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EVALUATION OF RED GUAVA CULTIVATED IN El. MAHAMOURA BOTANICAL GARDEN FOR IMPROVEMENT AND PROPAGATION PROGRAM.

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ABSTRACT

Physical and chemical fruit characteristics of some guava trees producing fruits with red flesh grown at El. Maamoura botanical garden, Alexandria governorate were evaluated. The study was conducted during 2003 and 2004 seasons. The red guava trees were analysed in order to select the best genotype for processing and for fresh consumption and to take part of improvement and propagation program, then distributes the seedlings to the farmars. The cultivars were 7 types (1 to 7). The best vegetative growth was in types 2 and 4. The best yeild was in types 1,2 and 4.

Fruit diameter was highest with types 2,4 and 7. The highest T.S.S. with 3,4,5 and 6. The highest V.C content was in type 1, while the types 2,3,4, and 6 gave intermediate values. The highest total carbohydrates were with types 1 and 3. The total pectin was high in type I in both seasons. The other types gave intermediate values.

The study recommends to improvement the 7 types of red guava flesh pulp by application suitable fertilization program and propagation of these clones vegetatively.

INTRODUCTION

Guava [*Psidum guajava* L.] trees are characterized with good fruits. Guava is very popular fruit, it is rich source of V.C and contains carbohydrates, fibers, vitamins B1, B2 and minerals. Yousof (1990) reported that the mesocarp colour of the guava fruits varied from pink to red or white.

Darshana *et al.* (1991) in India reported that, a guava variety was selected after a 4-year old seedling bearing large, uniformly pink fruits with deep-pink flesh was noticed in Allahabad growing region. It produces sweet, strongly flavoured fruit with few seeds, yielding 120 Kg/tree after 6 years. Normand (1994) found that in Paris, the strawberry guava is a relatively hardy subtropical species closly related to the guava, with round red fruit about 2.5 cm in diameter and used as a rootstocks, resistant to herbicides, pests and diseases.It grows on the wide ward side of the Island from sea level to 1300 m.

The evaluation data of red pulp of guava fruits from two farms in Mara munici pality, Venezuela were significantly affected by farm, sampling data, farm ripening stage. The mean values were 86.33%, 13.65% and 0.45% of fresh weight, for, mositure content, dry matter and ash content, respectively, (Arenas *et al.*, 1999).

The Ministry of Agriculture imported some varieties of guava having red plup to evaluate them in A.R.E. Some of these varieties have fruits with good quality. Fruits 60-65 gm weight, 5-5.2 cm in length, 5 cm width, the pulp

thickness was 0.8-1.1 cm, T.S.S ranged from 8-8.2%, acidity from 0.32-0.35% for round red Gizey but pear red Gizey fruits contain 8-8.5% T.S.S, 0.35-0.40% acid with dimensions of 5-6 cm in lenghth and 4-5 cm in width, the weight of fruit ranges from 70-80 gm. The third varity was red Malizey, fruit dimensions were 5.9 cm length, 5.1-5.2 cm width, pulp thicknees 1.1 cm, and contains 8.5-9.5 T.S.S, 0.44% acidity and 200mg V.C/100gm of fruit.

The aim of this study was to evaluate the red guava flesh pulp of trees grown in El. Maamoura Botanical garden, Horticulture Research Institute, Center of Agriculture Research, Alex. governorote.

MATERIAL AND METHODS

This study was carried out on guava trees (red flesh) during two successive seasons (2003-2004). The experiment aimed to evaluate fruit characteristics of these trees.

In both seasons seven uniform trees 25-30 year-old were selected from 12 trees grown among other trees with white fruit pulp. Trees were given numbers 1-7. These trees were almost uniform in size, appeared healthy and were spaced at 5x5 meters apart. The soil was classified as sandy with PH of 8.2.

In late-March, the selected trees were irrigated once a week during the growing season, and the trees were received the normal fertilization.

The vegetative growth, fruit set and fruit yield was evaluated.Tow main branches, on the east and west sides of each tree were tagged in April in both experimental seasons. Number of new developed shoots, number of flowers and set fruits on each branch were recorded and the percentage of fruit set was then calculated.

Fruit samples consisting of 12 fruits per tree were taken at rondom for analysis from each selected tree in mid-September, and divided into three replicates. Each replicate contained 4 fruits. Quality parameters of guava fruits included fruit weight, length, width, firmness, pulp thickness, total soluble solids, acidity, ascorbic acid, total carbohydrates content, total pectin and anthocyanine content of fruits.

Number of seeds per fruit, the seeds weight and ratio between the the seeds number per 100 gm of fruits were calculated.

Fruit firmness was determined by Magness and Taylor (1925) pressure tester using a 5/16 pluger. Two readings were taken at two different positions on the flesh of each fruit after peeling. Each fruit sample was cut to small parts, mixed well and then were used for determination total soluble solids in juice by a hand refractometer. Fruit juice acidity and vitamin C content were also determined according to (A.O.A.C.1980) by titration with 0.1 N soduim hydroxide and 2,6- dichlorophenol endophenol blue dye, respectively. Acidity was expressed as percent citric acid and V.C as mg ascorbic acid per 100 ml juice.

For the determination of total carbohydrates, pectin, anthocyanin dye contents, the fruit parts of each replicate were washed separately with distilled water, cut into small pieces by a clean knif mixed well and then pectin content was determined in fruit tissue by the method described by Care and

Haynes (1922). The pectin concentration in the fruit flesh was expressed as a percent on fresh weigh basis.

The anthocyanin dye content was calculated as part per million/100 gm of fruit according to the method described with Fulki and Francis (1968).

Seedy guava of cv Montakhab El. Sabahiya with white flesh pulp was considered as a control for study.

The data obtained through the course of this study were statistically analysed according to Sendecor and Cochran (1990), and L.S.D test at 0.05 level was used for comparison between treatments.

RESULTS AND DISCUSSION

I. Vegetative growth:-

The data of vegetative growth are presented in table (1)

I. 1 Number of shoots per tree:

Date presented in table (1) show that the number of shoots in type 2 and type 4 were significantly higher than those of other types, while the lowest number of shoots was in types 6 and 7 in both seasons.

El. Sisy (2001) found that, the number of new shoots per tree was 747.15 and 1422 in 1997 and 1998, respectively in guava with white pulp.

1.2The flowers number per tree:

The highest number of flowers was in types 1 and 4 in 2003 and 2004, respectively and and these values were significantly higher than those of control, but type 6 was significantly the lowest in, both seasons.

1.3 Fruits number per tree :

The highest fruits numbers per tree were in types 2 and 4 in the first season, and in types 1 and 2 in the second season. The lowest types in fruits number were 5, 6 and 7 in both studied seasons.

Table (1): Vegetative growth of seven guava trees compared with control trees during 2003 and 2004 seasons.

Type		Number of shoots/ tree		Flowers number per tree		Fruits number per tree		Fruit set %		Yield (kg) per tree	
		2003	2004	2003	2004	2003	2004	2003	2004	2003	2004
Control White flesh guava		746.75	1372. 5	764.25	752.5	380.25	372.25	50.55	48.7	54.325	53.925
Red Flesh	Type 1	496.75	783.25	288.75	1038.75	213.5	494.25	73.85	47.625	23.725	54.925
	2	1941.75	1663.25	881.5	742.5	468.75	434	53.25	58.975	52.075	48.225
	3	646	365	551	427	322.5	230	58.85	56.35	35.825	25.55
	4	1493.25	999.5	1014.75	566	548.75	308.5	54.225	54.625	61.00	34.275
	5	445	444.5	215	329.5	326	239.5	67.15	71.8	16.775	26.6
	6	231.5	204.25	117.25	141.5	78.75	99.5	66.225	70.175	8.725	11.075
	7	384	394.5	342	502.75	204.5	339.25	60.2	68.55	22.725	37.7
L.S.D 0.05		387.66	248.21	163.23	257.76	231.82	152.96	10.343	8.511	12.1308	17 8194

1.4 Fruit set percentage :

Data of both seasons presented in table (1) indicated that fruit set percent of types 1,5,6,7 and types 2,5,6,7 were significantly higher than of other types in 2003 and 2004, respectively.

1.5 Yield :

The data of yield are presented in Table (1). The data of 2003 indicated that the highest yields were 61.0, 54.325, 52.075 kg/tree in type 4, control and type 2, respectively.

The lowest yeild was 8.725 kg/tree in type 6 and 16.775 kg/tree in type 5.

In 2004, season type 1 gave the highest yeild per tree (54.925 kg), followed by control (53.925 kg) and type 2 (48.225 kg). There were significant differences were found among types.

These results disagreed with the results obtained by Darshana *et al.*, (1991) who found that guava with deep pink flesh produced 120 kg fruits/tree after 6 years.

II Fruit quality

II. I. Physical characteristics:

I. 1-Fruit pulp thickness:

The data in Table (2) showed that in both seasons of study, the control trees have fruit pulp thickness of 1.57 and 1.725 cm while in type 2 they have 1.27 and 1.325 cm. Type 4 gave fruits with 1.67 and 1.55 cm, type 7 gave fruits with 1.47 and 1.375 cm, respectively.

The results partially agree with those of El. Shierif and Khaliel (2002) who found that in selected clones, pulp thickness ranged from-0.8-1.1 cm, 0.9-1.0 and 1.1 in three selected guava CVS with the red pulp.

Table (2): Fruit physical caractaristics of seven guava trees compared with control trees during 2003 and 2004 seasons.

Type		Fruit weight gm		Fruit dimension Length cm		weidth cm		Pulp thickness cm		Firmness 1 b / ineh 2	
		2003	2004	2003	2004	2003	2004	2003	2004	2003	2004
Control White flesh		160.25	158.25	7.07	6.85	6.1	6.0	1.57	1.725	6.537	6.75
Red Fleshe	Type 1	82.0	95.5	6.33	6.0	6.42	6.18	1.37	0.85	3.225	3.45
	2	118.5	96.0	7.33	6.73	6.15	6.4	1.27	1.325	4.475	2.675
	3	92.75	84.0	6.75	6.30	5.85	5.23	0.85	1.075	4.10	3.25
	4	180.0	131.0	6.80	7.13	6.85	6.95	1.67	1.55	2.00	2 57
	5	101.0	99.5	5.37	5.28	5.35	5.38	1.00	1.075	3.2	4.6
	6	98.5	105.0	5.55	5.50	5.55	5.18	1.05	1.125	3.8	3.9
	7	98.25	120.25	7.0	6.63	5.83	5.25	1.47	1.375	2.8	3.025
L.S.D 0.05		29.5	33.37	1.004	0.817	0.963	0.851	0.488	0.476	1.784	1.155

II. 1.2 Firmness:

In both seasons of study, data in Table 2 showed that in mature stage, the control fruits (white pulp) have significantly the highest firmness values 6.537 and 6.75 in both seasons. While types 2,3 in the first season and type 5 in the second season gave intermediate values. The lowest firmness values were in types 4,7 and types 2, 4 in the first and second seasons respectively.

Yamdagni *et al.* (1988) found that the fruit wall pressuse decreased with fruit ripening.

II. 1.3 Fruit weight:

The data in Table 2 indicate that the average fruit weight of control and type 4 were generally higher than those of other types 160.25, 180 gm and 158.25, 131.0 gm in 2003, 2004 respectively. While, the lowest average weight was in type 1 and type 3 in the first and second season respectively. The other types gave intermediate values. The type 7 in second season gave 120 gm.

These results seemed to agree partially with the results found by El. Sherif and Khalil (2002) who reported that the average fruit weight ranged from 60-65 gm, 70-80 gm and 110 gm in three selected clones of guava red pulp.

II. 1.4 Fruit length:

The data in Table (2) showed that the highest average fruit length values were in types 2 (7.33 cm) type 4 (6.8 cm) and type 7 (7.0 cm) in first season. Also, type 2,3,4 and 7 gave the highest values in the second season. The lowest values were in types 5, 6 in both seasons.

These results seemed to be greater than those which obtained by El. Sherif and Khalil (2002) who found that the three selected clones of guava red pulp had fruit length runged from 5-5.2 cm, 5-6 cm and 5.9 cm.

II. 1.5 Fruit width:

The present results in Table 2 showed that there were no significant differences between all types and control, and also among all types in both seasons. The width ranged from 5.35-6.85 cm and 5.18-6.95 cm in both seasons, respectively.

These results were in line with the data presented by El. Sherif and Khalil (2002), who found that width ranged from 5 cm, (5-6 cm) and 5.1-5.2 cm in three selected clones.

II. 2. Chemical characteristies:

II. 2.1. Total soluble solids:

The data in Table 3 indicated that the fruit total soluble solids of types 3,4,5 and 6 were the highest values, it ranged from 7.225-8.5% in 2003 season.

The best values of T.S.S in 2004 were in type 3 (9.15%), type 4 (8.05%), type 5 (7.55%) and type 6 (9.0%).

These results seemed to agree with the results found by Saleh (1961) who analyzed seedless white and red guava fruits at full maturity stage and found that the value of total soluble solids in red guava was 9.2%.

Wilson (1980), reported that white guava fruits contained 9.5% total soluble solids. Also, El. Sherif and Khalil (2002) suggested that red flesh guava contained T.S.S ranged from 8.0.-9.5% in three selected clones, which have red flesh pulp.

II. 2.2. Fruit acidity:

The data of this study presented in Table (3) showed that the percentages of acidity as citric acid in juice of fruits of control trees were 0.547% and 0.402% in 2003 and 2004, respectively and it was significantly the highest.

On the other hand type 7 was the lowest, 0.195% and 0.197% in both seasons. The values ranged from 0.195% and-0.395% in 2003 and ranged from 0.197 to 0.365% in 2004, for the different types.

The present results agreed with the result obtained by El.Sherif and Khalil (2002), who found that the percentage of acidity ranged from 0.32-0.44% in three selected clones red pulp guava.

II. 2.3. Vitamin C.content:

The data in Table 3 showed that the V.C content in type 1 (red flesh) was the highest in the first season (86 mg/100 gm pulp) and contained (55.75 mg/100 gm) pulp in the second season. Types 2, 3 in (2003) and 2, 3, 6 in (2004) gave intermediate values.

These results were in line with those of Saleh (1961) who found that V.C content in full maturity stage of red guava fruits was 0.42%. El. Faki and Saeed (1975) found that V.C was higher in white guava than in pink. Also, these results agreed with the results obtained by Pozo *et al.* (1983) who found that, the V.C in red guava pulp of 10 samples ranged from 64.98 to 74.76 mg/100 gm pulp. Also, the results were not in line with those obtained by Rensburg and Duprez (1985) who found that ascorbic acid content with selection No 1 was 267 mg/100 gm of pulp.

II. 2.4. Total carbohydrates:

The data concerning effect of pulp colour on total carbohydrates presented in Table (3) showed that the white flesh pulp guava gave the highest total carbohydrates percent (19.49%) and also, type 1 and type 3 in first season. In the second season control and types 1, 2, 3 gave (19.727%, 19.955%, 16.52% and 15.72%) respectively.

II. 2.5. Total pectin:

The data of the first season presented in table (3) showed that type 1 gave the highest pectin % in both seasons 1.652% and 1.367%, respectively. While the lowest pectin % was in type 6 in both seasons. Also, Verma and Sruvastava (1965) studied the development of pectin content in two varieties of guava, white and red fleshed during growth and maturity. They found that the total pectin content ranged from (0.59 to 1.10%) in white fleshed variety and from (0.43 to 1.07%) in red fleshed when the fruits were full mature.

El.Buluk *et al.* (1997) reported that the total pectin content increased significantly with fruit growth and development, the highest level varied between 0.62 to 1.0% in white flesh guava.

Table (3): Fruit chemical charactaristics of seven guava trees compared with control trees during 2003 and 2004 seasons .

Type		T.S.S %		Acidity %		V.C mg/100gm fruit		Total carbohydrate %		Pectin %		Anthothianin ppm/100g of fruit		Number of seeds		Seeds weight gm		Ratio seeds number/100 gm fruits	
Control white flesh		2003	2004	2003	2004	2003	2004	2003	2004	2003	2004	2003	2004	2003	2004	2003	2004	2003	2004
		8.75	8.55	0.547	0.402	86.0	55.75	86.0	55.75	86.0	55.75	86.0	55.75	86.0	55.75	86.0	55.75	86.0	55.75
Red flesh	Type 1	6.675	6.725	0.395	0.365	56.0	33.0	56.0	33.0	56.0	33.0	56.0	33.0	56.0	33.0	56.0	33.0	56.0	33.0
	2	6.7	5.6	0.32	0.252	40.0	42.5	40.0	42.5	40.0	42.5	40.0	42.5	40.0	42.5	40.0	42.5	40.0	42.5
	3	7.725	9.15	0.367	0.265	30.75	21.5	30.75	21.5	30.75	21.5	30.75	21.5	30.75	21.5	30.75	21.5	30.75	21.5
	4	7.45	8 05	0.317	0.285	86.0	55.75	86.0	55.75	86.0	55.75	86.0	55.75	86.0	55.75	86.0	55.75	86.0	55.75
	5	7.225	7.55	0.227	0.235	25.25	30.5	8.28	6.54	1.255	1.39	285	286.25	337	285.2	3.575	3.025	333.66	286.68
	6	8.5	9.0	0.262	0.240	23.0	35.0	9.0	6.137	0.79	0.83	95.75	96.5	356	401.7	3.775	4.325	361.4	382.6
	7	5.9	5.55	0.195	0.197	26.0	27.5	5.55	6.73	1.245	1.29	166.5	160.5	398	405.5	4.225	4.30	005.08	337.2
L.S.D. 0.05		1.327	1.585	0.085	0.074	14.35	18 58	1.585	4.298	0.267	0.502	77.78	35.3	98.92	100.6	1.0606	1.0326	—	—

II. 2.6. Anthocyanin content:

The data presented in Table (3) showed that in both seasons of study, the highest content were in type 3 and type 4 (315.75 and 511.5 ppm/100 gm pulp) in the first season and (321.5, 573.25 ppm/100 gm pulp) in thesecond season and the lowest values were in type 6 in both seasons. The control fruits (white pulp) have not a red dye.

II. 2.7. Number and weight of seeds:

The data in Table (3) showed that the number of seeds and its weight were affected with the types of trees, types 1, 4 in both seasons were significantly lower than the other types in number of seeds, while type 2 in both seasons also had the highest fruit seeds number.

The weight of seeds was significantly lowest in type 4 in both seasons.

The ratio between the number of seeds per 100 gm of fruit indicated that in first season the least ratios were 144.0 in type 4 and 273.5 in type 1, while in control it was 244.305. In the second season, the least ratios were in type 4 (216.03), type 5 (286.68), the highest ratios were in type 3 and type 2 in first and second seasons, repectively.

The data were in line with the results obtained by Azad *et al.* (1987) who reported that the number of seeds per 100 gm fruits ranged from (265.0 to 109.3) with the highest in Allahabad and least in Kazl Piara fruits which those have white flesh.

In conclusion, red guava fruits can be important in the propagation programmes for producing transplants by the vegetative methods due to their good quality to introduce new strains of this important fruits.

REFERENCES

Arenas De Moreno, L., Marin. M.; Pena, D.; Toyo, E.; Sandoval, L. (1999). Moisture, dry matter and total ash contents in guava [Psidium guajava L.] harvested on farms in Mara municipality, Zulla state. Revista de la Facultod de Aqgronomia, univ,. del Zulia 16 (1), 1-10. [C.F Hort Abst 69 No 9: 7386, (1999)].

Association of Official Agriculture Chemist (1980). Official methods and tentaive methods of analysis 13 $^{th\ ed}$, P. 910 washington D.C. U.S.A.

Azad, A,k: Hoque,. A., A.K.M.H., Abdullah, A.M. (1987). Physico-chemical characteritics of fruits of some guava varieties in Bangladesh. Bangladesh. Journal of Agriculture-Reaseorch. V. 12 (2) P. 43-49.

Care, M.H. and S. Hyanes (1922). Estmation of pectic substances. [C.F Ranganna, S. (1979). Manual of analysis of fruit and vegetable products. New Delhi, Tate Mc.Hill Publishing companny, chapt 2. PP. 29-33].

Darshana. NAND, Gaure shanker; Srivastava, A.K. (1991). Guava, Allahabad in deep pink inside. Indian Horticulture 36 (2) 4-5. C.F Hort Abst (1993) Vol 63 No 5 (3797).

El. Buluk, R.E; F.E. Babiker and A. H. El. Timay (1997). Changes in chemical composition of guava fruits development and ripening. Food chemistry, 59 (3): 395-399. (c.F Hort. Abst 68 (2): 1867, 1998).

El-Faki, H.A and Saeed (1975). Physico chemical studies on guava and their suitablity for processing. Sudan. J. Fd.Sci. Technal, 7-9.

El. Shierif A.A. H and Khalil. F.A.A (2002). Cultivate and produce guava. Hort. Res. Ins. Publish No. 15. Agric. Res. cent. Giza (In Arabic).

El. Sisy, W.A.A.Z. (2001). Response of guava trees to some irrigation and fertilization treatments. Ph.D. thesis, Fac of Agric. Univ. of Alex.

Fulki, T. and F.J. Francis, J. (1968). Food Science (33), 471.

Magness, J.P. and G.F. Taylor (1925). An improved type pressure tests for the determination of fruit maturity. U.S.Dept. Agric. circ 350, 8 PP. 29-33.

Normand. F. (1994). Strawberry guava, relevance for Reunion. Fruits (Paris) 49 (3) 217-227. [C.F. Hort. Abs + 66 No. 1 (913) (1996)].

Pozo, L., Perez, I.; Velozquez, B. (1983). Determination of ascorbic acid in red guava pulp by the 2,6. dichlorophenolindophenol colorimetric method with xylene extration. Estaction Nacionol de frutales. Ministerio de la Agriculture, Havana, cuba. (C.F. Hort. Abst (1986) 56 No.6, 4745).

Rensburg, N. Van; P.Duprez (1985). Evaluation of guava selection. Information Bulletin citrus and subtropical fruit Reseaech Institute, No. 153, 8. [cited from Hort. Abst 56 (3) 2082. (1986)].

Saleh, A.M. (1961). Main fruit constituents of some local guava varieties proceeding 1 st Horticulture conference held in Cario (In Arabic) cited from Abd-El Fattah, I, A (1973). M.Sc. thesis, University of Alex.

Senedecer, G. W.G. Cochran (1990). Statical Methods 7 th Edition Iowa State Univ. Press, Ames. Iowa, U.S.A. P. 593.

Verma, A.R. and J.c. Srivastava (1965). Pectin in guava during growth and maturity. Indian J. Hort, 22:318-321. (cited from Hort. Abst 39 (2) 3902, 1969).

Wilson, C.W. (1980). Tropical and subtropical fruits compostion, properties and uses, P. 278-279. Angy. S.W. and P.E. Shaw. A.V. (C.F Elsisy 2001 Ph. D. Fac of Agric Univ. Alex.)

Yamdagni, R.; Siddique, and R.K. Godara (1987). Physico-chemical changes. in fruits of guava ([psidium guajaval.) during different stages of ripening. Reserch and development Reportes 4 (2) 154-158 (En, 9 ref) (C.F Hort. Abst, 58 (12): 9349, 1988).

Yousof. (1990). S. Physico-chemical characteristics of some guava varieties in Malaysia. Acta. Horticulture No. 269,: 301-305.

تقييم أشجار الجوافة ذات اللب الاحمر النامية بالحديقة النباتية بالمعمورة – محافظة الاسكندرية

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أجريت هذه الدراسة عامى ٢٠٠٣، ٢٠٠٤ لتقييم أشجار الجوافة ذات اللب الاحمر النامية بالحديقة النباتية بالمعمورة ــ معهد بحوث البساتين ــ محافظة الاسكندرية وذلك لأختيار الاشجار ذات الصفات الجيدة من ناحية النمو الخضرى والثمرى وجودة الثمار وإدخالها ضمن برامج التحسين والتسميد وذلك بغرض إكثارها ونشرها بين المزارعين وأوضحت النتائج مايلى:

١- من ناحية النمو الخضرى وجد أن الاشجار أرقام ٢، ٤ أعطت أحسن نمو خضرى بينما الاشجار أرقام ١، ٢، ٤ أعطت أحسن محصول.

٢ - من حيث جودة الثمار.

أ ــ الصفات الطبيعية للثمار:

الاشجار رقم ٢، ٤، ٧ أعطت أحسن أقطار للثمار من ناحية الطول والعرض ، بينما ثمار أشجار رقم ٢، ٤ فى الموسم الاول وأرقام ١، ٢، ٤ فى الموسم الثانى،أعطت أعلى وزن للثمار، والاشجار أرقام ٢، ٢، ٤، ٧ أعطت أكبر سمك للب.

ب _ من ناحية الصفات الكيماوية للثمار:

أشجار أرقام ٣، ٤، ٥ أعطت اعلى محتوى من السكريات الذائبة الكلية والاشجار ١، ٣ اعطت اعلى محتوى من الكربوهيدرات الكلية فى كلا الموسمين.

بينما كانت الاشجار ١، ٥، ٧ فى الموسم الاول و ١، ٣، ٤، ٥، ٧ فى الموسم الثانى محتواها من البكتين عالى. ومن ناحية فيتامين ج وجد أن الاشجار أرقام ١، ٢، ٣، ٤، ٦ محتواها مرتفع من فيتامين ج فى كلا الموسمين.

وأشجار رقم ١، ٤ أعطت أقل عدد من البذور فى الموسمين مقارنة بباقى الاشجار. وكان أقل وزن للبذور لكل ١٠٠ جم ثمار فى الشجرة رقم ٤ فى كلا الموسمين ويليها الشجرة رقم ١. أحسن الاشجار الموجودة هى ١، ٢/ ٤، ٧.

من النتائج السابقة ينصح بالعناية بالاشجار الحاملة للثمار ذات اللب الاحمر لما لها من صفات تحتاج للتحسين وبغرض المحافظة على تركيبها الوراثى وإكثارها والعمل على نشرها بين المزارعين.