Admixed Blended Cement Pastes and Estimating its Kinetics of Hydration by Different Techniques
2. Genetic Diversity Using Random Amplified Polymorphic DNA (RAPD) Analysis for Aspergillus niger isolates
3. Au–Ag–Cu nanoparticles alloys showed antifangal activity against the antibiotics-resistant Candida albicans
4. Induce mutations for Bavistin resistance in Trichoderma harzianum by UV-irradation
5. Biliary Sludge. Analysis of a Clinical Case

Proteomics and Phosphoproteomicsof fruit ripening mechanisms in Tomato(*Solanum lycopersicum*)

Abstract Citation: Proteomics and Phosphoproteomicsof fruit ripening mechanisms in Tomato(*Solanum lycopersicum*)