

In Silico Analysis of Small Heat Shock Protein Gene Family by RNA-Seq during Tomato Fruit Ripening

Authors : Debora P. Arce, Flavia J. Krsticevic, Marco R. Bertolaccini, Joaquín Ezpeleta, Estela M. Valle, Sergio D. Ponce, Elizabeth Tapia

Abstract : Small Heat Shock Proteins (sHSPs) are low molecular weight chaperones that play an important role during stress response and development in all living organisms. Fruit maturation and oxidative stress can induce sHSP synthesis both in Arabidopsis and tomato plants. RNA-Seq technology is becoming widely used in various transcriptomics studies; however, analyzing and interpreting the RNA-Seq data face serious challenges. In the present work, we de novo assembled the Solanum lycopersicum transcriptome for three different maturation stages (mature green, breaker and red ripe). Differential gene expression analysis was carried out during tomato fruit development. We identified 12 sHSPs differentially expressed that might be involved in breaker and red ripe fruit maturation. Interestingly, these sHSPs have different subcellular localization and suggest a complex regulation of the fruit maturation network process.

Keywords : sHSPs, maturation, tomato, RNA-Seq, assembly

Conference Title : ICBCBBE 2015 : International Conference on Bioinformatics, Computational Biology and Biomedical Engineering

Conference Location : Paris, France

Conference Dates : January 23-24, 2015