ANNALS OF THE UNIVERSITY OF CRAIOVA

Series: ✓*Biology*
✓*Horticulture*
✓*Food products processing technology*
✓*Environmental engineering*

Vol. XXXI (LXVII) - 2026

BIOLOGY OF SOME SPONTANEOUS PLANT SPECIES OF ECONOMIC IMPORTANCE WITHIN BĂILEȘTI AND SURROUNDING AREA, OLTENIA, ROMANIA

Petrișor Ștefan-Iulian[1], Răduțoiu Daniel[2]*
[1]Student, University of Craiova, Faculty of Horticulture, Craiova
[2]*University of Craiova, Faculty of Horticulture, Craiova, Romania
* *Correspondence author. E-mail*: radutoiu02daniel@gmail.com

Keywords*: plants, economic importance, Băilești, Oltenia, Romania*

ABSTRACT

The present scientific paper represents the result of research and documentation efforts aimed at highlighting the value of the multifarious plant resources within the lowland region of Oltenia. The topic was not accidentally chosen, rather it addresses a genuine need to understand and sustainably use spontaneous biodiversity, on the background of marked climate changes, amplified agricultural activities, and increasingly apparent human pressure on the environment. The integrated analysis follows both the biological characteristics of the studied species, as well as the way they interact with environmental factors and human activities. Approaching the biology of these plants requires a complex ecological and economic examination, which, in turn, allows for a deeper understanding of the potential of plant resources and establishes the rationale for their conservation.

INTRODUCTION

Gaining knowledge about the flora and vegetation within the Băilești area and its surroundings represents the result of a long scientific exploratory process carried out in distinct stages, i.e. from the initial empirical observations to the modern studies in floristics and ecology. Located in the southwestern part of the Oltenia Plain, this region has been a focus of study for numerous botanists.

The botanical research conducted over time with respect to the Oltenia Plain has sought to catalog the area's spontaneous plant species, while simultaneously identifying their economic, medicinal, and forage potential (Maloș et al. 1972, Răduțoiu 2022). The Băilești area has gradually emerged as a representative territory for the study of the flora characteristic to the southern plains, as the area preserves elements of the original steppe vegetation, which are presently integrated into a landscape intensely transformed by agriculture. The first half of the 20th century witnessed a significant increase in the interest concerning the study of the flora of Oltenia. During this period, the publication of valuable scientific papers concerning the flora of Romania and, by extension, that of Oltenia (Buia & Popescu-Mihăilă 1952, Buia & Păun 1960, Săvulescu et al. 1952-1976, Buia et al. 1961, Păun 1963, Popescu 1992, 1996, Ciocârlan et al. 2004), as well as the expansion of agronomic and high education in Craiova influenced the botanical activity. Currently, botanical research in the Băilești area and its surroundings is conducted within an

interdisciplinary framework that integrates aspects of flora, ecology, agrobotany, and biotechnology. From the earliest herbaria and floristic collections to the modern research on flora with economic potential, a scientific continuity emerges and it underscores the importance of this region within the botanical framework of Oltenia.

MATERIAL AND METHODS

Study area

The Băilești area, located in southwestern Romania, i.e. in the southern part of Dolj County, represents a specific geographical unit within the Oltenia Plain (Fig. 1). Its relief is characteristic for a low-lying, slightly uneven plain, with a morphology shaped by the fluvial processes of the Danube and of its tributaries. The region's landforms are the result of a complex geological evolution, in which the interplay between endogenic and exogenous processes, as well as the influence of climatic and anthropogenic factors have created a landscape typical of an alluvial plain. On the background of a temperate continental climate, the precipitation is unevenly distributed, often alternating between dry spells and torrential rains (NMA, 2023), while the number of frost days is low, a fact influenced by southern air masses and warm currents originating from the Balkan region (Popescu 2010).

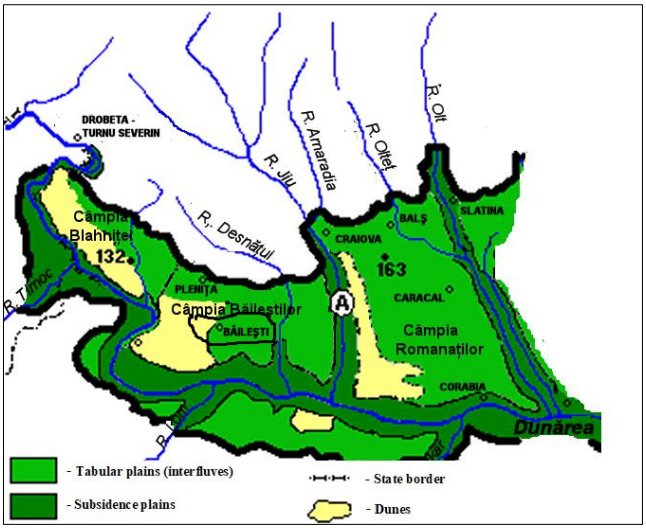


Figure 1. Delimitation map of the area under study (Source: GIS processing after Topographical Map, 1:25,000)

Materials

The research design used for the achievement of this scientific paper integrates methods of botanical, ecological, and socio-economic analysis, which are used to identify, assess, and interpret the economic significance of the spontaneous flora within the Băilești area and in the surrounding territory. The authors consulted various sources, such as botanical treatises, floristic atlases (Fig. 2), ethnobotanical papers, recent economic studies, and floristic-ecological databases (Borza 1968, Butură 1979, Ciocârlan 2009, Euro+Med (2006-), Sârbu et al. 2013).

The fieldwork was conducted from March until October, in several field sessions, depending on the optimal vegetation period of the targeted species. In order to obtain information about the traditional and current usages of spontaneous plants, the authors conducted semi-structured interviews with rural residents (farmers, beekeepers, elderly people – Fig. 3; the questionnaires were administered in households, local markets, and roadside stalls), focusing on the plants that they harvested and on the manner of their employment. Further information was provided by the discussions with local experts (such as naturopathic doctors, phytotherapists, and staff members at collection centers). The information was anonymously recorded and used exclusively for scientific purposes, the authors having the verbal consent of the respondents. Based on these data, the species were classified according to their economic potential into three broad categories, i.e. species that are intensively used at present (e.g., St. John's wort, common yarrow, horse mint); species that are traditionally used, but are poorly capitalized (e.g., sea holly, red clover); species with high potential for future employment, including within organic farming or permaculture systems.



Figure 2. Analysis of the collected material (original)



Figure 3. Interviews with inhabitants of the area under study (original)

RESULTS AND DISCUSSIONS

Results

The climatic and edaphic diversity of the Băilești area and of its surroundings provides favorable conditions for a wide range of wild plants with economic value, which adapt to water stress, salinity, or temperature fluctuations. Some of these species are succinctly presented below.

The medicinal plants hold a central place in the traditional economy of the Băilești area, having been used since ancient times in folk medicine and subsequently capitalized by the pharmaceutical industry. Due to its favorable climatic conditions, the Băilești Plain is well-suited for species such as *Hypericum perforatum* (St. John's wort), *Achillea setacea* (common yarrow), *Matricaria recutita* (chamomile), *Mentha longifolia* (horse mint), or *Plantago major* (greater plantain). These species spontaneously grow in meadows, along roadsides, or on abandoned land and contain active compounds with anti-inflammatory, antiseptic, antispasmodic, and cicatrizing properties. In the rural households, medicinal plants were harvested by hand, naturally dried, and used under the form of infusions,

decoctions, or poultices. Many of these species are still gathered by local residents and sold in the markets of Craiova and Băilești; thus, this practice contributes to the preservation of tradition and to the supplementation of rural incomes.

The melliferous species represent another group of wild plants of major importance, as they provide valuable resources for local beekeeping. The flora of the meso-xerophyte grasslands and alluvial meadows in the Băilești area includes numerous nectar-bearing species, such as *Trifolium pratense* (red clover), *Lotus corniculatus* (bird's-foot trefoil), *Medicago sativa* (lucerne), *Onobrychis viciifolia* (sainfoin), and *Echium vulgare* (viper's bugloss). These species allow for a long flowering period and contribute to a diverse range of obtained honey, which is rich in bioactive compounds and possesses therapeutic properties.

The spontaneous aromatic and culinary species in the region add to the economic value of the local flora. Among the above-mentioned species, there are worth noting: *Thymus pullegiodes* (wild thyme), *Origanum vulgare* (wild marjoram), *Salvia nemorosa* (wild sage), *Artemisia absinthium* (wormwood), etc. These plants contain volatile oils with multiple uses in gastronomy, phytotherapy, and the cosmetic industry. In traditional households located in southern Oltenia, *Thymus pullegiodes* and *Artemisia absinthium* were used to flavor food and drinks, while *Origanum vulgare* and *Salvia nemorosa* served as culinary herbs and medicinal plants.

At present, these species are increasingly demanded by the natural products industry, due to their extracts that are rich in phenolic compounds, as well as to their antioxidant and antimicrobial effects. Responsible harvesting and controlled cultivation can transform the spontaneous aromatic flora into a sustainable economic resource, providing added value to the local economy.

The tinctorial plants represent a distinct category used in the formulation of tinctures and phytotherapeutic products. Species such as *Taraxacum officinale* (common dandelion), *Urtica dioica* (nettle), *Equisetum arvense* (common horsetail), and *Chelidonium majus* (greater celandine) are among the most frequently used in the Băilești area.

The spontaneous forage plants in the Băilești Plain significantly contribute to the region's agricultural economy. Numerous spontaneous grasses and legumes grow in pastures, hay meadows, and secondary lands (Trifolium spp., Medicago spp., *Dactylis glomerata*, *Festuca valesiaca*, *Elytrigia repens*, etc.).

Discussions

By analyzing the inventory of vascular plant species identified in the Băilești area and its surroundings, the authors found that medicinal species have the most significant representation (36 %). These are followed by forage species (24 %), melliferous species (20 %), and aromatic species (12 %). Species with tinctorial potential have a low representation (8 %) (Fig. 4). Conversations with older residents of the studied area revealed that dye-yielding plants were used more extensively in the past. At present, they have been replaced by chemical products that yield faster results.

From an ecological viewpoint, spontaneous plants with economic value also fulfill essential functions for the stability of local ecosystems. They have a part in maintaining soil fertility, regulating the water regime, and supporting biodiversity by providing habitat and food for numerous insect and bird species. Through their roots, these plants favor humus formation processes and those related to soil structure improvement, while their physiological adaptations contribute to the resilience of ecosystems in the face of climate change.

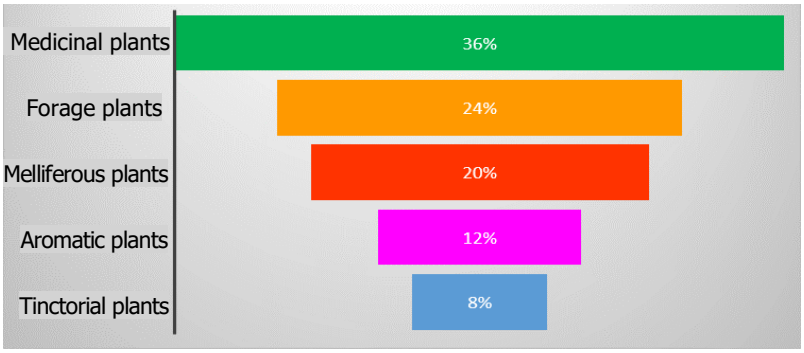


Figure 4. Share distribution of the categories of spontaneous plants with economic importance in the studied area

Numerous spontaneous plants in the Băilești area have bioactive compounds with therapeutic properties that have been used for centuries in folk medicine and are increasingly employed in the modern pharmacopeia. For example, *Hypericum perforatum* (St. John's wort) is used for its antidepressant and cicatrizing properties, while *Chelidonium majus* (greater celandine) is known for its choleretic and antitumoral effects. Other significant examples are represented by *Achillea setacea*, *Matricaria chamomilla*, and *Plantago lanceolata.* Local people harvest these species by hand, especially during the summer months, and use them under the form of infusions, tinctures, and ointments.

Numerous wild species play an essential role in beekeeping, within the natural and agricultural ecosystems of the Băilești area. Species such as *Trifolium pratense*, *Centaurea cyanus,* and *Salvia nemorosa* are renowned for their abundant nectar secretion. From May until August, these plants contribute to the production of a high-quality, polyflora honey that is characteristic of the region. Local beekeepers have underlined the fact that the area's floral diversity has a positive influence on the honey's aromatic composition.

In areas with natural and semi-natural pastures in the Băilești region, spontaneous plants significantly contribute to the nutritional intake of farm animals. Species such as *Medicago sativa*, *M. lupulina*, *Festuca valesiaca, Lotus corniculatus*, *Vicia spp., Lathyrus spp. Lolium perenne*, *Dactylis glomerata*, *Trifolium repens*, or *Poa spp*. are valued for their high nutritional content, being used as fresh or dried fodder. Species such as *Rumex crispus* (curly dock) and *Urtica dioica* (nettle) represent a frequent component of traditional dietary practices in the Băilești area.

CONCLUSIONS

The research conducted in the Băilești area highlights a significant floristic richness with high economic potential. By sustainably capitalizing the wild-growing plants, local economic opportunities can be created, while upholding the biodiversity conservation principles. Integrating these plants into various economic sectors (such as pharmaceuticals, apiculture, animal fodder, food production, and cosmetics) lays the groundwork for sustainable development in rural areas. It is essential that initiatives for the capitalization of these natural resources be supported by public policies, education, and local research, in order to ensure their responsible and efficient use.

The current economic employment is limited, but it holds great potential for future expansion. At present, only part of the local plants are being used in the industrial sector or by small-scale enterprises (e.g. herbal and health food store in Băilești, local markets, honey producers). Ultimately, it can be said that the spontaneous plants within the Băilești area should not be perceived merely as transient resources, but rather as fundamental components of a natural heritage that sustains local life, economy, and culture. Understanding these species from the biological, ecological, and economic standpoints reveals new possibilities for the local community to use natural resources in an intelligent manner, without compromising them for future generations.

REFERENCES

Borza Al. 1968. Dicționar etnobotanic cuprinzând denumirile populare românești și în alte limbi ale plantelor din România. Edit. Acad. Române. pp. 315.

Buia Al., Popescu-Mihăilă Ana 1952 – Contribuţii la flora regiunii Craiova. Buletin Ştiinţific. Secţiunea de Ştiinţe Biologice, Agronomice, Geologice şi Geografice. Tom. IV. nr. 3: 519-536.

Buia Al., Păun M. 1960. Materiale pentru flora şi vegetaţia împrejurimilor oraşului Craiova. SSNG. Com. de Bot., 1957-1959: 281-296.

Buia A., Păun M., Maloş C. (1961). Pajiştile naturale din Regiunea Craiova şi îmbunătăţirea lor (II). Probleme Agricole. Anul XIII: 31-40.

Butură V. 1979. Enciclopedie de etnobotanică românească. Edit. Științifică și Enciclopedică, București. pp. 281.

Ciocârlan V., Berca M., Chirila C., Coste I., Popescu Gh. 2004. Flora segetală a României.. Edit. Ceres, Bucureşti. pp. 351.

Ciocârlan V. 2009. Flora ilustrată a României. Pteridophyta et Spermatophyta. Edit. Ceres, Bucureşti. pp. 1042.

Maloş C., Cârţu Mariana, Cârţu D. 1972. Plante toxice şi medicinale din flora spontană a Olteniei, ameninţate cu dispariţia. Stud. Cercet. Tg. Jiu. Comit. de Cult. şi Ed. Soc. Gorj.: 35 – 42.

Păun M. 1963. Materiale pentru flora şi vegetaţia Raionului Balş, Reg. Oltenia. Lucrările Ştiinţifice Vol. VI. Institutul. Agronomic ”T. Vladimirescu” Craiova: 35-67.

Popescu, C. 2010. Climatologia Câmpiei Române. Editura Universitară. pp.

Popescu G. 1992. Preliminary data on the herbaceus vegetation in the plain of Oltenia and the Getic Piedmont. Congr. Naţ. de Biol. “Emil Racoviţă” Iaşi: 41-44.

Popescu G. 1996. Contribuţii la cunoaşterea vegetaţiei din Câmpia Olteniei. Acta Bot. Hort. Bucurest.: 189-198.

Răduţoiu D. 2022. The economic importance of the spontaneous flora within Oltenia Plain, Romania. Scientific Papers Series Management, Economic Engineering in Agriculture and Rural Development Vol. 22, Issue 1: 561-568.

Sârbu I., Ştefan N., Oprea A. 2013. Plante Vasculare din România. Bucureşti. Edit. Victor B Victor. pp. 1220.

*** Euro+Med (2006-): Euro+Med PlantBase - the information resource for Euro-Mediterranean plant diversity. Published on the Internet http://ww2.bgbm.org/EuroPlusMed/ [Accessed 28 August 2026].

*** Topographical Map, 1:25,000; Elevation: Shuttle Radar Topography Mission, 30 m. GIS processing.

*** Administrația Națională de Meteorologie (2023). Raport privind regimul pluviometric în sudul Olteniei.