ABSTRACT

Sayed Youssef Mohammed Hassan. Molecular and Biochemical Genetic characterization of Peach Genetic Resources in Egypt. Unpublished Ph.D. Dessirtation, Department of Genetics, Faculty of Agriculture, Ain-Shams University, 2006.

Ten Peach cultivars [Sultany, Shami, Mawy, Hegazy, Neely, Late Sinai, Earli Grand, Desert Red, Florida Prince and Sweeling] were collected. These cultivars were diseriminated by their leaves and seeds SDS-protein and Isozymes (Peroxidase, Poly Phenyl Oxidase and Alkohol Dehydrogenase), and screened or (fingerprinted) by Random amplified polymorphic DNA (RAPD) markers using 28 arbitrary 10-mer primers (Operon Technologies Inc.,) and 10 ISSR primers. Similarity index based on Protein, Isozymes, and RAPD and ISSR-PCR data showed that the highest similarity value recorded was 1.0, which was observed between the two Desert Red and Florida Prince cultivars. While the lowest similarity value recorded was 0.0, which was observed between Sultany and Hegazy cultivars. Specific markers were recorded with some important fruit characteristics, for protein marker characteristics only one marker for flesh color characteristic was detected at molecular weight of 60.0 KDa. Some isozyme markers may be linked to some fruit characteristics such as, flesh color (Px1 and Adh1) and stone ceiling (PPO1). Some RAPD markers may be linked to some fruit characteristics such as flesh color ($C13_{2430}$, $L13_{800}$ and $I15_{1550}$), stone ceiling ($B12_{1850}$) and time of ripening ($M01_{1270}$). Some ISSR markers may be linked to some fruit characteristics such as, flesh color ($A98_{870}$, $HB09_{1190}$, $HB10_{250}$ and $HB12_{670}$) and time of ripening ($HB13_{750}$).

The presence of differences in traits and the molecular genetic diversity of these cultivars it is support the use of marker-assisted selection (MAS) in Peach cultivars breeding programs for evaluating Peach cultivars.

Key words: Peach cultivars, Molecular markers, SDS- PAGE, Isozymes , RAPD-PCR and ISSR-PCR Fingerprinting.

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