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BIOLOGY OF SOME SPONTANEOUS PLANT SPECIES WITH ECONOMIC IMPORTANCE FROM THE LOCATION OF GÂNGIOVA – DOLJ

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ABSTRACT

The present paper addresses a topic of scientific and practical interest concerning the identification of spontaneous flora and its potential capitalization in the Gângiova area.
A significant share of the spontaneous plants in the area are used by the local inhabitants for medicinal and ornamental purposes, as well as in human nutrition and livestock feed.
Most of the species presented in the paper can be used as ornamental plants. Their decorative importance is given especially by the flowers and inflorescences.
The analysis of the economic importance of the spontaneous flora within the area of Gângiova settlement revealed that it currently continues to decline. The zoological-anthropogenic factor constitutes the main contributor to this downward trend.

INTRODUCTION

Gaining knowledge about plants has always been a desire and a pleasant concern for those who love nature. Because many of these plants are useful to people, their identification also had a practical dimension. Medicinal plants have represented one of the most important concerns of people since the beginning of their existence. In their search for sustenance, people noticed that the application of certain plants to wounds relieved the pain and favoured healing, while the ingestion of other plants cured certain diseases.

The research on the economic importance of spontaneous flora in Romania is sporadic (Dărăban et al. 2013, Melut et al. 2013, Dincă et al., 2014, Oroian et al. 2016, Jalobă et al. 2018, Șchiopu et al. 2020) and there is a small number of corresponding studies concerning Oltenia (Niculescu et al. 2006, Răduțoiu 2022, 2023). Occasional information can be found in a few specialized works that tackle the flora and vegetation of this part of Romania (Buia & Păun 1960, Roman 1974, Popescu 1996, Costache 2005, Răduțoiu 2008, Răduțoiu & Măceșeanu 2018).

The present paper aims at identifying the current situation concerning the local economic importance of the useful plants from the spontaneous flora within the territory under study, determining the problems faced by the local inhabitants during the activities they pursue in this sector, as well as highlighting their opinions in order to substantiate solutions that would increase the efficiency of such activities.

Crops health and grassland stability play a vital role in sustaining global economies and ensuring food security (Sălceanu et al. 2023 b, Sărățeanu et al. 2023). From a food security perspective, the availability, accessibility, and stability of crop yields directly influence the nutritional well-being and resilience of populations. Enhancing crop productivity through sustainable agricultural practices, innovation, and climate adaptation is therefore essential to meeting the growing global demand for food and fiber and maintaining economic stability (Acatrinei et al. 2024, Sălceanu et al. 2023a, Paraschivu et al. 2022).

MATERIAL AND METHODS

Gângiova is a rural administrative unit located in the Oltenia Plain and it consists of two villages, namely Gângiova and Comoșteni (Fig. 1, 2). From the administrative viewpoint, the commune is a part of Dolj County.

The area under study is located in the Jiu floodplain, this river representing a vital water resource for the two villages. This resource is of great importance in agriculture, as well as for the biodiversity of the studied area. The Jiu river is a tributary of the Danube, the confluence of these two watercourses being located southwards, at the level of Zăval settlement.

The territory of Gângiova commune features a temperate-continental climate, with generally mild winters and warm summer seasons.

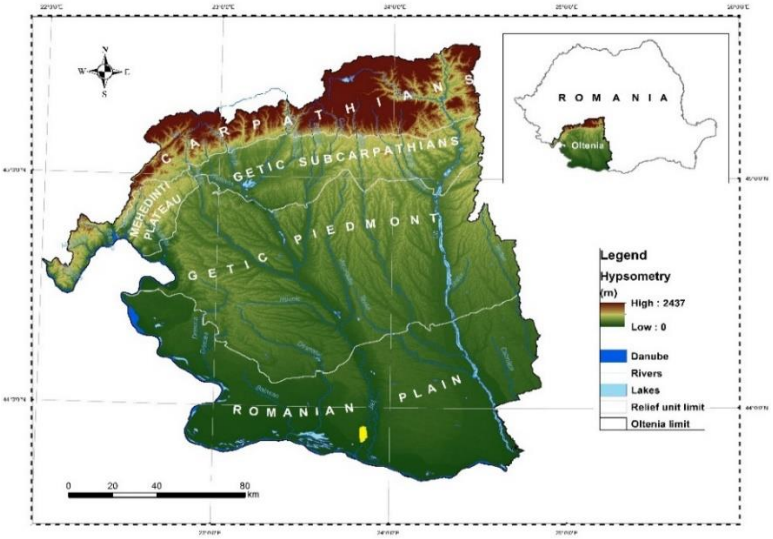

Figure 1. Location of the area under study within Oltenia region (Source: GIS processing after Topographical Map, 1:25,000))

The results published until the present with respect to this part of Oltenia (Răduțoiu 2022, 2023), corroborated with those gathered during the field trips and obtained during the subsequent determination in the Botany laboratory of the Faculty of Horticulture enabled us to achieve a selection of plants that are important for the local economy and are used by the inhabitants of the component villages of the commune, especially from the areas occupied by natural and semi-natural vegetation.

Figure 2. Detailed image of the villages that constitute Gângiova commune (Internet processing

After identifying the species of economic importance, we conducted an analysis of their significance in the researched territory based on a sample of 50 people of different ages: up to 20 years; between 20 and 40 years; between 40 and 50 years and over 50 years. This survey was conducted by disseminating a form that included questions regarding the use of plants from the spontaneous flora: which plants are mostly used; in what capacity do the respondents collect the plants; what category of plants do they collect; when did they started this activity (year); whether they collect plants for their own use or to sell them (and if so, where); what is the method of capitalizing on the production; what income do they obtain from the sale of useful plants and, finally, whether they have accessed European funding or intend to do so in the future.

The scientific names of the taxa analysed in the present paper is in accordance with Euro+Med (2006–).

RESULTS

The local inhabitants use a significant part of the spontaneous plants within the area for medicinal and ornamental purposes, as well as in their alimentation or as fodder.

The numerous fieldtrips conducted in the area under study allow us to state that the surfaces occupied by natural and semi-natural vegetation described a decreasing tendency over the years.

The data collected from the field allowed for the achievement of a floristic inventory and for the subsequent selection of the species that have local economic importance.

Among the main groups of spontaneous **plants** that display economic importance for the area under study, a top position is held by the **medicinal** ones, which are widely used. The following list comprises the species harvested by the locals; these species are arranged in decreasing order of their usage (from the ones that are more intensely used to those that are not harvested by the locals, despite having a range in the area under study): *Matricaria chamomilla* L., *Hypericum perforatum* L., *Chelidonium majus* L., *Crataegus monogyna* Jacq., *Plantago major* L., *P. lanceolata* L., *Prunus spinosa* L., *Taraxacum officinale* Weber ex Wiggers, *Sambucus nigra* L., *Urtica dioica* L., *Rosa canina* L., *Arctium lappa* L., *Artemisia absinthium* L., *Origanum vulgare* L.,

Agrimonia eupatoria L., *Centaurea cyanus* L., *Consolida regalis* S.F. Gray, *Cichorium intybus* L., *Symphytum officinale* L., *Capsella bursa-pastoris* (L.) Medik., *Tussilago farfara*, *Eqiusetum arvense* L., *Anchusa officinalis* L., *Humulus lupulus* L., *Convolvulus arvensis* L., *Alliaria officinalis* L., *Leonurus cardiaca* L., *Marrubrium vulgare* L., *Lythrum salicaria* L., *Malva sylvestris* L., *Polygonum aviculare* L., *Geum urbanum* L., *Salix alba* L., *Verbascum phlomoides* L., *Hyoscyamus niger* L., *Abutilon theophrasti* Medik., *Aristolochia clematitis* L., *Carduus acanthoides* L., *Heracleum sphondyllium* L., *Linaria vulgaris* L., *Salvia nemorosa* L., *Teucrium chamaedrys* L., *Tribulus terrestris* L., *Armoracia rusticana* P. Gaertn.

In the case of certain plants, the underground part is harvested, while other plants are used for their above-ground collected parts. The harvesting of underground parts, as well as of flowers and inflorescences endangers the populations of these plants (Dihoru & Boruz 2014).

The **melliferous species** represent the second category with importance in the local economy. In this case, the number of spontaneous and subspontaneous plants is much smaller as compared to the medicinal ones, but those present are well represented in the field.

Because of the large areas covered by agricultural lands and acacia plantations, the spontaneous **melliferous plants** within the area under study, as well as in the entire Oltenia Plain, have a low importance (Răduțoiu 2022) compared to the entire surface. The composition of the meadow-dwelling vegetation comprises more melliferous species as compared to that of the forest vegetation (*Tilia tomentosa*, *T*. *platyphyllos*).

The edible plants. The following edible plants appear in the spontaneous flora and are frequently used: *Rumex crispus* (during the spring), *Fragaria viridis Rubus candicans* and *Rumex acetosella* (May - June). It should be noted that the inhabitants of the area under study frequently use species from the cultivated flora. By creating and continuously improving the edible plants, humans stopped using the spontaneous ones. Through a directed selection, they obtained new plant varieties with higher productivity. This is how many taxa of *Brassica oleracea*, *Daucus carota* subsp. *sativa*, etc. appeared.

The aromatic plants are poorly represented in terms of number of species, but they compensate with representative populations in the field. Few species belonging to this category are used by people in the researched area: *Artemisia absinthium* L., *A*. *vulgaris* L., *Portulacca oleracea* L., *Origanum vulgare* L., *Mentha pulegium* L., *Convolvulus arvensis* L.

The aromatic species of vegetal origin are found only in xeric meadows. The particular gustative characteristics induced by the spontaneous plants in the Gângiova area are due to the chemical composition of their vegetative organs, especially in terms of essential oils, esters and terpene hydrocarbons, which have high concentrations. *Thymus glabrescens* Willd. and *Th*. *pannonicus* All. are among the species frequently used in the area.

The tinctorial plants. Because of the competition with synthetic pigments discovered during the last century, the artistic craft of vegetable dyeing has undergone a strong decline in the plain region of Oltenia and, thus, also in the area under study.

The following species are among the spontaneous tinctorial plants used by the inhabitants of the area: *Quercus robur* L., *Galium verum* L., *Hypericum perforatum* L., *Origanum vulgare* L., *Anchusa officinalis* L., *Cynoglossum officinale* L., *Anthemis tinctoria* L., *Crataegus monogyna* Jacq., *Malus sylvestris* (L.) Mill., *Rosa canina* L.,

Euphorbia cyparissias L., *Cornus sanguinea* L., *Viola hirta* L., *Viola tricolor* L., *Salix fragilis* L., *Cruciata glabra* (L.) Ehrend, *Symphytum tuberosum* L., *Achillea millefolium* L., *Matricaria chamomilla* L.

Following the discussions with local inhabitants, we briefly present the usefulness of several tinctorial plants: *Quercus robur* (tinctorial value - bark harvested from old trees, from October to February, in fresh state in order to obtain black and ochre colours); *Hypericum perforatum* (tinctorial value – the aerial part is used in fresh and dried states to obtain beige, green, and brown colours); *Origanum vulgare* (the whole plant presents tinctorial value; fresh or dried flowers harvested during July are used to dye in cherry red and the whole plant harvested during the maximum flowering period, i.e. June-July, gives a reddish-brown colour); *Euphorbia cyparissias* (tinctorial value – the aerial part harvested in May-June is used for obtaining the yellow colour, whereas harvested in July-August it is used for extracting the brick-red colour).

The fodder plants. In the complex of measures that characterize the modern agriculture, fodder represents a raw material that, through livestock and in interdependence with its biological value, determines the level and quality of products such as milk, meat, eggs, wool, etc.

From this viewpoint, plant fodder presents the greatest economic importance, because it is consumed in large quantities and constitutes a special compartment in agriculture.

The fodder plants within the territory under study are strongly affected by the pedological drought that determines the reduction of the bio-productive function. Among the encountered species with fodder value we present: *Lathyrus sphaericus* Retz., *Hordeum bulbosum* L., *Lolium perenne* L., species of the genera Medicago (*M. minima*, *M. arabica*, *M. polymorpha*, etc.), Trifolium (*T. repens* L., *T. pratense* L., *T. campestre* Schreber; *T. arvense* L., *T. incarnatum* L. subsp. *molinerii* (Balbis ex Hornem) Cesati, *T. strictum* L.), Vicia (*V. grandiflora* Scop., *V. angustifolia* L., *V. lathyroides* L.), Festuca (*F. pratensis* Huds., *F. rupicola* Heuff., *F. valesiaca* Schleicher ex Gaudin, Poa (*P. angustifolia* L., *P. pratensis* L., *P. sylvicola* Guss.) and others.

As in the case of cultivated plants, the species that make up the vegetation of natural meadows are generally sensitive to the conditions related to nutrition, water, and light, as well as to the influences of grazing and mowing. The manner in which various species manage to ensure these conditions allows them to coexist in the same area, forming stable groups of plants that are capable of making the most of the specific conditions characteristic to the land on which they have settled. In this framework, the vegetation of a natural meadow, both through the species that compose it and through their qualitative proportion, reflects the conditions of the respective land, the way the meadow is exploited, as well as the quality of the fodder obtained.

The vegetation of pastures and hayfields is strongly influenced by human-related factors, being represented mostly by secondary and derived steppe formations, xerophytes and xero-mesophytes, which reflect both the general natural conditions characteristic to a warm and dry climate, as well as their historical past (excessive grazing going up to degradation, undergrowth clearing, deforestation).

DISCUSSIONS

The information collected from residents of the area (belonging to different age groups) underlined the fact that the population over 50 years of age assigns a higher importance to spontaneous flora (Fig. 3).

The low proportion of people in the 20-40 age group (i.e., 12%) is explained by the small number of persons living in the two component villages of the commune, as well as by the increasing number of pharmacies that facilitate the purchase of products in a rapid manner and without requiring sustained effort. The 2nd place is held by people aged between 40-50 years (with 32%), and the last place goes to young people up to 20 years old (with about 7%), who are increasingly attracted to the modern features, leaving the traditional aspects in second place. Practically, the economic importance of the spontaneous flora in Gângiova decreases with age.

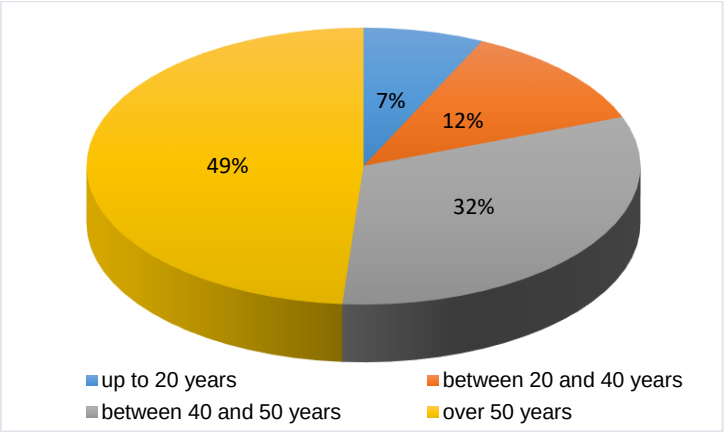

Figure 3. Share distribution of the economic importance of spontaneous flora, as assigned by locals, by age group

The analysis of the answers received from respondents (a sample of 50 people) regarding the useful plants in the area underlines the following aspects:

- an important number of people use plants from the spontaneous flora;
- chamomile has the greatest use among the most frequently used plants;
- about three quarters of the respondents collect spontaneous plants in a capacity of unauthorized individuals;
- the medicinal and the aromatic plants are those that engage the highest interest in the area; these are followed by the edible and the aromatic plants;
- most of the people collect spontaneous plants for their own use and do not capitalize on them;
- over 90 % of the respondents have not accessed European funding;
- with respect to the interest in accessing European funds in the future, opinions are divided: about 42 % of the respondents do not intend to, 32 % want to, and 28 % are not sure

CONCLUSIONS

A significant part of the spontaneous plants in the area are used by the local inhabitants for medicinal and ornamental purposes, as well as in their alimentation or as feed for livestock.

By analysing the economic importance of the spontaneous flora in the area of Gângiova commune, we can state that it is currently in continuous decline. The spontaneous flora could receive higher interest in the future and to this end we

recommend carrying out awareness-raising activities that should mention the advantages of a judicious use of the spontaneous flora (a healthy lifestyle, very low costs compared to synthetic products, long-term efficiency is much higher by rationally using the products offered by nature), etc.

Finally, we can state that if measures are not taken in order to raise awareness among local population regarding the need to preserve unaltered the biodiversity and the local traditions, the modern culture will replace the traditional one in the near future, while customs and traditions will only be found in museums.

REFERENCES

Acatrinei (Dumitriu) S. Stavarache M., Gavrilă C.S., Vacarciuc E.M., Dudău A.M, Bouruc D., Stavarache E., Paraschivu M., Sălceanu C., Brezuleanu S. 2024. Improving economic efficiency on degraded permanent meadows by various management systems. Scientific Papers Series Management, Economic Engineering in Agriculture and Rural Development Vol. 24, Issue 1: 17-23.

Buia Al., Păun M. 1960. Materiale pentru flora şi vegetaţia împrejurimilor oraşului Craiova. Comunicări de Botanică, (1957-1959): 281-296.

Costache I. 2005. Flora şi vegetaţia bazinului hidrografic inferior al râului Motru. Teza de doctorat. București, pp.290.

Dărăban, I.N., Arsene, G.G., Turcuș, V., Ardelean, A., 2013. Assesment on bioeconomical potential for medicinal plants in salty meadows from the Aradului Plain (W Romania). Studia Universitatis "Vasile Goldiş", Ser. Ştiinţele Vieţii. 23, 1: 71-78.

Dihoru Gh., Boruz V. 2014. The list of main spontaneous medicinal plants from Romania. Analele Universităţii din Craiova, seria Agricultură – Montanologie – Cadastru (Annals of the University off Craiova – Agriculturre, Montanology, Cadastre Series) Voll. XLIIV: 328-344.

Dincă, N., Barbu, I., Dunea, D., 2014. An inventory of floristic composition in permanent grasslands of RucărBran corridor: application and perspectives of melliferous potential. Scientific Papers. Ser. A. Agron. LVII: 157-162.

Euro+Med (2006-): Euro+Med PlantBase - the information resource for Euro-Mediterranean plant diversity. Published on the Internet http://ww2.bgbm.org/EuroPlusMed/ [Accessed 27 August 2025].

Jalobă, D., Grădilă, M., Ionescu, N., 2018. Carduus nutans and Eryngium campestre – problem weeds found in permanent grassland of Băicoi. Romanian Journal of Plant Protection. XI: 16-24.

Melut, L.C., Vîntu, V., Samuil, C., Nistor, D., 2013. Preliminary observation on the flora and vegetation of grasslands from RDCSEC Perieni (Vaslui). Lucrări Științifice, ser. Agron., USAMV Iași. 56, 1: 197- 200.

Niculescu M, Popa O., Cruceru S. 2006. Consideration on the spontaneous cormophytes by importance phytopharmaceutical in the upper basin of the Luncavat River. Analele Universitatii din Craiova, Agricultura, Montanologie -Agroturism, Cadastru-Funciar, Vol. XXXVI: 186- 194.

Oroian, S., Sămărghițan, M., Hirițiu, M., Coșarcă, S., Tănase, C., 2016. The diversity of medicinal and aromatic plants encountred in Natura 2000 6520 Habitat from Gurghiu Mountains. J. Plant Develop. 23: 179- 186.

Paraschivu M., Cotuna O., Matei G., Sărățeanu V. 2022. Are food waste and food loss a real threat for food security? Scientific Papers Series Management, Economic Engineering in Agriculture and Rural Development, Vol. 22, Issue 1: 479-484.

Popescu, Gh., 1996, Contribuţii la cunoaşterea vegetaţiei din Câmpia Olteniei. Acta Horti Botanici Bucurestiensis, Vol. 23: 189-198.

Răduţoiu D. 2008. Flora și vegetația Bazinului Cernei de Olteț. Edit. Sitech. Craiova, pp. 407.

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.

Răduțoiu D. 2023. The economic importance of the spontaneous flora in the area of the Piedmont and Subcarpathian Hills of Oltenia, Romania. "Scientific Papers Series Management, Economic Engineering in Agriculture and Rural Development", Vol.23(3): 768-775.

Răduţoiu D., Măceșeanu D.M. 2018. Xeric meadows affected by the zoo-anthropogenic factor from the Oltenia region (Romania) Oltenia. *Studii şi comunicări. Ştiinţele Naturii.* Tom. 34, No. 1: 62-65.

Roman N. 1974. Flora şi vegetaţia din sudul podişului Mehedinţi. Edit. Acad. Române. București, pp. 222.

Sălceanu C., Paraschivu M., Cotuna O., Sărățeanu V., Olaru A.L., Păunescu R.A. 2023b. Economic importance and phytosanitary monitoring of Fire Blight. Scientific Papers Series Management, Economic Engineering in Agriculture and Rural Development Vol. 23, Issue 3: 797-802.

Sălceanu C., Paraschivu M., Olaru A.L. 2023a. The perfomance and economic efficiency of new genotypes of Alfalfa (Medicago sativa). Scientific Papers Series Management, Economic Engineering in Agriculture and Rural Development Vol. 23, Issue 4: 747-754.

Sărățeanu V., Cotuna O., Paraschivu M., Cojocariu L.L., Horablaga M.N., Rechițean D., Mircov V.D., Sălceanu C., Urlică A.A., Copăcean L. 2023. Features of natural succession of ex-arable forest-steppe grass-land (from western Romania) under the influence of climate. Plants, 12(6):1204.

Șchiopu F., Stratu A., Irimia I. 2020. Aspects regarding flora and the economic importance of some plant species from the local meadows of Băiceni (Botoșani county). Analele Ştiinţifice ale Universităţii „Al. I. Cuza” Iaşi, s. II a. Biologie vegetală, 66: 13-29.

SRTM 90 Data - Datele SRTM90 reproiectate în Stereo 70, http://www.geo-spatial.org/vechi/?s=download&c=dow_date_mnat, accessed on 09.2025.

*** https://harti.turism-zone.ro/harta_gangiova_dolj_romania_5794.html