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SOME NATURAL AND EXOTIC PLANT TAXA, WHICH ARE USED NON-WOOD FOREST PRODUCTS IN PARKS OF TRABZON

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Abstract

Trabzon contains many exotic and natural plant taxa in its green nature. These plant taxa have been used in the parks and gardens in order to ensure for local people benefit from this green nature in daily life. In order to benefit non-wood forest products, priority natural species have been brought to these areas. And also, exotic plant taxa have been exploited for aiming direction. 100th Year Park, Trabzon Fatih Park, Trabzon Square Park, Atapark, Ekopark, Olympic Park, Zağnos Valley park were studied and determined the floristic situation of these areas. Generally in these areas have; *Aesculus hippocastanetum, Berberis thunbergii, Betula pendula, Citrus* sp., *Coryllus avellana, Cotoneaster salicifolius, Cotoneaster nummullaria, Crataegus spp., Erica arborea, Eriobotrya japonica, Eucalyptus camaldulensis, Eucalyptus globulus, Fraxinus excelsior, Junglas regia, Juniperus communis, Juniperus virginiana, Lauroceracus officinalis, Laurus nobilis, Liriodendron tulipifera, Magnolia grandiflora, Malus floribunda, Morus alba, Nerium oleander, Olea europea, Pinus pinea, Platanus orientalis, Populus tremula, Prunus avium, Prunus cerasifera* "Atropurpurea", *Prunus persica, Pyrus communis, Rosa* spp., *Rosmarinus officinalis, Rhododendron ponticum, Rhus coriaria, Robinia pseudoacacia, Salix babylonica, Taxus baccata, Tilia platyphyllos, Tilia tomentosa* taxa. As a result of the study, it has been recommended that some different naturel and egzotic plant taxa will be used in these park and gardens.

Keywords: Trabzon, Non-wood, Natural, Exotic, Park

1. Introduction

Parks are natural areas that are designed within the boundaries of the city. They are largely composed of soft surfaces such as soil, grass, bushes, trees and shrubs. The parks in the city are important not only for human health and quality but also life of urban ecology. The plants are the most important elements of these areas. The appearance of the plant material in the parks, such as measurements, forms, textures, colors, etc., are carried a value for people in the city (Tercan, 1994; Eren, 2012).

People have started to move away from nature in recent years and they have started to live in the artificial environment that they were created. And they began to protect nature because of their miss for nature. Environmental problems such as rapid urbanization, industrialization and population growth, have been led people to prefer places where they can be intertwined with nature. Urban green areas, which are contributed to the city's open green space system and allowed for recreational activities, are very important areas for the city (Konaklı and Önder, 2005).

One of the most important objects of landscape design is plant materials. In addition to the colour, shape, form, texture of the plant that will be used for planning and design, choosing the suitable plant for planning and design will be made thanks to the knowledge of the growing environment of the plant, besides of the color, shape, form and texture of the plant. In addition, the possibility of supplying the plant species to be used also needs to be demonstrated (Ertekin et.al., 2010).

When plant design is carried out, some issues have great importance such as, ecological characteristics of plants, their significance in terms of landscape, and the right choice of destination and purpose of use in landscaping (Altınçekiç and Kart, 2007). People can get rid of the pressure on daily life and meet nature thanks to the planting design (Karaşah and Var, 2012). In addition, the first objective of

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the planting design is to contribute functionally to the park site and thus respond to the requests of the users in these areas (Robinson, 1992).

Plants, which are used in parks, should be evaluated in ethnobotany terms. Therefore, the concept of ethnobotanic has been researched and described by many people. The ethnobotanic term was described by John W. Harshberger, who is a biology professor, as "the use of plants by the local people" (Heinrich, 2004). Yıldırımlı (2004) is defined the ethnobotanic term in shortly as "the use of plants to meet the various needs of people".

Laurocerasus officinalis Roem, Rosa canina L., Sorbus torminalis L. Crantz, Sorbus aucuparia L., Crateagus monogyna Roem., Arbutus unedo L., Vaccinium arcthostophyllos L., Corylus avellana L., Pyrus communis L., which are grown naturally in Trabzon and its region, are preferred because of their features such as flower beauty, fruit beauty and autumn coloring rather than wood value in landscape architecture. These plants are widely preferred in landscapes of Europe and America, with their advantages such as general form features, medicinal fruity, ability to grow in different altitude steps (Atay, 1987; Kayacık, 1982).

In this research, the parks in the city center were considered as the study area. During the first step of the study, plant species in the study areas were identified. In the next step, the importance of the species in terms of non-wood products in parks and gardens was researched.

2. Materials and Methods

The floristic structure of the parks and gardens in Trabzon was investigated in the year of 2018. Within the scope of the study, plants from the study area were collected and identified. The plant taxa which particularly have non-wood significance were determined. It has also been investigated that for which purposes these plant taxa are used. As a result of detailed literature study (Güner et al., 2000; Bonnier, 1912-34; Lanzara and Pizzetti, 1997; Kreutz, 2009; Simpson, 2012; Yaltırık and Efe, 1996; Baytop, 1998; Mamıkoğlu, 2007), the listed taxa and some properties of these plant taxa were found out. In addition, these properties particularly have been determined from the "Flora of Turkey" (Davis, 1965-1985; 1988) and " Türkiye Bitkileri Listesi (Damarlı Bitkiler) (Güner et. al., 2012)".

3. Results and Discussion

As a result of the study, plant species which are used the parks and the gardens in Trabzon, were determined. Among these species, the species with non-wood importance have been determined by literature research. Conclusion of the study, some properties of plant species (type of plant, family, botanical name, common name, flowering season, flower colour etc.) were determined and showed in Table 1.

Table 1: Some characteristics of plant species, which were determined in the parks and the gardens in Trabzon, were demonstrated in the Table below.

Type of Plant	Family	Botanical name	Common name	Flowering season	Flower colour	Deciduous state	Natural/ Exotic
Climbing	Araliaceae	*Hedera helix*	Duvar sarmaşığı	August-September	Greenish	Evergreen	Natural
Shrub	Adoxaceae	*[1] Viburnum opulus*	Gilaburu	May-June	White	Deciduous	Natural
Shrub	Adoxaceae	*Viburnum tinus*	Filburnu	February-March-April-November-December	White	Evergreen	Natural
Shrub	Anacardiaceae	*Rhus coriaria*	Sumak	June- July	Greenish white	Deciduous	Natural
Shrub	Anacardiaceae	*Cotinus coggygria*	Boyacı sumağı	April-June	Whitish green	Deciduous	Natural
Shrub	Apocynaceae	*Nerium oleander*	Zakkum	April-September	Pink -Red	Evergreen	Natural
Shrub	Aristolochiaceae	*[2] Yucca* sp.	Avize ağacı	Spring and Summer start Summer mid end	Whitish yellow	Evergreen	Exotic

Continuation of Table 1

Shrub	Berberidaceae	*Berberis thunbergii*	Japon kadın tuzluğu	May	Yellow	Deciduous	Exotic
Shrub	Betulaceae	*Coryllus avellana*	Fındık	February-March	Red	Deciduous	Natural
Shrub	Cistaceae	*Cistus creticus*	Laden	May –June	Pink	Deciduous	Natural
Shrub	Ericaceae	*Vaccinium arcthostophyllos*	Likarpa	May - July	Whitish	Deciduous	Natural
Shrub	Ericaceae	*Rhododendron ponticum*	Kumar	March-May June-August	Purplish pink	Evergreen	Natural
Shrub	Ericaceae	*Erica arborea*	Funda	March-July	Pale pink-White	Evergreen	Natural
Shrub	Hydrangeaceae	*Hydrangea macrophylla*	Ortanca	Beginning of summer	White-blue-pink	Deciduous	Exotic
Shrub	Lamiaceae	*Rosmarinus officinalis*	Biberiye	February to May	Pale blue	Evergreen	Natural
Shrub	Malvaceae	*[3] Hibiscus syriacus*	[4] Kerkede	Winter beginning Summer Mid-summer End Autumn beginning Autumn middle Autumn end	Beyaz Eflatun Menekşe Mor Pembe	Deciduous	Exotic
Shrub	Oleaceae	*[5] Jasminum fruticans*	Boruk	May	Yellow	Evergreen or semi-deciduous	Natural
Shrub	Poaceae	*Phyllostachys bambusoides*	Gölge bambusu			Evergreen	Exotic
Shrub	Rosaceae	*Cotoneaster nummularia*	Dağ muşmulası	April- June	White	Deciduous	Natural
Shrub	Rosaceae	*Rosa canina*	Kuşburnu	April-September	White to pale pink - Rarely dark pink	Deciduous	Natural
Shrub	Rosaceae	*Cotoneaster salicifolius*	Söğüt yapraklı dağ muşmulası	June	White	Evergreen	Exotic
Shrub	Rosaceae	*Photinia x fraseri*	Alev çalısı	Beginning of spring-Mid-spring	Whitish	Evergreen	Exotic
Shrub	Rosaceae	*Pyracantha coccinea*	Ateşdikeni	April-June	Whitish	Evergreen	Natural
Shrub -Small tree	Buxaceae	*Buxus sempervirens*	Şimşir	April	Yellowish green-whitish	Evergreen	Natural
Shrub -Small tree	Ericaceae	*Arbutus unedo*	Kocayemiş	October-November	Greenish white	Evergreen	Natural
Shrub -Small tree	Oleaceae	*Ligustrum japonicum*	Lügüstrüm	Mid-summer End of summer Autumn beginning	White	Evergreen	Exotic
Shrub -Small tree	Rosaceae	*Crataegus spp.*	Alıç	April-May, June-July	White - Pink	Deciduous	Natural
Shrub -Small tree	Rosaceae	*Persica vulgaris*	Şeftali	March-April	Pink-red- - rarely white	Deciduous	Natural

Continuation of Table 1

Shrub -Small tree	Rosaceae	*Laurocerasus officinalis*	Karayemiş	April-June	White	Evergreen	Natural
Shrub-Tree	Cupressaceae	*Chamaecyparis lawsoniana*	Lawson Yalancı servisi	-	-	Evergreen	Exotic
Shrub-Tree	Cupressaceae	*Juniperus communis*	Ardıç	-	-	Evergreen	Natural
Shrub-Tree	Fabaceae	*[6] Acacia dealbata [7] [8]*	Gümüşi Akasya	Spring Mid Spring Summer Mid-Summer End Autumn Beginning	Yellow	Deciduous	Exotic
Shrub-Tree	Lauraceace	*Laurus nobilis*	Defne	March-May	Yellow	Evergreen	Natural
Shrub-Tree	Moraceae	*[9] Ficus carica*	İncir	March - April / May - June / August September	Whitish	Deciduous	Natural
Shrub-Tree	Oleaceae	*Olea europaea*	Zeytin	May	White	Evergreen	Natural
Shrub-Small tree	Rosaceae	*Eriobotrya japonica*	Yenidünya	April-May	White	Evergreen	Exotic
Small tree	Cupressaceae	*Juniperus virginiana*	Kurşun kalem ardıcı	-	-	Evergreen	Exotic
Small tree	Rosaceae	*Prunus cerasifera "Atropurpurea"*	Kırmızı yapraklı erik	April- May	Dark pink - white	Deciduous	Natural
Tree	Arecaceae	*Phoenix* spp.	Hurma	Mid-spring and end	Whitish	Evergreen	Exotic
Tree	Betulaceae	*Betula pendula*	Huş ağacı	April- May	Green	Deciduous	Natural
Tree	Betulaceae	*Alnus glutinosa*	Kızılağaç	April		Deciduous	Natural
Tree	Bignoniaceae	*[10] Catalpa bignonioides*	[11] Katalpa	Spring and Summer beginning Summer	Whitish	Deciduous	Exotic
Tree	Cupressaceae	*Biota orientalis*	Doğu Mazısı	-	-	Evergreen	Exotic
Tree	Fabaceae	*Robinia pseudoacacia*	Yalancı akasya	April-June	White - Yellow	Deciduous	Natural
Tree	Fabaceae	*Cercis siliquastrum*	Erguvan	April-May	Bright pinkish-purple	Deciduous	Natural
Tree	Fabaceae	*[12] Robinia pseudoacacia*	Yalancı akasya	April- May	Yellowish white	Deciduous	Natural
Tree	Fagaceae	*Fagus orientalis*	Kayın	May		Deciduous	Natural
Tree	Ginkgoaceae	*Ginkgo biloba*	Mabet ağacı	-	-	Deciduous	Exotic
Tree	Juglandaceae	*Juglans regia*	Ceviz	May	Green	Deciduous	Natural
Tree	Magnoliaceae	*Liriodendron tulipifera*	Lale ağacı	May-July	Yellow-Orange	Deciduous	Exotic
Tree	Magnoliaceae	*Magnolia grandiflora*	Manolya		White	Evergreen	Exotic
Tree	Malvaceae	*Tilia platyphyllos*	Yaz ıhlamuru	The beginning and the middle of summer	Yellowish white	Deciduous	Natural
Tree	Malvaceae	*Tilia tomentosa*	Gümüşi ıhlamur	The beginning summer	White	Deciduous	Natural
Tree	Moraceae	*Morus alba*	Akdut	May	Pale green	Deciduous	Exotic

Continuation of Table 1

Tree	Myrtaceae	*Eucalyptus camaldulensis*	Sıtma ağacı	November-May	White	Evergreen	Exotic
Tree	Myrtaceae	*Eucalyptus globulus*	Mavi ökaliptus		White-red	Evergreen	Exotic
Tree	Oleaceae	*Fraxinus excelsior*	Dişbudak	March- April	White	Deciduous	Natural
Tree	Pinaceae	*Pinus pinea*	Kızılçam	-	-	Evergreen	Natural
Tree	Pinaceae	*Cedrus spp.*	Sedir	-	-	Evergreen	Natural
Tree	Platanaceae	*[13] Platanus orientalis*	Çınar	March-May	Green	Deciduous	Natural
Tree	Plataneceae	*Platanus occidentalis*	Batı Çınarı	March -May	Brown-Green	Deciduous	Exotic
Tree	Rosaceae	*Malus floribunda*	Süs elması	April-May	White to pink	Deciduous	Exotic
Tree	Rosaceae	*Cerasus avium*	Kiraz	March -May	White	Deciduous	Natural
Tree	Rosaceae	*Pyrus communis*	Armut	April May	White	Deciduous	Natural
Tree	Rosaceae	*Sorbus aucuparia*	Kuş üvezi	May-June	White	Deciduous	Natural
Tree	Salicaceae	*Populus tremula*	Titrek kavak	March -May	White	Deciduous	Natural
Tree	Salicaceae	*Salix babylonica*	Salkım söğüt	April	White - Green	Deciduous	Natural
Tree	Salicaceae	*[14] Populus nigra*	Karakavak	March - April	Yellowish green-orange-pink	Deciduous	Natural
Tree	Sapindaceae	*Aesculus hippocastanetum*	Atkestanesi	May	White	Deciduous	Natural
Tree	Taxaceae	*Taxus baccata*	Porsuk	-	-	Evergreen	Natural

Our research was to aim the interactions between plants and human to live where parks and gardens are. In this present study, the plant species distribution and diversity pattern have been determined and their significance of parks potential characteristics were put forward. The whole plant materials are greatly important for parks and gardens in Trabzon. The distribution of ornamental plant species in parks are significantly related to rehabilitation purposes. Considering the determined plant taxa in parks and gardens, it was appeared that these species was to be much aimed to benefit as well as ornamental purposes. However, we need much scientific information and researching about knowing the socio-cultural effects on this distribution of plant species.

4. Conclusion

This study has been carried out within the city of Trabzon, in Black Sea Region of Turkey. A rapid urbanization as a consequence of a population increase of the city. Thus, numerous new parks were constructed in the city center. These areas are included mostly ornamental plant materials while the green areas of the city have been decreased at present.

As the result of the study, 70 plants taxa are used in ethnobotanical terms under 32 families were determined. The most common species are found from the families of Rosaceae (14) and Cupressaceae, Ericaceae, Fabaceae and Oleaceae (4). Most of these species (67,14%) are natural and (32,86%) exotic taxa. On the other hand, 40 (57,14%) taxa are deciduous and 30 (42,86%) taxa evergreen. In this study also, 1 climbing, 22 shrubs, 32 tree and 15 shrub-tree plant taxa were determined.

As a result, this study showed that these plant taxa were used especially for landscaping and rehabilitation purposes.

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