

TROPICAL CRAIOVA – ADVANTAGES AND DISADVANTAGES

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ABSTRACT

Considering that Oltenia region was amongst the hottest areas of Romania and the frequency of warm winters amplified due to the early arrival of spring, the paper assessed the suitability of climatic resources in Craiova area for growing tropical fruit trees, or using these trees as ornamental plants.

INTRODUCTION

The urban heat island phenomenon (UHI) was first described by Luke Howard in 1998 referring to London (L. Howard, 1998) In 1976 UHI was defined by Oke, as the warmer urban canopy layer compared was with its rural neighbourhood (Oke 1976).

The tropics are defined as the geographical area lying between 23.5 deg. N and 23.5 deg. S latitude, while the temperate regions are found above these parallels. Climatologically, the tropics are characterized by high year-round temperatures and weather is controlled by equatorial and tropical air masses. Tropical precipitation is primarily convective. In the more humid tropical regions, annual rainfall is often above 2000 mm and falls in almost all months of the year. In the drier tropics, rainfall can fall below 50 mm, and be very seasonal. The remainder of the region lies between these precipitation regimes, with distinct wet and dry seasons. Agriculture is frequently limited by the seasonality and magnitude of moisture availability.

In the mid-latitude temperate zone, weather is controlled by both tropical and polar air masses. Precipitation here occurs along fronts within cyclonic storms. The temperate region also has many different climate regions with warmer and cooler temperatures and seasonal rainfall. Temperate agriculture is often characterized a predominantly limited by seasonally cooler temperatures.

Higher temperatures in general hasten plant maturity in annual species, thus shortening the growth stages during which pods, seeds, grains or bolls can absorb photosynthetic products.

MATERIAL AND METHODS

This study was conducted for Craiova area, located in Southwest of Romania (44°20'N, 23°49'E).

Different species of tropical plants were identified, species that found a favorable microclimate for growth, development and fruiting.

The location of these species was determined using a GPS application, on the phone. The coordinates found were interpreted by the QGIS program. **QGIS** is a free and open-source cross-platform desktop geographic information system (GIS) application that supports viewing, editing, printing, and analysis of geospatial data

QGIS functions as geographic information system (GIS) software, allowing users to analyse and edit spatial information, in addition to composing and exporting graphical maps.

RESULTS AND DISCUSSIONS

The most important species found are:

***Punica granatum* L.**

The **pomegranate** (*Punica granatum* L.) is a fruit-bearing deciduous shrub in the family Lythraceae, subfamily Punicoideae that grows between 5 and 10 m (16 and 33 ft) tall.

The pomegranate was originally described throughout the Mediterranean region. It was introduced into Spanish America in the late 16th century and into California by Spanish settlers in 1769. (Morton 1987)

The fruit is typically in season in the Northern Hemisphere from October to February, and in the Southern Hemisphere from March to May. As intact sarcotestas or juice, pomegranates are used in baking, cooking, juice blends, meal garnishes, smoothies, and alcoholic beverages, such as cocktails and wine. (Lecrin Valley, 2012)

Pomegranates are widely cultivated throughout the Middle East and Caucasus region, north and tropical Africa, Iran, Armenia, the Indian subcontinent, Central Asia, the drier parts of Southeast Asia, and the Mediterranean Basin.

***Prunus laurocerasus* L.**

***Prunus laurocerasus* L.**, also known as **cherry laurel**, **common laurel** and sometimes **English laurel** in North America, is an evergreen species of cherry (*Prunus*), native in southwestern Asia and southeastern Europe, from Albania and Bulgaria east through Turkey to the Caucasus Mountains and northern Iran. (Mabberley 2008)

Prunus laurocerasus L. is an evergreen shrub or small to medium-sized tree, growing to 5 to 15 metres (16 to 49 ft) tall, rarely to 18 metres (59 ft), with a trunk up to 60 cm broad. The leaves are dark green, leathery, shiny, (5–)10–25(–30) cm long and 4–10 cm broad, with a finely serrated margin. The leaves can have the scent of almonds when crushed. The flower buds appear in early spring and open in early summer in erect 7–15 cm racemes of 30–40 flowers, each flower 1 cm across, with five creamy-white petals and numerous yellowish stamens with a sweet smell. The fruit is a small cherry 1–2 cm broad, turning black when ripe in early autumn. (Rushforth 1999)

Prunus laurocerasus L. is a widely cultivated ornamental plant, used for planting in gardens and parks in temperate regions worldwide. It is often used for hedges, as a screening plant, and as a massed landscape plant. Most cultivars are tough shrubs that can cope with difficult growing conditions, including shaded and dry conditions, and which respond well to pruning.

***Diospyros kaki* L.**

***Diospyros kaki* L.**, the **Oriental persimmon**, (Lee et al. 2015). **Chinese persimmon, Japanese persimmon or kaki persimmon**, (Janick 2010) is the most widely cultivated species of the genus *Diospyros*. Although its first botanical description was not published until 1780, (Janick 2010). *D. kaki* L. is among the oldest cultivated plants, having been in use in China for more than 2000 years.

Similar in shape to an apple tree, the *kaki* tree reaches a size of up to 10 metres (33 ft). Its deciduous leaves are medium to dark green, broadly lanceolate, stiff and equally wide as long. Blooming from May to June, the trees are typically either male or female, but some produce both types of flowers. (*IUCN SSC Global Tree Specialist Group, 2021*)

The persimmon is an edible sweet, slightly tangy fruit with a soft to occasionally fibrous texture. This species, native to China, is deciduous, with broad, stiff leaves. It was first cultivated in China more than 2000 years ago, and introduced to Japan in the 7th century and to Korea in the 14th century. It was later introduced to California and southern Europe in the 19th century, to Brazil in the 1890s. (Martínez-Calvo et al.2013).

These are species that fulfill a double role, both decorative, through leaves and flowers, as well as providing fruit for consumption.

At the opposite pole is the Bamboo

***Phyllostachys aureosulcata* L.** is a perennial plant with rhizomes. The aerial stem is a cylindrical, jointed culm, consisting of solid (solid) nodes and fistulous internodes. Aerial shoots are formed from the basal nodes. The leaves are alternate, distichous, formed by a cylindrical sheath with free edges. The internodes each have a longitudinal groove that alternates from one node to another. Propagation is achieved through rhizomes.

The controversial bamboos are members of the genus *Phyllostachys* that have rhizomes that can extend well away from the original planting. World-wide there are upwards of 75 *Phyllostachys* species and 200+ cultivars.

Phyllostachys aureosulcata L. bamboo prefers places with a lot of sun, but also tolerates places with semi-shade. The soils in which it grows best are rich soils.

At maturity, this type of bamboo can grow to a height of 3-5 meters. It is one of the most resistant bamboos, resisting very well even at low temperatures. It also tolerates cutting.

Phyllostachys aureosulcata L. bamboo is cultivated and grown as an ornamental plant. This bamboo variety can be used for tall hedges. It is a decorative plant for terraces and balconies if it is planted in large pots.

The big problem with *Phyllostachys* is that many homeowners are unaware that the rhizomes do not respect property lines.

Controlling running bamboo can be problematic, especially where it has grown into areas with desirable vegetation.

Phyllostachys aureosulcata L. evolved to spread vegetatively by sending up new culms at nodes along the rhizomes. When the new culms emerge in a neighbour's lawn, flower bed, or inside their siding, there are going to be conflicts.

CONCLUSIONS

Climate changes will also contribute to the change of species assortment in Romania.

More and more species will enter from the tropical and subtropical climate.

The introduction of such tropical and subtropical species in the range of species in Romania must be done responsibly.

REFERENCES

Howard L. 1998. The Climate of London International Association for the Urban Climate, Incropera, Incropera's Principles of Heat and Mass Transfer, Global Edition.

Jules Janick. 2010. "Persimmon genetics and breeding". Plant Breeding Reviews. Vol. 57. John Wiley & Sons. p. 193. ISBN 9780470650165.

Lecrin Valley 2012. "All hail the Pomegranate, official symbol of Granada". Archived from the original on 9 June 2013. Retrieved 7 May 2020

Lee Sangtae; Chang, Kae Sun, eds. (2015). English Names for Korean Native Plants (PDF). Pocheon: Korea National Arboretum. p. 443. ISBN 978-89-97450-98-5. Retrieved 12 March 2019 – via Korea Forest Service.

Mabberley D.J. (2008). The plant book: A portable dictionary of the vascular plants (entry for Laurus). Cambridge: Cambridge University Press. ISBN 9780521820714.

Martínez-Calvo J.; Naval M.; Zuriaga E.; Llácer G.; Badenes M. L. 2013. "Morphological characterization of the IVIA persimmon (*Diospyros kaki* Thunb.) germplasm collection by multivariate analysis". Genetic Resources and Crop Evolution. 60 (1): 233–241:10.1007/s10722-012-9828-4. ISSN 1573-5109. S2CID 16838322

Morton, J. F. 1987. "Pomegranate, *Punica granatum* L". Fruits of Warm Climates. Purdue New Crops Profile.

Rushforth, K. 1999. Trees of Britain and Europe. Collins ISBN 0-00-220013-9.

Oke T.R. 1976. The distinction between canopy and boundary-layer urban heat islands, Atmosphere 14 (4) 268–277, <https://doi.org/10.1080/00046973.1976.9648422>

*** "*Diospyros kaki*". 2020 Germplasm Resources Information Network (GRIN). Agricultural Research Service (ARS), United States Department of Agriculture (USDA).

*** IUCN SSC Global Tree Specialist Group & Botanic Gardens Conservation International (BGCI) (2021). "*Diospyros kaki*". IUCN Red List of Threatened Species. 2021: e.T173538A197891373.

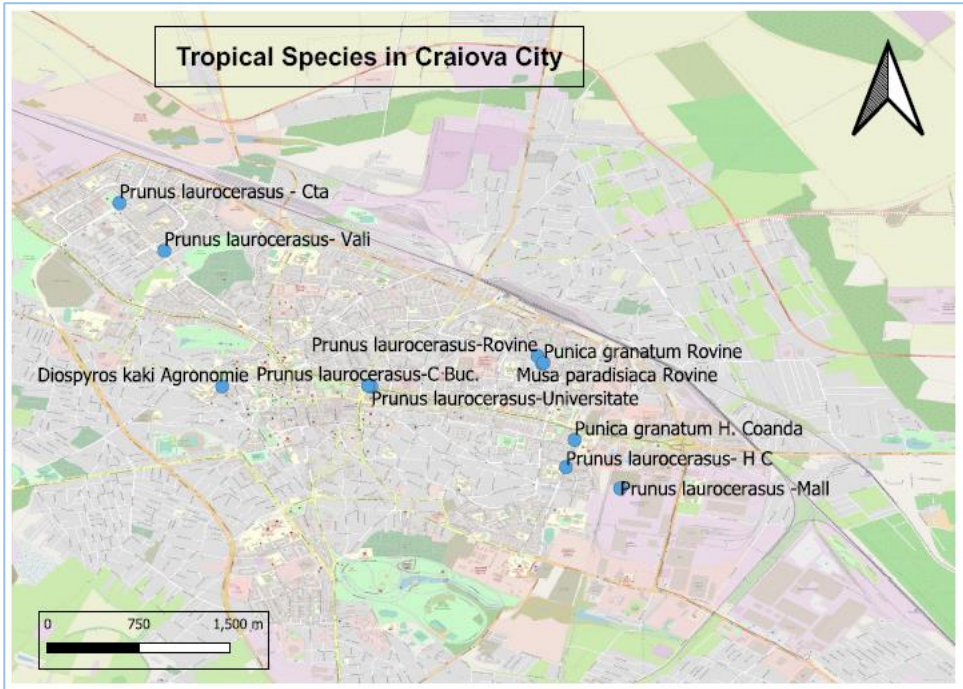
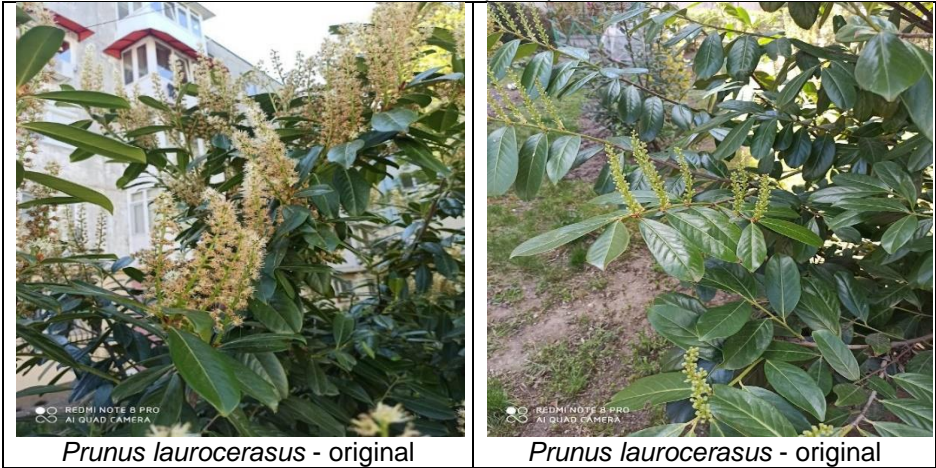


Figure 1. The spreading of tropical plants in Craiova city

Table 1

Pictures of tropical plants



Prunus laurocerasus - original

Prunus laurocerasus - original



Punica granatum - original



Punica granatum - original



Diospyros kaki - original



Musa x paradisiaca - original



Uncontrolled running bamboo can become a nuisance when it grows into a neighbor's yard. (original)