Taxonomical studies on some cultivated oranced orange cultivars in egypte

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The present study was carried out at Horticulture and Genetic Departments Faculty of Agriculture , Moshtohor, Zagazig University on twenty orange cultivars (Yafawi,Roga-Mozambeik,DaemEl-Haml ,Hamline ,Tuncy, Sentennial, Unani Mebattat, Sangawine ,Mazizi, W.Naval, Suckary, Mefreda, Valencia, Tanarif, Balady blood, Khalily White, Khalily Red Balady-Golden naged). Experiments were carried out during 2001, and 2002 seosonsto differentiate and separate between them through the following three categories.1.The chromosomal behavior:The cultivars which showed the maximum average number of univalent chromosomes were Mazizi, Mefreda, Tanarif and Golden Naged, respectively). The cultivars which showed the minimum average number of univalent chromosomes were the Tuncy, Valencia, Khalily Red and Balady, respectively). The rest of cultivars showedthe median average number of univalent chromosomes per pollen mother cell.2.SDS PAGE analysis for the studied orange cultivars: The control marker revealed a maximum of 21 bands. Bands number 1, 2, 3, 4, 5, 7, 8 and 9 were found in all cultivars. The otherbands were polymorphic. It was noted that some bands are specifically linked with some cultivars.The data of SDS-PAGE of water soluble protein were applied to the computer SPSS-10 program to get a dendogram for genetic distances and similarity matrix as shown inFigure(6) and Table (5). The highest similarity appeared between Daem el-Hamel and Mosambiek, Tuncy and Hamline, Mefreda and Hamline and Mefreda and Tuncy as it reached 100 %. Meanwhile , the lowest similarity-91 -appeared between Red Khalily and Red baladi as it reached 67 %. The phylogenetic elationships between the twenty Egyptian orange cultivars were determined by RAPDistance software package, version 1.04.The dendrogram tree showed that the twenty cultivars are separated into three clusters, cultivars lane 21, 4, 5 and 11 belonging to one cluster. While lane 14, 7, 8 , 9, 13, 2, 12, and 10 are belong to the second cluster. Moreover, lane 8, lane 19, 16, 18, 20, 5, 17 and 3 are belonging to the third group. These cluster were apparently remotely related to each other. In general, protein system could discriminate between all cultivars and to assign for each of them a unique fingerprint except for cultivars which revealed high similarity (100 %). 3. Seed surface scan and seed morphology 3.1. Seed macro morphological aspects :-It was found that the seed shape, size and color are of great importance and considered as good diagnostic features that make the differentiation and separation between the studied cultivars more effective and easier. 1. a. Seed Shape :-It is noted that the shape of seeds in ninteenorange cultivars was found to be as follows:-Yafawi orange and Unani Mebattat seeds are oblong shape, Roga and Tanarif are ellipsoid shape, Mozambeick and Balady are ellipsoid to ovoid, while seven cultivars as in Sangauine are ovoid four cultivars as in Hamline, Tuncy, Sentinnial and and Khalily Red are obovate, finally Suckary and Mefreda are obovate to oblong.1. b. Seed Size :-It is clear that the size of seeds in ninteen orange cultivars of Citrus sinesis were classified according to shape index (L / W) into three grades as follows :-Mazizi, Khalily Red and Balady are Small-sized seeds, nine cultivars as in Yafawi are Medium—sized seeds and seven cultivars as in Roga are large—sized seeds. 1. c. Seed color :It is quite clear that the color of seed in the ninteen orange cultivars of Citrus sinesis is shiny cream , creamy , pale yellow and yellowish cream as follows :-Mafreda is shiny cream, thirteen cultivars orange seeds as inYafawi are creamy while Tuncy Suckary, Balady blood orange and Balady are pale yellow , Valancia is yellowish cream. 3.2. Seed coat surface scan aspects :-It is clear that seeds of the studied orange cultivars

varied in their general features such as surface scan , surface texture , anticlinal walls and periclinal walls.2.a. Surface scan :-It is quite clear that, the surface scan of the studied orange cultivar seeds were performed showing thirteen sculpture types as follows :-Orange cultivar seeds of Yafawi, Mozambek, Sentennial, Unani Mebattat and Valencia are tuberculate,Roga is double reticulate, Balady blood orange, Daem El Haml and Sangawine are striate/tuberculate,Hamline is colliculate,Tuncy isscrobiculate/ruminate, Mazizi is rugose, Suckary isrugose/foveate,Mafreda is tuberculate/favulariate, Tanarif isverrucate/ favulari ate,Khalily White is double colliculate Golden naged is striate/favulariate,Balady is favulariate and Khali ly Red is tuberculate/ruminate.2. b.Surface texture :-It was found that the surface texture of ninteen orange cultivars seed under this study was classified in to three texture types; (smooth ,rough , and rigid)2. c.Anticlinal walls :-It was noted that the anticlinal walls of ninteenCitrus sinensis seeds under this study were performed as seven sculpture types as follows:Mazizi and Tanarif are sharply raised, Roga and Suckary are depressed, nine cultivars orange seed are slightly depressed as in Yafawi,whilc Daem El-Haml-Sangaunine and Golden naged are slightly depressed with some stratifications,Tuncy is irregulary depressed, Mefreda is deeply depressed and Khalily Red in some zones is very shallow while in others is raised.2. d.Periclinal walls :-It was observed that the periclinal walls of ninteen orange cultivars seed were classified into nine sculpture types as follows:-Ten cultivars as in Yafawi are highly elevated,Roga is irregularly clevated,Tuncy is elevated coarse Sanguine and Mazizi are deeply depressed,Balady blood orange is highly elevated with some stratification, Khalily Red is raised with some irregular elevations while Balady is slightly elevated.