Traditional and Local Food Knowledge on the Island of Cyprus

Taygun Dayi¹, Adile Oniz²

¹Department of Nutrition and Dietetics, Near East University Faculty of Health Sciences, Nicosia, North Cyprus
²Department of Health Management, Near East University Faculty of Health Sciences, Nicosia, North Cyprus

Abstract

BACKGROUND/AIMS: Cyprus is a multi-cultural island in the Mediterranean Sea. In addition to the Cypriots (native islanders), foreigners live in this country because of its location and lifestyle. Nowadays, immigration and emigration rates have increased for this island. At the same time, local production is limited and traditional food production, such as Commandaria, halloumi, olive oil etc., supports the economy. In addition, numerous natural and traditional consumable herbs grow in the local vegetation. This study aimed to determine the traditional and local food knowledge in Cyprus as a Mediterranean Food Model.

MATERIALS AND METHODS: The researchers designed an online questionnaire in five languages using Google Forms. Each questionnaire included a Nutritional Memory Catalog which was developed with a number of traditional and local food photos which were generally speaking not easy to recognize. All data was collected online due to the Coronavirus pandemic conditions.

RESULTS: Only voluntary adults (≥19 years) took part in this study. Cypriots (85.6%) and latecomers (14.4%) who had come this island later but had a duration of residence of more than ten years participated voluntarily (n=917). According to the results, traditional and local foods had a recognition rate of between 67.3% and 99.9%. Most of the traditional and local foods, such as vegetables, meat products etc., had a high recognition rate (≥99.0%). However, natural consumable herbs which grow in the mountains had the lowest recognition rate (<68.8%).

CONCLUSION: In conclusion, as with so many new trends in food and human behavior, there is a need to highlight traditional and local food consumption and increase awareness for healthy Mediterranean herbs.

Keywords: Traditional foods, Cyprus, Mediterranean region

INTRODUCTION

The Mediterranean region has gained a certain interest for healthy living, not only because of its climate and location but also due to its healthy nutrition and lifestyle. Providing a unique strategical basis, Cyprus is a candidate to study a large spectrum of features in the scope of nutrition and dietetics. This island is literally in the center of Mediterranean Sea where Cypriots, the native islanders, live.¹

Cyprus has hosted different civilizations during its history. Thus, the island possesses multi-cultural traces.² Due to its location and lifestyle, it also includes multicultural background- foreigners who choose to live on Cyprus.¹ Local food production, such as citrus, grapes, strawberries, olives, vegetables etc., has an important role in the economy of the island while other food items are limited in their production.³ ⁴ There are several traditional local products. Halloumi is a traditional cheese of Cyprus and it has different types such as old, fresh and dried. Paphos red wine (Commandaria) is a traditional red wine which supports the economy.³ ⁶ Wild asparagus (Asparagus acutifolius), artichoke (Cynara scolymus), Molehiya (Corchorus olitorius), coriander (Coriandrum sativum) and taro (Colocasia esculenta) are important seasonal traditional foods.⁷ ⁸ At the same time, many natural and traditional consumable herbs, such as common mallow (Malva sylvestris), wild
artichoke (Cynara cardunculus), tagarninas (Scolymus hispanicus) etc., grow in the local vegetation. In addition, there are many traditional desserts and pickles which are made from the local and traditional foods/products.11

From the broader scope of planet health, traditional foods are very important for food security and local food consumption has important effects in many dimensions.12,13 In addition, traditional food consumption is important for the economy and for the transfer of cultural heritage to future generations.14 Furthermore, there are numerous studies showing the beneficial effects of the traditional and local foods of Cyprus on health.15-17

As seen elsewhere, immigration and emigration rates have increased to and from the island of Cyprus. This can cause cultural traces to be erased or altered.18 From this point of view, the current study aimed to determine the traditional and local food knowledge of adults, both native islanders or latecomers who have lived on this island for more than ten years, and it also paves the way for the recording of the island’s social nutritional memory.

MATERIALS AND METHODS

Place and Time of Study, Sample Selection

This study was conducted on the island of Cyprus between November 2020 and March 2021. The sample size had initially been estimated to be a minimum of 386 adults (95.0% confidence interval, 5.0% confidence level) according to general population (nearly 1.3 million). Due to concerted social calls, the data was collected within five months and with a total population of 917 adults (≥19 years old) who participated voluntarily in this study. Only Cypriots and latecomers who had come to this island later and who had a duration of residency of more than ten years could participate. Living in a country for a long time brings about an adaptation to its nutritional and lifestyle habits regardless of one’s original culture.19,20 This study had a local ethical compliance (approval number: NEU/2020/85-1198) and the volunteers participated with online consent in accordance.

Data Collection

Data was collected with a questionnaire and by using the Nutritional Memory Catalog which were all developed by the researchers. This was an online research due to the Coronavirus pandemic. The researchers designed an online questionnaire in Turkish, Greek, English, German and Russian using Google Forms. Each questionnaire included the Nutritional Memory Catalog showing some traditional and local foods which may not have been otherwise possible to recognize without their pictures. The questionnaire included two parts, namely the participants’ general backgrounds and their traditional and local food knowledge. There were 63 traditional and local foods covered in the questionnaire (Table 1).

Nutritional Memory Catalog

The researchers reviewed numerous traditional and local foods photos which were not easy to recognize. When possible, they took photos of certain food items. In addition, the rest of the food types were placed in the catalog by referring to the source. The names of all foods were made available in five different languages (Turkish/Greek/English). In addition, there are many traditional desserts and pickles which are made from the local and traditional foods/products.11

The current catalog includes 11 groups and 63 foods in order to determine traditional and local Cyprus foods knowledge.

Statistical Analysis

Statistical Package of the Social Science program-version 24.0 (SPPS Inc., Chicago) was used to analyze the data. Descriptive statistics were used to determine the frequencies (n) and percentages (%) of the qualitative data.

RESULTS

The spectrum of local food items is rather wide and it could potentially dissolve as global items overtake. In order to make our efforts stable for the long term, we have created a novel catalog with high resolution photos, Latin botanical counterparts as well as local names in available forms (mostly binomial), and further plotted them across their available and relative locations on the island map (Figure 1). This figure was developed by a team of professional graphic designers and researchers to introduce these traditional and local food items to the outside world properly. This effort was carried out in parallel to the present article. The relevant food items were prepared under similar conditions to enable easier comprehension for a non-expert eye. The numbers represent the names of the food items and respectively match with items in Table 1. To be more specific, items of the Nutritional Memory Catalog numbered 23, 36, 37, 46 and 53 were placed according to their exact geographical production locations. As such, other traditional food productions are not limited to a specific location and are mapped in a broader sense (Figure 1).

There were 917 participants in the current study. 85.6% were native islanders and the rest of the participants (14.4%) had lived on this island for more than 10 years. According to Table 1, traditional and local foods had a recognition rate of between 67.3% and 99.9%. Celery stalk (Apium graveolens), Cyprus muffin, “Caksdez” (green olive), olive bread, wild asparagus (Asparagus acutifolius), pickled capari (Capparis spinosa) leaves, Zivania, “Selfali kebab”, coriander (Coriandrum sativum), carob (Ceratonia siliqua), Cyprus pastrami, Cyprus pita, walnut jam, fresh halloumi, taro (Colocasia esculenta), “Pasedembo” (pumpkin seeds), old halloumi, artichoke (Cynara cardunculus), “Garavoli” (snail), Indian fig...
Table 1. Participants’ local and traditional food recognition rates (n=917)

<table>
<thead>
<tr>
<th>Food</th>
<th>Recognition rate</th>
<th>Food</th>
<th>Recognition rate</th>
<th>Food</th>
<th>Recognition rate</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n %</td>
<td></td>
<td>n %</td>
<td></td>
<td>n %</td>
</tr>
<tr>
<td>Fresh halloumi(^1)</td>
<td>912 99.5</td>
<td>Wild spinach (Spinacia oleracea)</td>
<td>865 94.3</td>
<td>Pickled capari seeds (Capari; Cinnara spinosa)(^2)</td>
<td>907 98.9</td>
</tr>
<tr>
<td>Old halloumi</td>
<td>911 99.3</td>
<td>Louvana (Lathyrus ochrus)(^3)</td>
<td>836 91.2</td>
<td>Pickled Mangolla (Eryngium creticum)(^4)</td>
<td>858 93.6</td>
</tr>
<tr>
<td>Dried halloumi</td>
<td>865 94.3</td>
<td>Gavear mushroom (Pleurotus fuscus var. feralis)(^5)</td>
<td>903 98.5</td>
<td>Taro (Colocasia esculenta)(^6)</td>
<td>912 99.5</td>
</tr>
<tr>
<td>Fresh curd(^2)</td>
<td>848 92.5</td>
<td>Celery stalk (Apium graveolens)(^7)</td>
<td>916 99.9</td>
<td>Bulleze (Colocasia esculentasa)</td>
<td>833 90.8</td>
</tr>
<tr>
<td>Dried curd</td>
<td>858 93.6</td>
<td>Zucchini (Cucurbita pepo)(^8)</td>
<td>873 95.2</td>
<td>Cyprus tarhana(^9)</td>
<td>904 98.6</td>
</tr>
<tr>
<td>Seftali kebab(^\Box)</td>
<td>914 99.7</td>
<td>Zucchini blossom(^10)</td>
<td>905 98.7</td>
<td>Pirohu (Cyprus ravioli)(^11)</td>
<td>903 98.5</td>
</tr>
<tr>
<td>Tsamaradell(^\top)</td>
<td>904 98.6</td>
<td>Purslane (Portulaca oleracea)(^12)</td>
<td>844 92.0</td>
<td>Cyprus pita(^13)</td>
<td>913 99.6</td>
</tr>
<tr>
<td>Cyprus pastrami(^\circ)</td>
<td>913 99.6</td>
<td>Lapsana (Sinapis alba)(^14)</td>
<td>839 91.5</td>
<td>Cyprus muffin(^15)</td>
<td>916 99.9</td>
</tr>
<tr>
<td>Dusky spinefoot (Siganus luridus)(^6)</td>
<td>900 98.1</td>
<td>Wild asparagus (Asparagus officinalis)(^16)</td>
<td>915 99.8</td>
<td>Olive bread(^16)</td>
<td>915 99.8</td>
</tr>
<tr>
<td>Garavolli (Snaif)(^7)</td>
<td>910 99.2</td>
<td>Gavulya (Notobasis syriaca)(^17)</td>
<td>631 68.8</td>
<td>Chickpea bread(^16)</td>
<td>896 97.7</td>
</tr>
<tr>
<td>Coriander (Coriandrum sativum)(^8)</td>
<td>914 99.7</td>
<td>Hawthorn (Crataegus azarolus)(^18)</td>
<td>902 98.4</td>
<td>Hackberry rusk(^16)</td>
<td>891 97.2</td>
</tr>
<tr>
<td>Kohtrabi (Brassica oleracea gongylodes)(^9)</td>
<td>905 98.7</td>
<td>Carob (Carobotro siliqua)(^19)</td>
<td>914 99.7</td>
<td>Limassol dessert (Cone dessert)(^19)</td>
<td>848 92.5</td>
</tr>
<tr>
<td>Common mallow (Malva sylvestris)(^10)</td>
<td>904 98.6</td>
<td>Gonnara (Zizysphus lotus)(^20)</td>
<td>845 92.1</td>
<td>Tavern/crop dessert(^16)</td>
<td>859 93.7</td>
</tr>
<tr>
<td>Tagarminas (Scolymus hispanicus)(^11)</td>
<td>790 86.2</td>
<td>Jujube (Zizysphus jujuba)(^21)</td>
<td>846 92.3</td>
<td>Şambali(^21)</td>
<td>901 98.3</td>
</tr>
<tr>
<td>Hostes (Cynara cornigera)(^2)</td>
<td>869 94.8</td>
<td>Indian fig (Opuntia ficus-indica)(^22)</td>
<td>910 99.1</td>
<td>Gollif(^22) (Cyprus Ashura)</td>
<td>909 99.1</td>
</tr>
<tr>
<td>Molehiya (Corchorus olitorius)(^3)</td>
<td>878 95.7</td>
<td>Pomelo (Citrus maxima)(^23)</td>
<td>892 97.3</td>
<td>Samsi(^22)</td>
<td>886 96.6</td>
</tr>
<tr>
<td>Bladder campion (Silene vulgaris)(^4)</td>
<td>843 91.9</td>
<td>Unripe almond (Amygdalus communis)(^24)</td>
<td>915 99.8</td>
<td>Gallirkiya(^24)</td>
<td>796 86.8</td>
</tr>
<tr>
<td>Yellow star-thistle (Centaura hyalolepis)(^5)</td>
<td>617 67.3</td>
<td>Cyprus thyme (Thymus capitatus)</td>
<td>897 97.8</td>
<td>Walnut jam(^25)</td>
<td>913 99.6</td>
</tr>
<tr>
<td>Artichoke (Cynara scolymus)(^6)</td>
<td>910 99.2</td>
<td>Galrdes (Green olive)(^26)</td>
<td>916 99.9</td>
<td>Hawtorn jam</td>
<td>891 97.2</td>
</tr>
<tr>
<td>Wild artichoke (Cynara cardunculus)(^7)</td>
<td>814 88.8</td>
<td>Pasedembo (Pumpkin seeds)(^27)</td>
<td>912 99.5</td>
<td>Pumpkin jam(^27)</td>
<td>908 99.0</td>
</tr>
<tr>
<td>Wild leek (Allium ampeloprasum var. porrum)</td>
<td>855 93.2</td>
<td>Pickled wild asparagus</td>
<td>900 98.1</td>
<td>Paphos red wine (Commandaria)(^28)</td>
<td>894 97.5</td>
</tr>
<tr>
<td>Cinnara/Cinares (leaves of Cynara cardunculus plant)</td>
<td>625 68.2</td>
<td>Pickled capari leaves</td>
<td>915 99.8</td>
<td>Zivania(^29)</td>
<td>914 99.7</td>
</tr>
</tbody>
</table>

\(^1\) grilled spicy meatballs wrapped in lamb/sheep abdominal fat, \(^2\) sun-dried spicy meat, \(^3\) green olive which served with olive oil, garlic, sumac and coriander seed, \(^4\) a soup made with bulgur, yoghurt and halloumi, \(^5\) a dessert made with curd and cream, served with honey, molasses, walnuts and pomegranates, \(^6\) a sherbet dessert made with semolina, \(^7\) a dessert which is mixture of wheat, anise, pomegranate, raisin, almond, sesame and made for the New Year celebration, \(^8\) a fried dessert which made with almonds and cinnamon placed in the dough, \(^9\) dough boiled in molasses.

island and the recognition rates of the local and traditional food items were quite high (up to 99.0%). The vegetation of Cyprus is very suitable for natural consumable herb growth.\(^28\) However, the least recognized three food items were found to be natural indigenous herbs, namely, yellow star-thistle (Centaura hyalolepis), Cinnara/Cinares (leaves of Cynara cardunculus plant) and “Gavulya” (Notobasis syriaca), which are all natural indigenous herbs, were the least recognized food items (recognition rates from 67.3% to 68.8%).

**DISCUSSION**

Nutrition is commonly based on plants and local foods in the Mediterranean region. Most of the Mediterranean countries give enough importance to local production.\(^21\) Cyprus is a Mediterranean island and the recognition rates of the local and traditional food items were quite high (up to 99.0%). The vegetation of Cyprus is very suitable for natural consumable herb growth.\(^28\) However, the least recognized three food items were found to be natural indigenous herbs, namely, yellow star-thistle (Centaura hyalolepis), Cinnara/Cinares (leaves of Cynara cardunculus tree) and Gavulya (Notobasis syriaca). Centaura hyalolepis is an herb that has an important role on human health in terms of anti-cancer, anti-inflammatory and so on.\(^28\) Cynara cardunculus is a flower head which is known as wild artichoke. It is a common part of some traditional Mediterranean dishes. The leaves of this plant are consumable.\(^29\) Table 1 shows that 88.8% of the participants consumed Cynara cardunculus and 68.2% consumed the leaves of this plant. Another natural herb which has been shown to have an anti-inflammatory role on rats is Notobasis syriaca. Humans
have consumed it for more than 20,000 years. Furthermore, we have reported common recognition rates for common mallow (*Malva sylvestris*), tagarinas (*Scolymus hispanicus*), wild spinach (*Spinacia oleracea*), gavcar mushroom (*Pleurotus fuscus var. ferrulae*), bladder campion (*Silene vulgaris*), Lapsana (*Sinapis alba*), and wild leek (*Allium ampeloprasum var. porrum*) (recognition rates are between 96.6% and 86.2%) (Table 1).

Hadjichambis et al. designed a study about natural plants in seven Mediterranean countries. According to their results, Cypriots know different plants and different parts of the natural herbs distinctive from other Mediterranean regions. In addition, they use natural foods to make pickles and jam. According to Table 1, pickled capari (*Capparis spinosa*) leaves (99.8%), walnut (99.6%) and pumpkin jams (99.0%) were found to be the most recognized food items in the presented study.

Pickled *Capparis spinosa* seeds, pickled Mangolla (*Lathyrus ochrus*) and pickled wild asparagus (*Asparagus acutifolius*) had high recognition rate (98.9-93.6%). Pickled vegetables and natural herbs show prebiotic effects on human health and their antioxidant capacities remain a long time after fermentation. Thus, they may show beneficial effects on human health with balanced consumption.

The land of Cyprus is suitable for citrus production. Islanders commonly recognized (97.3%) Pomelo (*Citrus maxima*) (Table 1). In addition, the main source of the public economy is vegetable and fruit production on the island so having a substantial knowledge about them is important. There is production of celery stalks, zucchini (*Cucurbita pepo*), zucchini blossoms, purslane (*Portulaca oleracea*), louvana (*Lathyrus ochrus*), Indian figs (*Opuntia ficus-indica*), unripe almonds, Molehia (*Corchorus olitorius*), artichoke (*Cynara scolymus*) in Cyprus (recognition rates of 99.9% to 91.2%).

According to our results, Cyprus thyme (*Thymus capitatus*) had a 97.8% recognition rate. It is a spice which grows naturally in the Cyprus mountains. *Opuntia ficus-indica* is specific to the Mediterranean region. It includes a high number of anti-oxidants and can play an important role in the prevention of diseases. Cypriots showed a recognition rate of 99.1% (Table 1). At the same time, they generally knew Gonnara (*Zizyphus lotus*) (92.1%). *Zizyphus lotus* grows generally in arid and semi-arid countries such as Greece, Cyprus, Spain etc. It is part of the angiosperm *Rhamnaceae* family.

Halloumi is known as Cypriot cheese. There is wide production, marketing and serving of halloumi on the island. It has three types, namely, fresh, old and dried. Recognition rates of them were 99.5%, 99.3% and 94.3%, respectively (Table 1). Paphos red wine (*Commandandra*) and Zivania are also produced in Cyprus. They are characteristic of Cyprus and have importance to the economy of the island.

According to the present study, participants recognized Zivania (99.7%) more than Paphos red wine (97.5%).

Paphos red wine and Zivania are both fermented alcoholic beverages. Fermented beverages play important roles on human’s gut microbiota and health. At the same time, red wine is a good source of resveratrol which is a beneficial phenolic compound.

Although Cyprus is an island in the Mediterranean Sea, Cypriots displayed a preference for red meat compared to fish consumption. In the current study, participants recognized Sefalti kebab (99.7%), Cyprus pastrami (99.6%) and Tsamarela (98.6%) more than *Siganus luridus* (98.1%) which is known as dusky spinefoot (Table 1).

Cyprus tarhana is a fermented dried soup which has probiotic effects. It is made with yoghurt, bulgur and halloumi. Most of the participants recognized it (98.6%) (Table 1). Fermented foods which have probiotic contents may show positive effects on human gut microbiota.

Pita is the most common bakery product in Cyprus culture. Nearly 500,000 pieces/day of Cyprus pita production is reported. Participants recognized it with a rate of 99.6%. In addition, the population knew about Cyprus ravioli, Cyprus muffin, olive bread, chickpea bread and hackberry rusks which are some of the traditional bakery products of Cyprus (recognition rates of 99.9% to 97.2%).

Taro (*Colocasia esculenta*) is a tuber similar to a potato. Cyprus plays an important role in taro production all around world along with the United States of America and Canada. The recognition rate of taro was found to be 99.5% in this study.

There are many traditional Cyprus desserts which are served in local restaurants and/or made at home. According to Table 1, participants commonly recognized them (99.1-96.8%). High simple carbohydrate intake is related with many chronic diseases such as obesity, diabetes mellitus etc. so people should avoid the regular consumption of them.

Study Limitations

The present study was initiated in 2020, which is known as the year of the Corona pandemic. All data were collected with online questionnaires and the Nutritional Memory Catalog. However, the Coronavirus disease-2019 pandemic led to a number of limitations while reaching out to more participants.

The current study was the first research which aimed to determine adults’ traditional and local food item knowledge on the island of Cyprus. It has an important role in recording the islanders’ data. In addition, the researchers developed the Nutritional Memory Catalog which includes some traditional and local Cyprus food items. Generally, the recognition rates of these food items were found to be more than 90.0%. On the other hand, natural indigenous herbs with health benefits were among the least recognized foods.

CONCLUSION

The modern world is seeking its early roots as human interactions with the planet are increasingly troublesome. This area is open for new research to address planet health, human health, food security, and cultural heritage. Thus, with so many new trends in food and human behavior, there is a need to highlight traditional/local food consumption and increase awareness of healthy Mediterranean herbs.

MAIN POINTS

- The current study is the first aiming to determine comprehensive traditional and local food knowledge on the island of Cyprus. It sheds light on these points as a Mediterranean Food Model:
  - The recognition rate of traditional and local foods was found to be between 67.3% and 99.9%. The most recognized foods were vegetables, meat products etc. (recognition rates of 99.9%).
  - Natural consumable herbs, which grow in the mountains, had the lowest recognition rates (<68.8%).

- The recognition rate of traditional and local foods was found to be between 67.3% and 99.9%. The most recognized foods were vegetables, meat products etc. (recognition rates of 99.9%).
- Natural consumable herbs, which grow in the mountains, had the lowest recognition rates (<68.8%).
• There are photos of these traditional and local food items in this manuscript in order to introduce them to the world as a novel approach.

ETHICS

Ethics Committee Approval: This study had a local ethical compliance (approval number: NEU/2020/85-1198).

Informed Consent: The volunteers participated with online consent in accordance.

Peer-review: Externally peer-reviewed.

Authorship Contributions


DISCLOSURES

Conflict of Interest: No conflict of interest was declared by the authors.

Financial Disclosure: The author declared that this study had received no financial support.

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