

# HOSPITAL GARDENS AS URBAN GREEN AREAS: THE CASE OF TEKIRDAG (TURKEY)

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## Abstract

Urban green areas are physical formations that directly affect the quality of life and space of the city in which they are located. In the study, it is aimed to ensure the recognition of the landscape plants that constitute the main component of the hospital gardens of Tekirdağ (Turkey) district and to reveal their usage conditions according to plant design principles. The material of the study is the woody plants in the gardens of hospitals in the Tekirdağ. In our study the plant material within the hospital gardens has been identified, the spatial suitability of these plants have been assessed considering their dendrological and ecological characteristics and the problems and solution proposals for these problems have been presented. With this study, the woody plant inventory of the hospital gardens was created and it was aimed to create a model that will be effective in creating the unity in terms of plant design in the hospital gardens and to constitute an example of plant usage for future physical development of the area.

**Key Words:** Urban green areas, hospital garden, plant design, Tekirdağ, Turkey.

## 1. Introduction

Urbanization caused by rapid population growth has increased the need for green space in this area. The negative impacts, which the cities offer to people; crowd, air pollution and intense working tempo, cause an increase in stress. Studies have shown that people who have green areas in their close vicinity experience an increase in coping with distress and a decrease in depressive thinking. Thus, the importance of looking at nature and its stress relieving effect began to be used in institutions for therapeutic purposes and green spaces where cities breathe gained importance.

In the 19th century, hospitals began to be built on large areas near the city, with a view and sunlight, leaving wide openings between buildings for gardening. Towards the end of the 19th century, new hospitals were built in areas far from the city center and residential areas. In order to benefit from the healing effects of nature, vistas were created with plants, garden and agricultural occupational therapies were added to the treatment programs (Serez, 2011).

In the health sector, from the 1950s to the 1990s, the healing effect of nature was completely avoided in hospitals. In this process, high-rise hospital buildings were built, natural ventilation was replaced by air conditioners, open terraces and balconies disappeared and nature and its healing effect was ignored. In the 21st century, the areas saved for open and green areas have been minimized due to the changes in the health World (Cooper- Marcus & Barnes, 1999). However, the recovery speed and processes of the patients are affected by the design principles of the hospitals as well as the treatment applied. Therefore, designs of hospitals should support gaining health, connecting to life, giving hope, keeping away from negative thoughts, resting, preventing boredom, providing comfort and enabling establishing a relationship (Ayan, 2009).

Outdoor areas around the hospitals are important for patients, staff and visitors to relax away from the building. For this purpose, entrance, routing, flooring and reinforcement elements, sitting areas, parking lots and vegetal materials reserved in the outdoor spaces are significant. In the scope of this research, herbal materials in hospital gardens will be evaluated. Planting studies vary according to environmental and climatic conditions, cultural, social and economic structure. The main purpose in planted areas is to create an ecological environment with vegetative elements while fulfilling aesthetic and functional requests (Atabeyoğlu & Bulut, 2012). Plants have many functions such as shielding, shading, soil protection, wind breaking and noise, dust and gas reduction (Erkmen, 2007).

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Plants contribute healing in long- term rehabilitation and care services by activating all senses. The studies of, investigating the traces on the human brain created by photographs of trees and natural landscapes and photographs showing an urban settlement area, revealed that alpha waves in the brain, which are signs of relaxation and comfort, are high in those who see natural scenery (Ulrich, 2002; Uslu, 2018). The researches conducted reveal the importance of green areas in hospitals and their immediate surroundings (Burchett et al., 2008; Çelem & Arslan, 1995; Khan et al., 2016). For this reason, the following should be taken into consideration in plant studies in hospital gardens;

- Medical and healing effects of plants should be considered.
- Plants that stimulate all the senses with their color, smell etc. should be used.
- Shadowing, visual buffering, and wind shielding features should be utilized.
- Wildlife habitat values are very important for hospital gardens, especially for birds and butterflies.
- It is very important to notice seasonal changes. People are connected to life by these seasonal changes.
- The use of thorny and poisonous plants should be avoided.
- Non- allergic plants that are resistant to insects and diseases should be preferred (Serez, 2011).

Hospitals within Tekirdağ province; Namık Kemal University Research Hospital, Private Star Medica Hospital, Tekirdağ State Hospital 1st and 2nd Section, Private Tekirdağ Yaşam Hospital, were examined in this research. The vegetative potential of the area was revealed by literature review and on- site observations.

## 2. Materials and Methods

The material of the study is the woody plants in the gardens of hospitals in the Tekirdağ. Tekirdağ is surrounded by Istanbul in the east, Kırklareli in the north, Çanakkale in the southwest, and the Marmara Sea in the south and southeast. The location is between 40° 36' and 41° 31' north latitude and 26° 43' and 28° 08' east longitudes (URL-1, 2020). The hospitals examined within the scope of the research; It consists of Namık Kemal University Research Hospital, Private Star Medica Hospital, Tekirdağ State Hospital 1st and 2nd Section, Private Tekirdağ Yaşam Hospital.



Figure 1. Research areas (Area 1: Namık Kemal University Research Hospital, Area 2: Private Tekirdağ Yaşam Hospital, Area 3: Private Star Medica Hospital Area, 4: Tekirdağ State Hospital 1st Section, Area 5: Tekirdağ State Hospital 2nd Section) (Google Earth 2020).

The planting practices that have been carried out since the foundation of the hospital gardens to the present day have been determined by land work taking advantage of the plan notes. In planting applications, the plant taxa planted in the hospital gardens and their dendrological characteristics and the functional and aesthetic uses according to plant design principles are taken into consideration. In terms of functional use; visual control, motion control, physical environment control and space creation features and in terms of aesthetic use; the size, shape, color and tissue suitability of plants have been evaluated.

Some references were used to gather information about plant material (Symonds & Chelimsky, 1958; Symonds & Merwin, 1963; Davis, 1965- 1985; Yaltrık, 1988; Brickell, 1996; Anşın & Terzioğlu, 1998; Yücel, 2005). In the

stages of synthesis and evaluation, which involve the use of plants for plant design purposes, some books were used (Korkut et al., 2010; Yılmaz & Irmak, 2004). In these research; dendrological characteristics of some plants, application areas and characteristic features were identified in terms of plant design.

Our study the plant material within the hospital gardens has been identified, the spatial suitability of these plants have been assessed considering their dendrological and ecological characteristics and the problems and solution proposals for this problems have been presented.

### 3. Results and Discussion

In the research, woody plants which constitute the main component of the open and green areas of hospital gardens in the Tekirdağ were determined, their usage conditions were revealed and they were evaluated in terms of planting design principles. In this context, a total of 30 woody plant taxa were identified, 23 of which were tree and 7 of which were shrub (Table 1, Figure 2). The plant material in the hospital gardens is mostly composed of exotic plants. Only 36.6% of the plants are natural and are found limited within the area (Table 2). This creates some problems in terms of the adaptation of plants to the field. In addition, it has been determined that most of these areas are covered with concrete and the use of plants is quite insufficient (Figure 3).



Figure 2. Plant species identified in the research areas.



Figure 3. Namık Kemal University Research Hospital, Private Tekirdağ Yaşam Hospital Tekirdağ State Hospital.

Table 1. Plant species identified in the hospital gardens.

Taxon Name	Research Area 1	Research Area 2	Research Area 3	Research Area 4	Research Area 5
<b>Trees</b>					
<i>Acer negundo</i>					✓
<i>Ailanthus altissima</i>	✓			✓	
<i>Catalpa bignonioides</i>				✓	
<i>Cedrus deodara</i>				✓	
<i>Celtis australis</i>	✓				
<i>Cercis siliquastrum</i>	✓				
<i>Cupressus arizonica</i>	✓				
<i>Cupressus sempervirens</i>				✓	
<i>Cupressus macrocarpa</i>					✓
<i>Cupressus macrocarpa</i> cv. "Goldcrest"	✓				
<i>Cupressus sempervirens</i>					✓
<i>Fraxinus excelsior</i>				✓	
<i>Juglans regia</i>				✓	
<i>Liquidambar orientalis</i>	✓				
<i>Pinus brutia</i>				✓	
<i>Pinus nigra</i>	✓	✓		✓	
<i>Pinus pinea</i>				✓	✓
<i>Platanus orientalis</i>	✓				✓
<i>Prunus cerasifera</i>	✓				
<i>Prunus serrulata</i>	✓				
<i>Robinia pseudoacacia</i> cv. "Umbraculifera"				✓	
<i>Salix babylonica</i>					✓
<i>Tamarix smyrnensis</i>					✓
<b>Shrubs</b>					
<i>Berberis thunbergii</i>				✓	
<i>Buxus sempervirens</i>	✓			✓	
<i>Juniperus chinensis</i>		✓			
<i>Ligustrum vulgare</i>					✓
<i>Nerium oleander</i>					✓
<i>Rosa</i> sp.					✓
<i>Yucca filamentosa</i>				✓	✓

#### 4. Conclusion

Green areas in hospital gardens contribute to the urban spaces due to their plant potential and species diversity. For this reason, necessary care should be given to the planting applications to be conducted within the hospital gardens and design studies should be done by taking advantage of the effects of plants such as creating space, orientation, screening, emphasizing, completing structural elements and controlling the physical environment. Because hospital gardens have positive effects on the psychology of the users and the recovery rate of the patients (Ulrich, 2002). Considering the size of the gardens in the research areas and the functions of the plants used, it has been observed that they are generally insufficient. In addition there is not green area in Private Star Medica Hospital.

In this study, for the evaluation of the woody plants of hospital gardens, a total of 30 plant taxa were identified. The majority of these plants (63.4%) are exotic and there are some problems in the area in terms of ecological conditions. The plants with the most intense adaptation problem are *Cercis siliquastrum*, *Prunus serrulata* and *Yucca filamentosa*. Other plants in the research areas are quite insufficient. In particular, there is no plant taxon in the garden of the Private Star Medica Hospital. However, these areas are very suitable for growing plants. Within



the scope of the research, landscape plants were determined which are suitable for Tekirdağ's ecological conditions and for using in hospital gardens.

With this study, the woody plant inventory of the hospital gardens was created and it was aimed to create a model that will be effective in creating the unity in terms of plant design in the hospital gardens and to constitute an example of plant usage for future physical development of the area.

It is suggested to increase the use of plants in the hospital gardens such as *Albizia julibrissin*, *Betula pendula*, *Ginkgo biloba*, *Koelreuteria paniculata*, *Liquidambar orientalis*, *Malus floribunda*, *Malus × purpurea*, *Melia azedarach*, *Salix babylonica*, *Tilia cordata*, *Acer campestre*, *Acer pseudoplatanus* and *Paulownia tomentosa* which create a sense of shading and space, and provide a higher visual dependent upon their autumn colors.

On the other hand, evergreen plants create interesting and pleasant views with fruits and interesting stem patterns in the winter season. Especially coniferous trees; It undertakes many functions such as curtain, shade, soil protection, wind breaking, noise, dust and gas reduction. The use of plants such as; *Abies nordmanniana* ssp. *bornmuelleriana*, *Cedrus atlantica*, *Cedrus deodora*, *Cedrus libani*, *Chamaecyparis lawsoniana*, *x Cupressocyparis leylandii*, *Picea abies*, *Picea pungens* can be suggested in research areas on this subject. The use of thorny and poisonous plants such as *Rosa* sp., *Yucca filamentosa* and *Nerium oleander* which are found in the research areas should be avoided. Instead of these, scented and visual plants such as *Abelia × grandiflora*, *Cornus sanguinea*, *Lavandula angustifolia* and *Philadelphus coronarius* may be preferred.

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