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RESEARCH ARTICLE

HOME GARDENS AND URBAN ECOLOGY OF A MEDITERRANEAN CITY

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ABSTRACT

Urban expansion has resulted in global pressurisation on sustainable food production. This has given rise to an increased interest in urban home gardens. In recent years, across developed and developing cities the "Edible Garden" concept has become popular within the home gardens. Urban residents who practise an ecological living concept; using vegetable, fruit and ornamental plants within their home gardens. In Cypriot cultural landscapes the "Kitchen Garden" culture has been passed down through generations. Herbs and small scale fruit and vegetable production have always been part of Cypriot culture. The objective of this study was to document and consign a value to vegetables and edible herbs derived from urban home gardens in the city of Nicosia. We collected information on the homeowner's lifestyle and interest on ecological living. During the surveys in 2015-2016 the physical setting of 100 urban home gardens was examined, the vegetable and/or edible herb production was determined within the sampled gardens and interviews were performed to collect information about home owner's ecological lifestyle. During the survey a total of 14 different vegetable and 8 different herb species were recorded. Our results indicate that only 3 % of the garden owners were making their own compost and had an interest an ecological lifestyle. Through this research, the role of home gardens in the lives of urban residents, their effect on cultural and ecological socialization has been determined.

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INTRODUCTION

Urbanization is one of the main factors causing environmental change in physical, social, cultural and economic aspects of our society (Mollison 2014). Also, increasing urbanization causes a shift in the demand for food from rural to cities. In addition, the desire for more sustainable, self-sufficient and greener cities is growing especially in more developed countries (Eigenbrod and Gruda, 2015). In recent years, across developed and developing cities the `edible garden` concept has become popular within home gardens (Kortright and Wakefield, 2011). Home gardening is an ancient and widespread practice all over the world. In the literature home gardens are classified as mixed, kitchen, backyard, farmyard, compound or homestead garden (Rowe 2009). Generally, home gardening refers to the cultivation of a small portion of land which may be adjacent to the household or within walking distance of the family home. Home gardens can be described as a mixed cropping system which consists of fruits, vegetables, herbs, ornamental plants that serve as supplementary source of food and income (Galhena *et al*., 2013).

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The most important benefit of home gardens is the supply of fresh fruit and vegetables for the garden owners (Kortright and Wakefield, 2011). Additionally, many people have seen this type of urban horticulture as a hobby and opportunity to spend time outdoors (Lovell, 2009). Growing and eating food of your own is economical, gives pleasure and sense of satisfaction. Kaplan and Kaplan (1990) stated that gardening helps people to recover from everyday stress, anxiety and fatigue. In addition interaction with nature has potential benefits for both physical and mental health (Frumkin, 2003). Furthermore, the consumption of fresh fruit and vegetables has been associated with a decreased risk of certain cancers, heart disease, reduced morbidity and mortality (Yeh *et al*., 2008). On the other hand, urban green spaces and urban domestic gardens can also play an important role in species conservation of birds and butterflies by providing food, places to reproduce and resting (Mac Gregor-Fors *et al*., 2016, Gaston *et al*., 2005). These gardens also play an important role in increasing a city`s biodiversity with increased plant varieties and attracting beneficial soil microorganisms, insects, birds, reptiles and other animal groups (Jaganmohan *et al*., 2013). Currently there is a growing interest in the documentation of edible plants provided by home gardens throughout the world (Galhena *et al*. 2013, Mazumdar and Mazumdar 2012, Kortright and Wakefield, 2011). Although there is little research on edible

plant species in Cypriot rural home gardens, there has been almost no research on urban home gardens in Cyprus (Özersoy and Fuller 2016). Urban home gardens have not been supported by governmental bodies or non-governmental organizations within the framework of `urban planning`. Considering the lack of knowledge on urban home gardens in Cyprus, this research has been conducted in Nicosia city which is the capital city for both southern and northern part of the island. Accordingly, the aim of this research was to document the size of the urban home gardens, identify commonly cultivated vegetables - herbs and to determine homeowner's lifestyle and interest on ecological living within the Yenikent region of Nicosia.

Figure 1. Map showing Yenikent location in Cyprus (Google Earth)

MATERIAL AND METHODS

Study Area

This study was conducted in Yenikent region within the Nicosia district of northern Cyprus between March 2015 to July 2016 (Figure 1). Nicosia district is divided into two sub-districts: Lefkoşa Sub-district and Değirmenlik Sub-district. Its' population is 97,293 according to the 2011 census (DPÖ 2013). As the capital, north Nicosia is Northern Cyprus's political, economic and cultural centre. The city is governed by the Nicosia Turkish Municipality, who jurisdiction covers 92.8 km^2.

Climate

Nicosia has sub-tropical, semi-arid climate, with hot, dry summers and cool, mild winters. Rainfall mainly occurs during the winter season. Daily average maximum temperatures reach 38.1 $^{\circ}$C in summer and minimum temperatures can fall to 3.7 $^{\circ}$C in winter.

Methods

Observation of home gardens and structured interviews with their owners was the primary source of data for this research. Between March 2015 – July 2016 a total number of 100 urban home gardens were visited, within the Yenikent region. The home grown vegetables and herbs were documented. In addition to this, questionnaires were used to collect information from the homeowners with questions primarily focused on home garden components, planting design, and assessing the homeowners' ecological perspective. Interviews with the home owners lasted from 20-30 minutes.

RESULTS

During the surveys in 2015- 2016 the study was conducted in Yenikent region within the Nicosia district and a total number of 100 urban home gardens were visited, from these 100 home gardens a total of 56 houses were growing vegetables within their garden. According to this research, the smallest garden area was 20 m^2, while the largest garden area was 3000 m^2. According to the survey results, a total number of 14 different vegetable species and 8 different herb species were recorded during the surveys. Most widely used vegetable species in urban gardens which are also used local cuisine as well as were Pepper (*Capsicum annuum*), Tomato (*Solanum lycopersicum),* and Lettuce (*Lactuca sativa)* (Table 1). In addition most widely used herb species were Purslane (*Portulaca oleracea),* Rocket plant (*Eruca sativa),* Coriander (*Coriandrum sativum)* (Table 2).

Table 1. List of commonly grown vegetables, their botanical name and their use categories

Vegetables	Botanical Name	Family	Use Category
Pepper	*Capsicum annuum*	Solanaceae	Food
Tomato	*Solanum lycopersicum*	Solanaceae	Food
Lettuce	*Lactuca sativa*	Asteraceae	Food

Table 2. List of commonly grown herbs, their botanical name and their use categories

Herbs	English Name	Family	Use Category
Purslane	*Portulaca oleracea*	Portulacaceae	Herb
Rocket plant	*Eruca sativa*	Brassicaceae	Herb
Coriander	*Coriandrum sativum*	Apiaceae	Herb

Our results indicate that only 23.3 % of the garden owners were making their own compost and only 3% had an interest on ecological lifestyle which has curiosity on sustainable living systems. In some urban home gardens, vegetable production areas were designed mostly (89.28 %) monoculture production system, which means different crops were planted solely separated in different part of the garden. Only 5.35 % of the home gardens used polyculture planting system which means that vegetables, herbs and ornamentals were planted as a mixed arrangement.

Additionally, when we evaluated the results of the questionnaires and home owners` responses to the item `why are you doing vegetable gardening in your home garden` we found that 21.42% of the home owners were doing it for its` ``health benefits`, 41.07% were doing it as a hobby and 10.7% were doing it for hobby and health benefits. In Cyprus cultural landscapes the "Kitchen Garden" culture has been passed down through the generations. Most homeowners have adopted to live a healthy life and interest on ecological of living as a hobby. Many of people are happy to maintain their own garden themselves. In addition this research underlined that there is a growing and interest on ecological lifestyle within the Yenikent region of Nicosia.

DISCUSSION

Although there is a great interest on urban home gardens in developed world, the ecological dynamics of urban home food gardens in Nicosia did not receive any attention so far. This research has shown that there is a `kitchen garden` culture which passed to date from previous generations within the Cypriot community even in urbanized areas. It is known that kitchen garden has functional value which provides different plant species needed in cultural cuisine but it also has symbolic meaning in order to maintain identity continuation through ethnic cuisine (Kortright and Wakefield 2011). Our research results indicate that home gardens can fulfil social, cultural and dietary needs while providing green spaces to urban area within Nicosia district. Therefore governmental bodies should consider the importance of urban gardens in cities and should support it with appropriate urban planning legislations.

Author's Contributions

Özge Özden conceived the idea, designed the research project, advice during surveys and wrote the manuscript. Selin Laleci performed the surveys and collected the data.

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