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

El-Sisy, Wafaa A. Z. * and Afaf M. Ali Yousif**

* El-Maamoura Botanical Garden.

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 farmers. The cultivars were 7 types (1 to 7). The best vegetative growth was in types 2 and 4. The best yield was in types 1, 2 and 4. The 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 1 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 [Psidium 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 5 years. Nomand (1994) found that in Paris, the strawberry guava is a relatively hardy subtropical species closely 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 Maracay municipality, Venezuela were significantly affected by farm, sampling date, farm ripening stage. The mean values were 88.33%, 13.65% and 0.45% of fresh weight, for, moisture content, dry matter and ash content, respectively. (Arenas et al., 1999).

The Ministry of Agriculture imported some varieties of guava having red plump to evaluate them in A.R.E. Some of these varieties have fruits with good quality. Fruits 60-85 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% with dimensions of 5-8 cm in length and 4-5 cm in width, the weight of fruit ranges from 70-80 gm. The third variety was red Malizye, fruit dimensions were 5.9 cm length, 5.1-5.2 cm width, pulp thickness 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. Maamuru Botanical garden, Horticulture Research Institute, Center of Agriculture Research,Alex. governorate.

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. Two 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 random 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 seeds number per 100 gm of fruits were calculated.

Fruit firmness was determined by Magnes 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 sodium 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 knife mixed well and then pectin content was determined in fruit tissue by the method described by Care and

7908
RESULTS AND DISCUSSION

I. Vegetative growth:

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

I.1 Number of shoots per tree:

Data 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 74.7, 75 and 142.2 in 1997 and 1998, respectively in guava with white pulp.

I.2 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.

I.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.

<table>
<thead>
<tr>
<th>Type</th>
<th>Control</th>
<th>White Flesh</th>
<th>Type 1</th>
<th>496.75</th>
<th>1372.5</th>
<th>764.25</th>
<th>172.5</th>
<th>380.25</th>
<th>372.25</th>
<th>50.55</th>
<th>48.7</th>
<th>54.25</th>
<th>53.925</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of</td>
<td>74.75</td>
<td>1372.5</td>
<td>764.25</td>
<td>172.5</td>
<td>380.25</td>
<td>372.25</td>
<td>50.55</td>
<td>48.7</td>
<td>54.25</td>
<td>53.925</td>
<td>54.25</td>
<td>53.925</td>
<td></td>
</tr>
<tr>
<td>shoots/</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>tree</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Flowers</td>
<td>74.75</td>
<td>1372.5</td>
<td>764.25</td>
<td>172.5</td>
<td>380.25</td>
<td>372.25</td>
<td>50.55</td>
<td>48.7</td>
<td>54.25</td>
<td>53.925</td>
<td>54.25</td>
<td>53.925</td>
<td></td>
</tr>
<tr>
<td>number</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>per tree</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fruits</td>
<td>74.75</td>
<td>1372.5</td>
<td>764.25</td>
<td>172.5</td>
<td>380.25</td>
<td>372.25</td>
<td>50.55</td>
<td>48.7</td>
<td>54.25</td>
<td>53.925</td>
<td>54.25</td>
<td>53.925</td>
<td></td>
</tr>
<tr>
<td>number</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>per tree</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fruit</td>
<td>74.75</td>
<td>1372.5</td>
<td>764.25</td>
<td>172.5</td>
<td>380.25</td>
<td>372.25</td>
<td>50.55</td>
<td>48.7</td>
<td>54.25</td>
<td>53.925</td>
<td>54.25</td>
<td>53.925</td>
<td></td>
</tr>
<tr>
<td>set %</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yield (kg)</td>
<td>74.75</td>
<td>1372.5</td>
<td>764.25</td>
<td>172.5</td>
<td>380.25</td>
<td>372.25</td>
<td>50.55</td>
<td>48.7</td>
<td>54.25</td>
<td>53.925</td>
<td>54.25</td>
<td>53.925</td>
<td></td>
</tr>
<tr>
<td>per tree</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

L.S.D 0.05

7909
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, 52.675 kg/tree in type 4, control and type 2, respectively. The lowest yield was 8.725 kg/tree in type 6 and 16.775 kg/tree in type 5. In 2004, season type 1 gave the highest yield 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.1. Physical characteristics:

1.1-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-Shenif 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 caracteristics of seven guava trees compared with control trees during 2003 and 2004 seasons.

<table>
<thead>
<tr>
<th>Type</th>
<th>Fruit weight gm</th>
<th>Fruit length cm</th>
<th>Fruit width cm</th>
<th>Pulp thickness cm</th>
<th>Firmness 1b/inch 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control White flesh</td>
<td>160.25</td>
<td>158.25</td>
<td>7.07</td>
<td>6.85</td>
<td>6.1</td>
</tr>
<tr>
<td>Type 1</td>
<td>82.0</td>
<td>95.5</td>
<td>6.33</td>
<td>6.0</td>
<td>6.42</td>
</tr>
<tr>
<td>2</td>
<td>118.8</td>
<td>96.0</td>
<td>7.33</td>
<td>6.73</td>
<td>6.15</td>
</tr>
<tr>
<td>3</td>
<td>92.75</td>
<td>84.0</td>
<td>6.75</td>
<td>6.30</td>
<td>5.85</td>
</tr>
<tr>
<td>4</td>
<td>180.0</td>
<td>211.0</td>
<td>6.86</td>
<td>7.13</td>
<td>6.85</td>
</tr>
<tr>
<td>5</td>
<td>101.0</td>
<td>99.5</td>
<td>5.37</td>
<td>5.28</td>
<td>5.35</td>
</tr>
<tr>
<td>6</td>
<td>98.5</td>
<td>105.0</td>
<td>5.55</td>
<td>5.50</td>
<td>5.55</td>
</tr>
<tr>
<td>7</td>
<td>94.25</td>
<td>120.25</td>
<td>7.0</td>
<td>6.63</td>
<td>5.82</td>
</tr>
<tr>
<td>L.S.D 0.05</td>
<td>29.5</td>
<td>33.37</td>
<td>1.004</td>
<td>0.817</td>
<td>0.903</td>
</tr>
</tbody>
</table>
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 pressure 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 ranged from 5-5.2 cm, 5.5 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 characteristics:

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%.

7911
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 0.179 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 (1995) who found that ascorbic acid content with selection No 1 was 287 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 Srivastava (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. Butuk 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>
<thead>
<tr>
<th>Type</th>
<th>T.S.S %</th>
<th>Acidity %</th>
<th>V.C mg/100gm fruit</th>
<th>Total carbohydrate %</th>
<th>Pectin %</th>
<th>Anthothiahin ppm/100g of fruit</th>
<th>Number of seeds</th>
<th>Seeds weight gm</th>
<th>Ratio seeds number/100 gm fruits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control white flesh</td>
<td>8.75</td>
<td>8.55</td>
<td>0.547</td>
<td>0.402</td>
<td>86.0</td>
<td>55.75</td>
<td>86.0</td>
<td>55.75</td>
<td>86.0</td>
</tr>
<tr>
<td>Red flesh Type 1</td>
<td>6.675</td>
<td>6.725</td>
<td>0.395</td>
<td>0.365</td>
<td>56.0</td>
<td>33.0</td>
<td>56.0</td>
<td>33.0</td>
<td>56.0</td>
</tr>
<tr>
<td>Type 2</td>
<td>6.7</td>
<td>6.6</td>
<td>0.32</td>
<td>0.25</td>
<td>40.0</td>
<td>42.5</td>
<td>40.0</td>
<td>42.5</td>
<td>40.0</td>
</tr>
<tr>
<td>Type 3</td>
<td>7.725</td>
<td>9.15</td>
<td>0.36</td>
<td>0.265</td>
<td>30.75</td>
<td>21.5</td>
<td>30.75</td>
<td>21.5</td>
<td>30.75</td>
</tr>
<tr>
<td>Type 4</td>
<td>7.45</td>
<td>8.05</td>
<td>0.317</td>
<td>0.285</td>
<td>86.0</td>
<td>55.75</td>
<td>86.0</td>
<td>55.75</td>
<td>86.0</td>
</tr>
<tr>
<td>Type 5</td>
<td>7.225</td>
<td>7.55</td>
<td>0.227</td>
<td>0.23</td>
<td>25.25</td>
<td>30.6</td>
<td>8.28</td>
<td>6.54</td>
<td>1.255</td>
</tr>
<tr>
<td>Type 6</td>
<td>6.5</td>
<td>9.0</td>
<td>0.202</td>
<td>0.24</td>
<td>23.0</td>
<td>35.0</td>
<td>5.9</td>
<td>6.137</td>
<td>0.79</td>
</tr>
<tr>
<td>Type 7</td>
<td>5.9</td>
<td>5.5</td>
<td>0.198</td>
<td>0.197</td>
<td>26.0</td>
<td>27.5</td>
<td>5.55</td>
<td>6.73</td>
<td>1.245</td>
</tr>
<tr>
<td>L.S.D.</td>
<td>1.327</td>
<td>1.595</td>
<td>0.085</td>
<td>0.074</td>
<td>14.35</td>
<td>19.56</td>
<td>1.585</td>
<td>4.285</td>
<td>0.267</td>
</tr>
</tbody>
</table>

*Table (3): Fruit chemical characteristics of seven guava trees compared with control trees during 2003 and 2004 seasons.*
II. 2.5. 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 the second 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, respectively.

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 (265.9) to 109.3 with the highest in Allahabad and least in Kazi 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


7915
تقييم أأشجار الجوافة ذات اللب الاحمر النامية بالحديقة النباتية بالمجمع -محافظة الاسكندرية
وفاء على أحمد زكي السبسي و عياف محمد علي يوسف
الحديقة النباتية بالمجمع
محلة بحوث الصحيفة - مركز بحوث البستاني - مركز البحوث الزراعية بجدة

أجريت هذه الدراسة عام 2004 لتقييم أأشجار الجوافة ذات اللب الاحمر النامية بالحديقة النباتية بالمجمع -محافظة الأسکندرية - حاليًا - لتخزين الأشجار ذات النهائية النمو الخضري والزهرة وجودة اللحم. ودلالها ضمن برامج التحسين والتمهيد وذلك بغض النظر إثارة ونشرها بين الزراعين وأوضح النتائج ماليًا: من ناحية النمو الخضري وجد أن الأشجار أرقام 2، 4، أعطت أحسن نمو خضري بينما الأشجار أرقام 1، 3، أعطت أحسن نمو بحوي.
- من حيث جودة اللحم:
- الصفات الطبيعية للثمار:
- الأشجار رقم 2، 4، أعطت أحسن أفتاء للثمار من ناحية الطول والعمر، بينما شار أشجار رقم 2، 4 في الموسم الأول وأرقام 1، 3، 4، في الموسم الثاني أعطت أحسن وزن للسما. 
- والأشجار أرقام 2، 4، 3، أعطت أكثر سمك لللثمار.
- من ناحية أسماء الكمياتية للثمار:
- أشجار أرقام 2، 4، أعطت أعلى محتوى من السكريات النباتية الكلية والأنسة 3، أعطت أعلى محتوى من الكربوهيدرات الكلية في كلا الموسمين، بينما كانت الأشجار أرقام 1، 3، 4 في الموسم الأول وأرقام 1، 3، 4 في الموسم الثاني محتواها من السكريات أعلى. ومن ناحية القيتامين ج وجد أن الأشجار أرقام 2، 4، 3، 6 محتواها مرتفع من القيتامين ج في كلا الموسمين.
- وأشجار رقم 1، 4 أعطت أقل عدد من البذور في الموسمين مقارنة بباقي الأشجار. وكان أقل وزن البذور لكل 100 جم شجرة رقم 3، في كلا الموسمين وأيضاً الشجرة رقم 1، أحسن الأشجار الموجودة في 1، 4، 7.
- من النتائج السابقة ينصح بالعناية بالإشجار الحالية للثمار ذات اللب الاحمر كما لميش صفات تتعلق بالتحفيز ومرض المحافظة على تركيب اللثمار وإثارةها والعمل على نشرها بين الزراعين.