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Determination of genes involved in lignification of pomegranate seeds by transcriptome sequencing

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Pomegranate (*Punica granatum* L.) is one of the oldest known edible fruit tree species, originating in Central Asia but with a wide geographical global distribution. Besides using pomegranate as raw fruit, it has been used as herbal remedy. In consumption of pomegranate soft-hard seededness is very important. Soft seededness arises in a reduction of lignin. Lignin topochemistry has ultra-structural aspects and lignification results from the enzyme mediated polymerization. Also lignin has three different monomers (coniferyl alcohol, sinapyl alcohol and p-coumaryl alcohol) are synthesized in the cytoplasm. Aim of the present study is to determine initiation time of lignification after pollination and genes involved in lignification mechanism in soft and hard seeded pomegranates known as a hard-seeded Hicaznar and soft-seeded 33N26 varieties were used as plant materials. Fruits from the two defined varieties were taken at intervals after pollination and fertilization at different sizes. Seed samples were used for transcriptome sequencing. Primary sequencing were produced by Illumina HiSeq™ 2000, called as raw reads, was subjected to quality control (QC). After QC, raw reads were filtered into clean reads aligned to the reference sequences. De novo analysis was performed to detect genes expressed in seeds of pomegranate varieties. We performed downstream analysis including gene expression, deep analysis based on gene expression, deep analysis based on DEGs, including Gene Ontology (GO) enrichment analysis. This dataset provides valuable information regarding pomegranate transcriptome changes for mechanism of soft-hard seeded pomegranate and may help guide future identification and functional analysis of genes that are important for lignification.

Biography

Yildiz Aka Kacar has received her MSc on Plant Tissue Culture in 1994 and PhD degree on Molecular Characterization at Horticulture Department of Cukurova University in Adana, Turkey 2001. She has spent a Postdoctoral period at University of California Riverside, USA on genetic mapping in citrus from 2004-2005. She has received the title of an Associate Professor in 2006 and has a full Professor position since 2013 at Cukurova University, Turkey.

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