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miRNA evolution in Triticeae

Hikmet Budak
Sabanci University, Turkey

Evolutionary history of miRNA genes in Triticeae has not been fully understood although there have been several efforts aiming to understand origins, has having an allohexaploid genome, wheat (genome composition: BBAADD) is one of the most suitable organisms to study the effects of the polyploidization and hybridization on the miRNA repertoire of a species. With the advent of the next generation sequencing techniques, accumulating genomic and transcriptomic data of wheat and its progenitor species made the analysis of miRNA evolutionary dynamics possible. We recently identified and annotated a number of shared and lineage-specific miRNA genes among A (*Triticum urartu, Triticum monoccocum*), B (*Aegilops speltoides* and *Aegilops sharonensis*) and D (*Aegilops tauschii*) genome donors of wheat and MU genome (*Aegilops geniculate*), CCDD (*Aegilops cilindirica*). The miRNA families are evolutionarily conserved across all major lineages of Triticeae. Up until now there are several proposed mechanisms for miRNA evolution. Our study suggests found that some miRNAs were lost during the evolution and also suggests that about half of the miRNA gene families identified in the ancestor of Triticeae have been lost. We also compared the newly identified miRNAs and new miRNA genes are usually species specific and or lineage specific. We will discuss about evolutionary history of miRNAs more in detail during this presentation.

budak@sabanciuniv.edu

Physicochemical and antioxidant properties during developmental stages in pomegranates

Maha Mohamed Abdel Salam, Aiman Kamal Mohamed, Rashad Ibrahim and **Ahmed Abd-El-Ghany**
Assuit University, Egypt

The experiment included three Egyptian pomegranate cultivars named as Manfalouty, Hejazy and Nab-El-Gamal. The study aimed to assess some physical and chemical characteristics in the fruits and estimate their content of some antioxidants at different stages of development. The study revealed that there were significant differences between the studied cultivars in most traits. Data also showed that the average weight (fruit; peel and arils weight) and fruit size (length and diameter) significantly increased and reached their maximum values at 165 days after full bloom (DAFB) (maturity stage). Total soluble solids (TSS) and sugars increased while the acidity gradually decreased until they reached the optimum level for maturity. On the other hand; vitamin C (ascorbic acid) concentration increased progressively until the fruits reached their maturity. The total phenolics content (T.P.C) measured in the fruit peel and arils started high, and then there was a gradual decline until they reached the lowest level at fruit maturity. Total anthocyanin content (T.A.C) of pomegranate arils and peel began low for the three cultivars and gradually increased till the end of fruit growth. Hydrolysable tannin content (H.T.C) measured as mg tannic acid/ gm of dry weight basis in peel and lit. of juice began high and rapidly decreased reaching its lowest level at fruit maturity. The differences were significant between the studied cultivars in both seasons for most abovementioned attributes.

ladymaha_1@yahoo.com