The Daily Consumption of Fresh Dates in Abu Dhabi City

El-Beihissy, E.Y.¹, King, R. D. ², Hashim, M. O. ¹

¹Food and Environment Control Centre, Abu Dhabi Municipality, UAE
²Department of Food Science and Technology, Reading University, UK

ABSTRACT

A questionnaire on the daily consumption of fresh dates in Abu Dhabi City had been done. The questionnaire distributed between 200 persons of different genders, ages and nationalities. The daily consumption per capita is about 10 to 200 g dates which varies depending on the age, sex, time of consumption and date maturity stage.

Also it was reported that most of the participants wash fruits before eating.

INTRODUCTION

In the UAE, as well as in other Arabic and Islamic countries, dates are considered as one of the most important crops because of their religious and nutritional importance. They are either produced locally or imported from producer countries such as Saudi, Iran, Egypt and Iraq.

The number of date palms increased in the last few years. There are about 25 million of date palm trees in the UAE, 10 million of them are fruiting, while 15 million are not (Ministry of Agricultural and Fisheries, UAE, 1997). Most of palm trees (19 millions) are in the Emirate of Abu Dhabi. The annual production of raw dates in the UAE is 288190 tons of which 128059 tons are produced by Abu Dhabi Emirate (Ministry of Agricultural and Fisheries, UAE, 1997).
Before the discovery of oil, dates were the main sources of food together with camel milk and fish (Ahmed et al., 1995). Dates are considered as a highly nutritive food. They are an excellent source of simple sugars, in addition to minerals and vitamins. The chemical composition of raw Tamer fruits of Khunaizy variety for example, is 25.1% moisture, 53.9% total sugars of which 28.5% are glucose and 25.4% are fructose, 3.0% protein, 0.1% lipid, 1.4% ash which consists of 0.2, 0.1, 1.5, 0.4, 59, 15, 197, and 704 mg/100 g dates of zinc, copper, iron, manganese, magnesium, calcium, sodium and potassium, respectively (Ahmed et al., 1995). Also, it is rich of vitamin A (80-100 IU), while 0.07, 0.03, 0.33-2.2 and 0.77-2.7 mg/100 g dates are the vitamins B1, B2, B7 and C, respectively (Ibrahim and Khelif, 1993).

Dates may be consumed raw (as Khalal (mature full colour fruits), Rutab (soft brown fruits) or Tamer (hard raisin-like fruits)) or after processing into jam, syrup, paste, packed Tamer or Tamer desserts.

The rate of consumption of dates is important factor that measure the importance of them and in sequence the economical utility of production of dates.

In Saudi the daily consumption of dates ranged from 15 to 115 g dates, which varies mainly depending on the age and gender. Also the rate of consumption differs from maturity stage to other where Rutab found to be the favoured stage (Sabbri et al., 1982).

METHOD OF THE QUESTIONNAIRE

The questionnaire was distributed randomly between 200 persons in Abu Dhabi City only. The 200 persons were as follows, 50 males under 18 years old, 50 males more than 18 years old, 50 females under 18 years old and 50 females more than 18 years old. Those persons were of different nationalities and jobs. The questionnaire concentrated on the following points:

1) If the consumption is constant during the year or not?
2) If constant, (a) are dates eaten daily, and how many dates are consumed per day? (b) or are dates eaten weekly?, how many
times are dates eaten during the week? And how many dates are consumed in each time?

2) If changeable, when is the consumption of dates increased? Is it during harvest, Ramadan, winter, Eids (Islamic feasts), or summer? And how many dates are consumed daily?

II) Which stages are consumed?
1) Which stages (Khalal, Rutab and/or Tamer) is preferred? At which time are they consumed? And how many dates are consumed daily?
2) Are they washed or not? And with what are they washed, water only or water and detergent?

Data, which processed were those answered with yes, and in sequence the n values related to those participants that reply yes for each section in the questionnaire.

RESULTS AND DISCUSSION

Although that the questionnaire was distributed between 200 persons (50 of each group) but the interaction of adults toward the questionnaire was better than those under 18 years, see Table 1. Table 2 shows the participants in term of nationalities where between 20 to 36 % are Emirates.

Changeable consumption is the common manner of consumption between the participants, while constant consumers are not more than 10 to 30 % of total participants.

The constant consumption of dates is either per day or week. It is clear from the results in Table 3, that no significant difference between the mean number of dates in the daily constant consumption and the weekly constant consumption. In addition to, the comparison between consumers in term of gender (Table 4) or in term of age (Table 5), showed no differences between the two cases (daily and weekly constant consumption) in the mean number of dates, although that the number of female constant consumers are higher than male constant consumers. The number of adult constant consumers was also higher than the under 18 constant consumers which may reflect the nutritive consciousness of adults.
The rate of changeable consumption varies depending on time of consumption during the year. Table 6 shows that most of changeable consumers consume dates in Ramadan, in which dates are the best food that fasters can start their feeding after fasting for long period, then in harvest time, while number of consumers in winter, Eids and summer are nearly equal.

The adult males are the highest consumers among other groups, then adult females, this is more clear in Table 8 which shows the comparison between consumers in term of age. This reflects the religious relation and the nutritive consciousness, which increase with the increase of age. Sabbri et al. (1982) reported that the daily consumption of dates by males and females of more than 40 years old, females of ages between 6-35 years old and males of ages between 6-35 years is averagely 12-15, 3-5, and 2-3 dates per capita, respectively.

Comparison in term of gender (Table 7) shows that the mean number of dates consumed by male is higher than female in Ramadan and Eids, while no difference in other three times. This reflects the religious manner of live during Ramadan and Eids. In Ramadan males mostly start their feeding in Mosques with dates in addition to water, while females have different choices at homes.

Comparison between number of participants that consume different maturity stages of dates (Table 9) showed that Rutab and Tamer are the preferred maturity stages comparing to Khalal which has low prefereability specially by under 18 participants, which is mostly because of its slightly sour taste. Sabbri et al. (1982) reported that Rutab stage is the preferred stage by Saudi consumers, then Khalal and Tamer are in nearly equal order. The mean number of Khalal fruits consumed by under 18 males and females is slightly higher than the mean number of Rutab and Tamer fruits. This may be explained in term of Khalal variety, which may be one of these sweetly varieties like Hilali, and in term of statistics as the n value with Khalal is lower than that for Rutab and Tamer so the mean will be higher.

Comparison between consumers in term of gender (Table 10) and age (Table 11) showed no significant differences in mean
number of dates, except for Rutab consumed by adults which is higher than that consumed by under 18 consumers. Although that there is no difference in the number of participants in term of gender, but in term of age the adults are nearly double the under 18.

Table 12 shows that Khalal is consumed only during harvest time, because it can not be stored for longer time, so it should be consumed fresh. Some people store it in freezers, but when it get out the freezers, it becomes Rutab not Khalal.

Rutab has different three times that can be consumed in them. But it is mostly consumed during harvesting time, as it is preferred to be eaten fresh (see the number of participants in harvest time in Table 12). While those fruits that consumed in other two times are those stored by freezing.

Finally, Tamer has five different times for consumption, but it is mostly consumed in Ramadan as it is clear from the number of participants in Table 12.

The comparison in term of gender showed some differences, but they are not significant differences (Table 13). On the other hand comparison in term of age showed significant differences, where adults consume different maturity stages during different times more than under 18 consumers.

Tables 15-17 show the participants that wash different maturity stages of dates before consumption. Most of participants wash fruits before consumption, where 100% of participants wash Khalal before consumption with water only and 92.4 % of participants wash Rutab with water only, while remaining do not. 66.9 % of participants wash Tamer before consumption of which 2.8 % wash using soap in addition to water, while 31.1 % do not wash Tamer before consumption. Gender or age has no effect on washing habit.

CONCLUSIONS

Consumption of dates has no significant constant manner during the year, but it is changeable, and the rate of consumption
increased in some times during the year. In term of number of consumers, consumption in Ramadan is the most, then harvest time, while the consumption in the other times during the year is low (e.g. summer and winter).

The differences in the consumption as a function of age is more significant than gender either as a function of consumption times or as a function of consumed maturity stages. Consumers of different ages and genders may be ordered according to the rate of consumption to adult males > adult females > under 18 females > under 18 males.

Rutab and Tamer are the preferred maturity stages, while Khalal is the least. The range of consumed date fruits is from 1 to 20 date fruit (10 to 200 grams) and averages are in the range from 3 to 11 fruits (30 to 110 grams).

Most of participants wash fruits before consumption using mostly water where no effect of age or gender on washing habit.

REFERENCES


Sabbri, M.M., Makki, Y.M. and Salehuddin, A.H., 1982, Study on dates consumers preference in different regions of the Kingdom of Saudi Arabia, P. 618-637. In (Proceedings of the First symposium on the Date Palm, 1982, King Faisal University, the Kingdom of Saudi Arabia)
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Table 2: Number of participants in terms of nationalities (UAE and other Arab countries)

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<th>Total of Participants</th>
<th>%</th>
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Table 1: Gender, age ranges and number of participants.
### Table 4: Consonant consumption of dairy as a function of gender during the year

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### Table 3: Co-sonant consumption of dairy by males and females of different age ranges during the year

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### Table 2: Consonant consumption of dairy by males and females of different age ranges during the year

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</tr>
<tr>
<td>Male</td>
<td>2-10</td>
<td>1-15</td>
</tr>
<tr>
<td>Male</td>
<td>1-15</td>
<td>2-10</td>
</tr>
<tr>
<td>Male</td>
<td>2-10</td>
<td>1-15</td>
</tr>
<tr>
<td>Male</td>
<td>1-15</td>
<td>2-10</td>
</tr>
<tr>
<td>Male</td>
<td>2-10</td>
<td>1-15</td>
</tr>
</tbody>
</table>

**Note:** The table shows the number of classes in each range and the percentage of the total number of classes.
### Table 9: The consumption of different raw materials by males and females of different age groups.

<table>
<thead>
<tr>
<th>Age (years)</th>
<th>Male</th>
<th>Female</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-2.15</td>
<td>19</td>
<td>11</td>
</tr>
<tr>
<td>2.15-3</td>
<td>14</td>
<td>10</td>
</tr>
<tr>
<td>3-4</td>
<td>10</td>
<td>9</td>
</tr>
</tbody>
</table>

### Table 8: Changeable consumption of dates as a function of dates during the year.

<table>
<thead>
<tr>
<th>Season</th>
<th>Number of Dates</th>
<th>Mean</th>
<th>Range</th>
<th>n</th>
</tr>
</thead>
<tbody>
<tr>
<td>Summer</td>
<td>10</td>
<td>5</td>
<td>1-20</td>
<td>11</td>
</tr>
<tr>
<td>Winter</td>
<td>12</td>
<td>6</td>
<td>1-15</td>
<td>12</td>
</tr>
<tr>
<td>Harvest</td>
<td>14</td>
<td>7</td>
<td>1-10</td>
<td>14</td>
</tr>
<tr>
<td>Ramadan</td>
<td>15</td>
<td>8</td>
<td>1-8</td>
<td>15</td>
</tr>
</tbody>
</table>

---

Note: The table above details the consumption of dates during different seasons. The data is organized by the number of dates, mean, range, and the corresponding count (n) for each season.
Table 1.1: The consumption of different maturity stages of dates as a function of age.

<table>
<thead>
<tr>
<th>Age (years)</th>
<th>Gender</th>
<th>Female</th>
<th>Male</th>
</tr>
</thead>
<tbody>
<tr>
<td>4-12</td>
<td></td>
<td>22</td>
<td>13</td>
</tr>
<tr>
<td>12-15</td>
<td></td>
<td>28</td>
<td>13</td>
</tr>
<tr>
<td>15-20</td>
<td></td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>20-25</td>
<td></td>
<td>8</td>
<td>7</td>
</tr>
<tr>
<td>25-30</td>
<td></td>
<td>27</td>
<td>22</td>
</tr>
</tbody>
</table>

Table 1.2: The consumption of different maturity stages of dates as a function of gender.

<table>
<thead>
<tr>
<th>Gender</th>
<th>Male</th>
<th>Female</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>18</td>
<td>44</td>
</tr>
<tr>
<td></td>
<td>6</td>
<td>44</td>
</tr>
<tr>
<td></td>
<td>2-20</td>
<td>16</td>
</tr>
<tr>
<td></td>
<td>20</td>
<td>43</td>
</tr>
<tr>
<td></td>
<td>15</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>7</td>
<td>7</td>
</tr>
<tr>
<td></td>
<td>1-20</td>
<td>40</td>
</tr>
<tr>
<td></td>
<td>40</td>
<td>40</td>
</tr>
<tr>
<td></td>
<td>5</td>
<td>7</td>
</tr>
<tr>
<td></td>
<td>7</td>
<td>7</td>
</tr>
<tr>
<td></td>
<td>1-20</td>
<td>43</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Gender</th>
<th>Female</th>
<th>Male</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>7</td>
<td>7</td>
</tr>
<tr>
<td></td>
<td>2-20</td>
<td>27</td>
</tr>
<tr>
<td></td>
<td>27</td>
<td>27</td>
</tr>
<tr>
<td></td>
<td>44</td>
<td>44</td>
</tr>
<tr>
<td></td>
<td>44</td>
<td>44</td>
</tr>
<tr>
<td></td>
<td>1-20</td>
<td>1-20</td>
</tr>
<tr>
<td></td>
<td>1-20</td>
<td>1-20</td>
</tr>
</tbody>
</table>

Table 1.3: The consumption of different maturity stages of dates as a function of gender.
<table>
<thead>
<tr>
<th>Gender</th>
<th>Male</th>
<th>Female</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean</td>
<td>n</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td># of days</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hawaiian</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hawaiin</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>3</td>
<td>5</td>
</tr>
<tr>
<td>6</td>
<td>6</td>
<td>9</td>
</tr>
<tr>
<td>9</td>
<td>9</td>
<td>12</td>
</tr>
<tr>
<td>12</td>
<td>12</td>
<td>15</td>
</tr>
<tr>
<td>15</td>
<td>15</td>
<td>18</td>
</tr>
<tr>
<td>18</td>
<td>18</td>
<td>21</td>
</tr>
</tbody>
</table>

Table 12: Percentages for the consumption of different materials of days per group and categories of different age ranges.
<table>
<thead>
<tr>
<th>Mean</th>
<th>n</th>
<th>Mean</th>
<th>n</th>
<th>Mean</th>
<th>n</th>
<th>Mean</th>
<th>n</th>
<th>Mean</th>
<th>n</th>
<th>Mean</th>
<th>n</th>
<th>Mean</th>
<th>n</th>
<th>Range</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
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<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>dates</td>
<td>#</td>
<td>dates</td>
<td>#</td>
<td>dates</td>
<td>#</td>
<td>dates</td>
<td>#</td>
<td>dates</td>
<td>#</td>
<td>dates</td>
<td>#</td>
<td>dates</td>
<td>#</td>
<td>Age (years)</td>
<td></td>
</tr>
<tr>
<td>Semester</td>
<td></td>
<td>Summer</td>
<td></td>
<td>Bids</td>
<td></td>
<td>Violent</td>
<td></td>
<td>Ramadhan</td>
<td></td>
<td>Winter</td>
<td></td>
<td>Harvest</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 14: Preferred times for the consumption of different meat products by gender and age.
<table>
<thead>
<tr>
<th>Group</th>
<th>Gender</th>
<th>Male</th>
<th>Female</th>
<th>Mean Age</th>
<th>Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Khidal</td>
<td>0</td>
<td>22</td>
<td>6</td>
<td>6-9</td>
<td>33</td>
</tr>
<tr>
<td></td>
<td>0</td>
<td>21</td>
<td>3</td>
<td>11-16</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>0</td>
<td>8</td>
<td>6</td>
<td>11-16</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>0</td>
<td>11</td>
<td>1</td>
<td>11-16</td>
<td>1</td>
</tr>
</tbody>
</table>

Table 17: Number of participants who wash or not Khidal before consumption.

<table>
<thead>
<tr>
<th>Group</th>
<th>Gender</th>
<th>Male</th>
<th>Female</th>
<th>Mean Age</th>
<th>Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Khidal</td>
<td>0</td>
<td>21</td>
<td>3</td>
<td>6-9</td>
<td>33</td>
</tr>
<tr>
<td></td>
<td>0</td>
<td>27</td>
<td>30</td>
<td>17-19</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>0</td>
<td>18</td>
<td>18</td>
<td>12-16</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>0</td>
<td>13</td>
<td>14</td>
<td>11-16</td>
<td>1</td>
</tr>
</tbody>
</table>

Table 16: Number of participants who wash or not Khidal before consumption.

<table>
<thead>
<tr>
<th>Group</th>
<th>Gender</th>
<th>Male</th>
<th>Female</th>
<th>Mean Age</th>
<th>Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Khidal</td>
<td>0</td>
<td>11</td>
<td>1</td>
<td>0-2</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>0</td>
<td>11</td>
<td>1</td>
<td>0-2</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>0</td>
<td>5</td>
<td>5</td>
<td>0-2</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>0</td>
<td>7</td>
<td>7</td>
<td>0-2</td>
<td>1</td>
</tr>
</tbody>
</table>
مجلة الإمارات للعلوم الزراعية (1998) 10 : 77 - 88

معدل الاستهلاك اليومي من التمور الطازجة في مدينة أبو ظبي

إلهام يوسف البحيصي ١، ريتشارد كينج ٢ و محمد عثمان هاشم ١

١ مركز رقابة الأغذية والبيئة، بلدية أبو ظبي، الإمارات
٢ قسم علوم وتكنولوجيا الأغذية، جامعة ردنج، بريطانيا.

ملخص

تم دراسة معدل الاستهلاك اليومي من التمور الطازجة في مدينة أبو ظبي. وقد تمت هذه الدراسة من خلال توزيع استبيان على 200 شخص من الجنسين من مختلف الأعمار والجنسيات.

وقد وجد أن معدل الاستهلاك اليومي للفرد يتراوح ما بين 10 إلى 200 جرام من التمور الطازجة. و يختلف هذا المعدل باختلاف العمر، الجنس، وقت الاستهلاك، السنة، و مرحلة النضج المستهلكة.

وقد ثبت من الاستبيان أن معظم المستهلكين يتقارلون التمور بمراحل نضجها المختلفة بعد غسلها.