Studii și Cercetări Științifice. Biologie 2025, 34 (1), 41-62
Scientific Study & Research. Biology
Print ISSN 1224-919X Online ISSN 2457-5178

MONOCOTYLEDONS WITH ECONOMIC AND ECOLOGICAL VALUE IN ROMANIA (ACORACEAE, AMARYLLIDACEAE, ALISMATACEAE, ARACEAE, BUTOMACEAE, COLCHICACEAE, CYPERACEAE, DIOSCOREACEAE, HYDROCHARITACEAE, IRIDACEAE)

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KEYWORDS
Productivity
Uses

ABSTRACT

Monocotyledons in Romania are known to have uses in 439 species classified in 25 families. These account for 929 recorded uses, of which 723 economy and 206 ecology. In addition, there are only 24 species with a relatively low degree of toxicity. In the lists mentioned in the paperwork, there are 32 rare species, 2 glacial relics, 18 vulnerable and 55 with disturbances in their area but not classified in a protection category; that's why we have called them threatened. This article cites 125 species that have 221 uses in the economy and another 38 uses in ecology and environmental protection.

INTRODUCTION

We are in a period when a lot of information about the uses of the plants is accumulating and this body of information requires systematic organization. Economic botany uses its own scales of appreciation, which were modeled on those from phytosociological studies and the ecology of vegetation.
In Romania, in the last 3 decades, flora inventory studies have continued, valuable syntheses of flora and vegetation have been completed, protected areas have been expanded, there is an infrastructure for environmental protection, many actions are still needed to protect the natural plant fund. It is necessary to maintain biodiversity and correctly manage the economic potential of some plants.
The highest number of monocotyledon species belongs to the Poaceae family. These are the most important plants that make the root fabric out of the vegetable carpet, that's why many species have found an important role in ecological restoration, soil protection, etc.

MATERIALS AND METHODS

The purpose of this synthesis is to identify and classify for phytosociological purposes the species with economic value on the territory of Romania. The notions are also useful for pratology, ecological reconstruction, phytoremediation and other fields mentioned in the text. In Romania there have been two other syntheses published by Kovacs Att. (1979) for pratology and by Pop I. (1982) for phytocoenology. We have often also looked at notions of economic botany from other neighbouring peoples, sometimes more distant but which complete or confirm information about species that are also on the territory of Romania. These aspects are correlated with the global spread of each species. The notions about uses that we have listed in tables in the form of keywords are necessary for any phytosociologist when making interpretations. It is a very synthetic approach to the literature regarding the uses of the plants that goes as far as highlighting the key uses.
Where there was sufficient information, it is listed in categories in the form of indices, as is the case in the ecology of these plants. We have included many potential uses, some of low value that will be better evaluated in the future.

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https://doi.org/10.29081/scsb.2025.34.1.06

We consider that a classification on 5 quality levels, frequently used, is lacking in a common language; very few authors use different levels. We found many assessments in Pop I., Kovacs A., Dihoru Gh., Maruşcă T., in the international database Plants for a Future (PFAF). For many species, quality assessment notes are currently unavailable and may become available in the future. Ratings for the nutritional and medicinal value of certain plants, on a scale from 1/5 to 5/5, are subjective. These are defined as follows:1/5 – very poor as food (slightly edible, difficult to use, poor taste, or requires complex preparation); 2/5 – poor (can be eaten, but not very tasty or has limited culinary use); 3/5 – medium (edible and useful, but not exceptional); 4/5 – very good (high nutritional value, easy to use, good taste); 5/5 – excellent (one of the best food plants: tasty, versatile, and valuable).
Most information regarding medicinal plants in Romania is collected in voluminous encyclopedias by Bojor Ov., Pârvu C., Scarlat M. A., etc. In current works, we find numerous authors and unpublished information that have very well outlined the direction of applied biology in the world. We expect more and more assessments regarding the grading of medicinal plants to appear in the future. So far, the melliferous plants, fodder plants and the sozology of medicinal plants have been successfully assessed.
The assessments of plants used for the decontamination of heavy metals and other toxic substances are published for a small number of species, they are based on numerous studies, and they offer promising perspectives for phytoremediation and ecological reconstruction, that is, for two areas where ecologists do not dare to make long-term predictions, that is, for decades.
For each species, we were interested in its spread in the country, the sozology mentioned in the red lists, the degree of habitat disturbance, ecology, medicinal importance, possibilities of introduction into culture in order not to be on the verge of extinction in nature, etc. We have the information about sozology after Oltean M. (1994), Oprea A. (2005) and Sârbu I. et al. (2013). For the under threat species, destruction in their habitats is known but they are not evaluated for inclusion in protection categories.
Variability studies of some spontaneous, economically valuable species will nuance some qualitative differences. Within each family, the plants are presented in alphabetical order.

RESULTS AND DISCUSSION

In phytosociological interpretations we can also analyze productivity if the economic value of each species in the samples is known. A unified scientific and economic approach is based on reliable information, provided by works whose results are confirmed by other subsequent works. Species populations give the mosaic appearance of the vegetation, the exact results of the studies are seen at the end of the works.
Acoraceae Family
Acorus calamus L., Wuranecia, Scented reed, is spread sporadically, on the sunny banks of slow-flowing or stagnant waters, in reedbeds and swampy meadows, from the plain regions to the sessile oak level. It has a unique reputation, it has been used since Antiquity for disorders of the nervous and digestive systems, it is better highlighted by Indian authors; Chinese, American, European, Nepalese authors, etc. also bring important additions. We will list synthetically the therapeutic benefits of this plant that is helpful for elderly people but also for young people with problems because our work aims to highlight the key uses for vegetation studies (Table 1).
For therapeutic uses, rhizomes, leaf juice and oil are used with medical recommendation. The rhizome is 3/5 edible. Current phytomedicine uses it as a sedative, laxative and diuretic. It is an excellent nervous tonic, regenerates nervous system functions, improves cognitive functions and memory, harmonizes emotions, improves control over states of anger, rage, hysteria, anguish, anxiety, frustration, it protects neuronal cells. It treats depressive states, insomnia, drowsiness, neuroses, apathy, hallucinations, illusions, memory loss, neurasthenia, neurological disabilities, schizophrenia, Parkinson's disease, Alzheimer's disease, anorexia nervosa, anxiety, convulsions, dementia and cognitive dysfunctions, neurovegetative disorders in the digestive and respiratory system, improves speech and voice, eliminates stuttering, is a tranquilizer together with *Valeriana.* It is a good sedative in madness and epilepsy; Western medicine uses it in digestive diseases associated with headaches, general debility, restores consciousness, promotes longevity. It removes the feeling of cold. It calms worries. It has effects in various gastrointestinal conditions such as: anorexia, bloating, flatulence, gallstones, bile elimination, liver protection, constipation, stomach and intestinal cramps, dyspepsia, chronic diarrhea, dysentery, dull abdominal pain, dysentery, gastritis, spastic enterocolitis, dyspepsia, poor digestion, gastric ulcer, gastric cancer, neurovegetative disorders, intestinal worms, regulates stomach acidity (high doses increase it, low doses decrease it), soothes abdominal pain, inhibits intestinal spasms, stimulates peristalsis. For respiratory system disorders it is used in asthma, bronchial catarrh, intermittent fever, cough, sinusitis, chronic bronchitis, phlegm, fever, has an expectorant effect. For the circulatory system it has effects in vascular disorders, as an antithrombotic, protector of myocardial cells, anti-ischemic, dilates coronary vessels in cardiac ischemia, hemorrhoids, blood pressure. The paste applied externally alleviates rheumatic pain, arthritis and rheumatoid arthritis. For skin problems it is used as a compress on burns, also used for hair loss. It is a protector against gamma radiation, in AIDS it is used with cinnamon and ginger. As an anticancer agent it has effects in glandular and abdominal tumors, prostate cancer, glioblastoma. It

is an antidote in poisoning. Eliminates excessive fats from the body, has effects in tympanitis and otitis (Burzo I., 2009; Chanda D. & Kapadia M. D., 2012; Devi A. & Ganjewala D., 2009; Ghelani H., et al., 2015; Pattanaik J., t al., 2013; Prasad K., 2017; SaroyaA. S., 2018; Shah A. I. & Gilani A.-H., 2010; Sharma P. et al., 2022; Sharma V., et al., 2016; 2020; Zhao Y., et al., 2023; etc.).
For reproductive system disorders it is beneficial in menstrual disorders, painful menstruation but contraindicated in pregnancy (Romm Av., 2010).
The oil is traditionally used in perfumery and flavouring alcoholic beverages. In cosmetics it is used for irritated and sensitive skin, the essential oil is contraindicated directly on the skin due to toxicity, we find it in toothpaste, mouthwash (Ionescu-Călineşti L., 2009; Pârvu C., 2004).
The dried rhizome has a very good antifungal effect on various fungi, is anti *Candida albicans*, insecticides, kills mosquito larvae, flies, it removes cockroaches. It has antiviral action (Mootly T. J., 2016: Khwairakpam. D., et al., 2018; Imam H., et al., 2013; Boulogne I., et al., 2012).
Veterinary medicine recommends it as a digestive stimulant in anorexia.
As a decorative plant, it is grown in sunny marshes, does not tolerate shading, it is fragrant, good background in culture, it is invasive and covers available marshes (Preda M., 1989; Davidson C. G., Gobin S. M., 1998; Shu H., 2017; Oakes A. J., 1990).
It is suitable for ecological restoration in marshes, it is reproduced by seeds and large quantities of rhizomes, it tolerates nitrogen-poor soils, it grows quickly, it stabilizes the substrate (Pai A., Mc Carthy B., 2010). The high biomass of the root system makes it effective for phytoremediation of wastewater. It can restore eutrophicated water bodies, it reduces the pollution, it absorbs N, P and heavy metals (Zhao Y., et al., 2023; Wang K, et al., 2021; Wang J.-W., et al., 2021). It is tolerant to petroleum hydrocarbons, it removes atrazine, it has poor phytoremediation effect on Cd and polycyclic aromatic hydrocarbons (Jeelani N. et al., 2017). It accumulates Ni, Cr, Cu, Zn and V from wetlands and wastewater (Gariepy ER; 2020; Wang JF, 2021).
For therapeutic uses, underground parts from clean environments are harvested in moderate quantities (Dihoru Gh. & Boruz V., 2014).

Table 1. Categories of uses of *Acorus calamus* L.

No. crt.	Species	Categories of uses	Observations
1	*Acorus calamus* L.	edible, high medicinal value, veterinary medicine, cosmetics, phytoremediation, biopesticide, decorative	-

Alismataceae Family
Alismataceae family groups swamp species; they are very little used by Romanians over time. Currently we find that they have uses in phytoremediation; they are decorative, medicinal and edible (Table 2).
Alisma plantago-aquatica is present in all ponds, it is easy to be recognized and it has been studied by various authors. It is known, among the people, as a toxic and medicinal plant, it is decorative (Preda M., 1989), melliferous with a low nectar and medium pollen content (Dihoru G., 2023), it have been used for a long time in empirical veterinary medicine (Marian S.F., 1870-1907) and in empirical human medicine for diseases of dropsy, paralysis, nephritis, epilepsy (Crăciun F. et al., 1976 - 1977; Pârvu C., 2014).
In other cultures, the leaves are used for cystitis, kidney stones, dysentery; the roots are used in nephritis, acute diarrhea, oliguria, edema, fatty liver, high cholesterol (Plants for a Future, 2012–2022; Keskin M. et al., 2024).
It is a rejuvenating plant; the rhizomes contain antioxidant substances (Sharma S.K. et al., 2013; Sen S. & Chakraboty R.; 2011). The leaves and underground parts should be harvested moderately (Dihoru G. & Boruz V., 2014). It is suitable for the remediation of rainwater polluted with Zn, Cu (Fritioff A. et al., 2012) and waters polluted with nutrients, N and P, it has a very high tolerance to ammonia, it absorbs NH_4 (Wang K. et al., 2021).
Alisma gramineum Lej. has a sporadic spread, is decorative.
Alisma lanceolatum With. has a sporadic spread, it is decorative (Preda M., 1989), it has effects in phytoremediation but it is not studied biochemically enough.
Caldesia parnassifloia (L.) Parl. is annual, from humid, marshy environments, cosmopolitan, rare, vulnerable, threatened globally and in Europe (Oprea Ad., 2005), it accumulates heavy metals (Zhang H. et al., 2013).
Sagittaria sagittifolia L., Water Arrow, is common in marshy places in plains and hills. The roots are edibility score of 5/5, contraindicated for pregnant women (Plants for a Future, 2012–2022; Keskin M. et al., 2024); Romanians have rarely used them, empirically, for headaches and urticaria. It is not sufficiently known biochemically (Pârvu C., 2005; 2013).
It is attractive due to the shape of its leaves and flowers, it can be cultivated as a decorative plant in marshes in green spaces (Preda M., 1989; Khanbabyeva O.E. et al., 2021).

It has abundant biomass, participates in phytoremediation by accumulating in different concentrations of Cd, Cu, Zn, As, Cr, Ba, Ti, Co, Pb (Zhang H. et al., 2013; Seenivasagan R. et al., 2022; Huang S.Y., 2021; Rahman M.A., Hasegawa H., 2011; Friioff A. et al., 2005).
Sagittaria latifolia Willd and S. *trifolia* L. are adventitious, very rare in the Flora of Romania (Sîrbu C., Oprea A., 2011). Both of them have culinary value. About *S. trifolia* L. it is known that the tubers and roots are edibility score of 4/5, it have hepatoprotective, antioxidant, immunostimulant and hypoglycemic effect, it regulates lipids. (Zhang Y. et al 2020); the leaf powder is used in pruritus (Khare C.P., 2007); it has effects in the phytoremediation of soils polluted with Diesel (Zhang V. et al., 2015).

Table 2. Species from Alismataceae Family from spontaneous Flora that have economic value

No. crt.	Species	Categories of use	Observations
1	*Alisma gramineum* Lej.	decorative	-
2	*Alisma lanceolatum* With.	decorative, phytoremediation	-
3	*Alisma plantago-aquatica* L.	nectar source, toxic, decorative, medicinal, veterinary medicine, phytoremediation	-
4	*Caldesia parnassifloia* (L.) Parl.	phytoremediation	rare and vulnerable, in Romania, globally threatened in Europe
5	*Sagittaria sagittifolia* L.	edible 5/5, medicinal, phytoremediation	-
6	*Sagittaria latifolia* Willd	edible 5/5	very rare, adventive in the Flora of Romania
7	*Sagittaria trifolia* L.	edible 4/5, medicinal, phytoremediation	very rare, adventive in the Flora of Romania

Amaryllidaceae Family
The Alliaceae subfamily, particularly the genus *Allium*, has economic and culinary importance in all corners of the world. These plants contain numerous nutritional components and have therapeutic properties that attract consumers who are familiar with such information. The genus *Allium* has 25 species in Romania, 6 typical subspecies and 7 atypical subspecies. Among these there are 8 rare species. We have uses for 19 species, of which 3 species are rare (Table 3).
Where there are citations referring to the destruction of some species from the spontaneous flora, we recommend their cultivation. *Allium flavum, A. schoenoprasum, A. ursinum*, etc. can be cultivated because their leaves contain more antioxidants than the cultivated species. Garlic and onion are indicated for high cholesterol, hypertension, excessive coagulation, atherosclerosis, inflammation, bacterial and fungal infections (Štajner D., Popović B.M., 2009).
Allium albidum Fisch. ex M. Bieb. subsp. *albidum* is widespread frequently, in arid, sandy places, bushes, from the forest-steppe to the spruce forest level. It is a melliferous plant (Kovacs Att., 1979), under threat.
Allium angulosum L. is spread sporadically, through swampy meadows, peatlands, sandy alluviums, from the forest-steppe zone to the spruce forest level, it has culinary value, it is consumed salted, in winter in Siberia (Fenwik G.R. et al., 1985), a edibility score of 3/5 and a medicinal score 2/5, digestive stimulant, cardiac tonic, it repels insects (Plants for a Future, 2012–2022), it contains antioxidant substances (Teotia D. et al., 2024).
Allium atropurpureum Waldst. et Kit. is sporadically spread in plains and hills areas, its bulbs and leaves are edibility score of 3/5 and a medicinal score of 2/5, (Plants for a Future, 2012–2022). It is decorative (Preda M., 1989).
Allium atroviolaceum Boiss. is rare and under threat, from dry steppe and forest-steppe meadows, it has antioxidant properties (Tepe B. et al., 2004), antimicrobial, it is a source of vitamins, antiplatelet (Kurnia D. et al., 2021). It is used to prevent tumors, cardiovascular diseases and aging (Stajnek D. et al., 2007).
Allium carinatum L. subsp. *pulchellum* Bonnier (Syn. A. *cirrhosum* Vand.) is spread in very arid places in meadows and bushes, in the levels of sessile oak and beech, it is rare and under threat. It is good as an adjuvant in liver cancer therapy and eliminates toxic substances in chemotherapy for heart conditions (Aleksandar P. et al., 2019).
Allium flavescens Besser is a very poor netar source (Kovacs At., 1979; Dihoru G., 2023)
Allium flavum L., subsp. *flavum*, subsp. *tauricum* (Besser ex Rchb.) Stern is sporadically spread in well-lit places, from meadows, bushes, on arid and rocky places, from the steppe zone to the beech forest level. Traditionally it is considered food, edibility score of 2/5, medicinal with antioxidant, antibacterial, antiproliferative, anti-inflammatory, hepatoprotective, immunostimulating, antihypertensive properties (Curcic et al., 2012; Plants for a

Future, 2012–2022; Keskin M. et al., 2024; Kurnia D. et al., 2021; Teotia D. et al., 2024)). It has a preventive effect in cancers, cardiovascular diseases and aging (Stajnek D. et al., 2007). It inhibits uterine carcinoma, it is a good source of health benefits (Simin N. et al., 2013). It is nectar source (Kovacs Att., 1979) and decorative (Preda M., 1989).

Allium paniculatum (Waldst. et Kit.) subsp. *fuscum* Arcang is frequently spread in dry and sunny meadows in the hilly area, it has very poor nectar source value (Kovacs At., 1979);

Allium guttatum Steven is spread in arid, stony meadows, in the steppe and forest-steppe, it is edible and medicinal with effects in acne, respiratory diseases, etc. (Sargin S.A., 2015; Keskin M. et al., 2024). In Romania it is rare and under threat.

Allium lusitanicum Lam. is common in sunny and arid meadows on steep slopes, grassy rocks from the beech level to the lower alpine; the leaves and the flowers can be consumed as a vegetable (Fenwik G.R. et al., 1985; Teotia D. et al., 2024), it has a hypocholesterolemic effect, tonic on the digestive and circulatory system (Vlase L. et al., 2013), it is anticancer, used in leukemia (Kim J. et al., 2020). It is a poor nectar source plant (Kovacs Att., 1979).

Allium moschatum L. is rarely spread, in dry and stony places, from the steppe area to the sessile oak level, in the counties of Mehedinți, Prahova, Vaslui, Constanța, Tulcea. It is under threat. It contains nutrients (Keskin M. et al., 2024), it is a poor nectar source plant (Kovacs At., 1979).

Allium obliquum L., Miller's onion, In Romania it is rare, vulnerable and protected. It has a culinary value of 3/5, medicinal value of 2/5 (Plants for a Future, 2012–2022), it grows only on calcareous rocks, strongly sunny and with a basic pH, in the Cheile Turii reservation, Parâng and Lotrului Mountains, it can be cultivated (Vlase et al., 2013).

Allium paniculatum L., is sporadically spread on sandy, sandy-stony, rarely saline places, in plains and hills areas. It contains nutrients (Keskin M. et al., 2024). In Romania subsp. *fuscum* (Waldst. et Kit.) Arcang. is frequently spread, subsp. *paniculatum* sporadically spread, and subsp. *fuchsii (*A. Kern) Ciocârlan is rarely spread.

Allium rotundum L. is sporadically spread in arid meadows from plains and hills areas. It has medicinal and food value (Drăgulescu C., 1992), good antimicrobial and antifungal action (Hekmati et al., 2020; Tosun A. et al., 2006), it reduces oxidative stress, prevents coronary artery aging and cancer (Assadpour S. et al., 2016). Plants from Iran contain 0.5% essential oil, with good antibacterial and antioxidant effects that extend the shelf life of processed foods (Dehpou A.A. et al., 2012). It is nectar source (Kovacs Att., 1979), decorative. The underground parts should be harvested in small quantities (Dihoru G., Boruz V., 2014).

Allium scorodoprasum L. is commonly found and spread in meadows, scrublands, cultivated areas, from forest-steppe to the sessile oak level. It contains nutrients with good antioxidant and anti-inflammatory properties, diuretics (Ekici M. et al., 2022; Keskin M. et al., 2024; Tepe B. et al., 2004), heals wounds, treats hypertension, prevents aging, heart disease and vascular diseases (Kurnia D. et al., 2021). It is a honey plant (Kovacs At., 1979).

Allium sphaerocephalon L. is sporadically spread in plains and hills, it is edible, it contains nutrients that very well prevent tumors, cardiovascular diseases and aging (Keskin M. et al., 2024; Stajnek D. et al., 2007), it has excellent antimicrobial and antioxidant properties; it is indicated for biotype selection. It is more effective than onion and garlic on *Pseudomonas aeruginosa, Escherichia coli* and *Candida albicans* (Lazarević J. et al., 2010). Poor honey bee (Kovacs At., 1979).

Allium ursinum L., Wild garlic, has been consumed in Romania since the time of the Dacians. It is known, to the Indians, as a rejuvenating plant. It is very good for preventing cardiovascular diseases, tumors and aging. It is a shade plant, it does not tolerate direct sunlight, it is known among the people as a culinary food, it is consumed raw, pickled, salted, brined with oil, in salads, soups, potatoes, cabbage, vegetables, cuisine based on meat, in sauces, a substitute for basil, (Petkova et al., 2019). In the food industry it can be used for its antimicrobial and organoleptic qualities (Lupoaie M. et al., 2013). It is edibility score of 5/5 and medicinal score of 3/5. When it is consumed fresh it is a source of sulfurous essential oil, vitamins and mineral salts (Marković M. et al., 2010). The juice is good for rheumatic joints, arthritis, and weight loss.

Most authors appreciate it for its cardioprotective, antimicrobial, antioxidant, cytotoxic effects, etc. Do not overdose because harmful effects on erythrocytes are possible. It manifests various actions: inhibits platelet aggregation, it is antibacterial, antifungal, antihypertensive, antidiabetic, antioxidant, antiscorbutic, antiviral, antitumor, antiparasitic, depurative, diuretic, activates peristalsis, hepatoprotective, stimulates appetite, and digestion. The bulbs have antibiotic, antifungal and antiparasitic effects, the flowers contain antioxidants and have an anti-inflammatory effect. The leaves and flowers have an antifungal effect, the flower extract is more effective. Internally, it has been used long time to prevent cardiovascular diseases, lowers blood pressure, cholesterol and triglycerides, it prevents the onset of atherosclerosis, it reduces cardiac ischemia, iron deficiency anemia, varicose veins, hematuria. On the digestive system, it is useful as a digestive stimulant, in intestinal parasites, acute and chronic diarrhea, biliary insufficiency, stomach pain. On the respiratory system, it is used for flu, long-standing rebellious cough, recurrent pneumonia. For the locomotor system, it is used for painful and rheumatoid joints. For the nervous system, it has effects on insomnia, slips-up, dizziness, fainting, epilepsy, aging.

It contains substances with anti-HIV I and anti-HIV II effects (Wu L., Bao J.K., 2013). It has effects in obesity, inflammatory diseases, effective against fecal bacteria, diabetes, colon’s cancer, prostate’s cancer, detoxification

of smoking, annihilation of the harmful effects of antibiotics. Externally it is used for skin infections, wounds, eczema, mastitis, rashes.
Natural antioxidants can replace many synthetic compounds with unwanted effects.
It has a low nectar and medium pollen content (Dihoru G., 2023).
It repels insects, can be used as a household disinfectant.
As a fodder plant it imparts a garlic taste to cow's milk.
In shaded places it can be grown as a decorative plant.
It generally forms dense populations on permanently moist soils, on dry soil it is rare and there it is recommended to harvest leaves and bulbs in moderate quantities. Volatile compounds inhibit the germination of other herbaceous plant seeds from the vegetal carpet and from experiments on wheat, amaranth, lettuce. It manifests allelopathic influences.
Bibliographic references for therapeutic uses: Bahi Hiyasat et al., 2008; Crăciun F., et al., 1976 - 1977; Dihoru G., Boruz V., 2014; Drăgulescu C., 1992; Krivocapir M. et al., 2018; 2020; Pârvu A.E., et al. 2014; Pârvu C. 2014; Petkova et al., 2019; Pavić A., et al. 2019; Sen S. & Chakraboty R., 2011; Scarlet M.A., 2019; Sharma S.K. et al., 2013; Stanisavljević N. et al., 2020; Stajnek D. et al., 2007; Tatomirescu Pachia I., 2000; Teotia D. et al., 2024; Plants for a Future, 2012–2022.
Allium victorialis L., Ai, Mountain onion, is medicinal-food, a edibility score of 4/5, replaces onion, has therapeutic effects in scurvy, stimulates digestion, eliminates toxins and intestinal worms, atherosclerosis, aphrodisiac, diabetes, hemorrhages, antimutagenic, cytotoxic, (Zahariadi C., 1966; Crăciun F. et al., 1976 - 1977; Drăgulescu C., 1992; Pârvu C., 2001; Teotia D. et al., 2024; Plants for a Future, 2012–2022). It destroys *Salmonella typhimurium* (Ham S.S. et al. 2004), It has poor nectar source value (Pârvu C., 2001).
It is a red list species, threatened in the Flora of Romania, harvesting the bulbs is strictly prohibited (Dihoru G., Boruz V., 2014). In culture, the bulbs and fresh leaves are sources of sulfurous essential oil and vitamins (Fenwik G.R. et al., 1985; Marković M. et al., 2010).
Allium vineale L., Pur, Crow's garlic, is a weed, edibility score of 3/5 and 2/5 with therapeutic properties, it is spread sporadically in plains and hills areas.
It is very good for preventing cardiovascular diseases, lowers blood pressure, reduces cholesterol. It is consumed for ulcers, it eliminates intestinal worms and colic on children. It stimulates the nervous system, prevents the occurrence of epileptic seizures. It is used in bronchitis and pneumonia. It is an antioxidant, it prevents the formation of tumors (Drăgulescu C., 1992; Keskin M. et al., 2024; Kurnia D. et al., 2021; Pârvu C., 2004; Stajnek D. et al., 2007; Teotia D. et al., 2024; Plants for a Future, 2012–2022).
The leaves can be eaten raw like garlic (Fenwik G. R., et al., 1985). The bulbs can be harvested in small quantities (Dihoru G., Boruz V., 2014).
The Amaryllidoideae subfamily is of particular interest for pharmacy because many of its species contain alkaloids with diverse actions: antitumor, antiviral, antibacterial, antifungal, cardiovascular, respiratory, analgesic, anti-inflammatory, and antimalarial. (Table 3).
Bulbocodium versicolor (Ker Gawl.) Spreng. has decorative value, in Romania it is rare and under threatened, the bulbs are harvested alternately at intervals of 2-3 years (Dihoru G., Boruz V., 2014).
According to Muhamad Ayaz and his collaborators (2008), galantamine is widespread in *Leucojum, Narcissus*, it is important for neurodegenerative diseases, especially Alzhemeir (Wu L., Bao J. K., 2013; He M., 2015). In Turkey, *G. nivalis* and *G. elwesii* are cultivated and marketed. Licoricidinol and many alkaloids with antiviral effect are extracted from *Narcissus, Leucojun and Galanthus* (Kornienko A., Evidente A., 2008).
In Bulgaria, *Leucojum aestivum* and *Galanthus nivalis* bulbs are used to empirically treat poliomyelitis to avoid paralysis (Halpin C. et al., 2010), traditionally, crushed snowdrops are placed as a poultice on the foreheads of those with nervous diseases (Paskov D., 1956), etc.
Galanthus elwesii Hook. f. (*G. graecus* Orph.) is rarely spread in the forest-steppe, it is destroyed over the decades, it has become under threat. The bulbs contain a wide variety of alkaloids; in larger quantities they are lycorine and tazetine. Anticholinesterase combats Alzheimer's disease (Orhan I., Şener B., 2005; Dhivya P.S. et al., 2014; Berkov S. et al., 2008). Herpes simplex virus infections can be treated (Heinrich, 2019). The extract inhibits *Candida*, the protozoan *Plasmodium falciparum*, has antioxidant and anticoagulant action (Kong C.K. et al., 2021).
Galanthus nivalis L., Snowdrops, are the first plants that bloom very early in spring, on lands that still have snow on them, they are frequently spread in meadows, bushes and forests from the steppe area to the alpine level. They are heavily traded every spring, they have become a vulnerable species so that harvesting from the same place must be done at intervals of 2-3 years only if there are numerous specimens.
It is threatened globally and in Europe. Wider introduction into cultivation as decorative, medicinal and symbolic plants could compensate for the reduction of populations in natural habitats.
In neurology it has the same uses as *G. elwesii*. The extract has anticholinesterase, antibacterial action, effective against *Staphylococcus aureus*, antifungal against *Candida albicans* and *Aspergillus brasiliensis*. They are predominantly used to treat diseases of the nervous and reproductive systems, in this regard we cite the following: rebellious vaginal discharge, vaginal candidiasis, leukorrhea, trichomoniasis, syphilis, gonorrhea, paralysis,

peripheral nerve paresis, hemiplegia, hemiparesis, cerebral hemorrhage, thrombosis, Alzheimer's disease, fainting, headache, heart and mitral insufficiency, myocarditis. They have an emmenagogue effect (Benedec D. et al., 2018; Crăciun F. et al., 1976 - 1977; Kong C.K. et al., 2021; Pop I., 1982; Pârvu C., 2000; Scarlat M.A., 2019; Berkov S. et al., 2008; Plants for a Future, 2012–2022).

In Transylvania, snowdrop and lily of the valley flowers are used empirically in pneumonia (Papp N. et al., 2011). It has a medium nectar source value, dense populations yield up to 10 kg of pollen/ha (Pop I., 1982; Dihoru G., 2023). In the past, they were also used as yellow dye plants.

Galanthus plicatus M. Bieb. is rare, under threat, widespread in oak forests, in the hilly area. It contains smaller amounts of alkaloids.

Leucojum aestivum L., Puddle Snowdrop, is sporadic and vulnerable, harvesting is strictly prohibited. It has the same uses as *Galanthus nivalis*. They are toxic and medicinal, decorative, dyeing and future plants (Dihoru G., Boruz V., 2014; Pop I., 1982; Pârvu C., 2003). They are cultivated in Anatolia to obtain drugs against Alzheimer's disease (Ainur Dewir, 2014). They also have other properties, including: anti-malaria (Șener B. et al., 2003), antimicrobial and antioxidant action (Dilber O.H., 2018; Keskin M. et al., 2024), and strong antifungal action (Ločárek M, et al., 2015).

Leucojum vernum L., Rich Snowdrops, is sporadically spread, it has the same uses as *Galanthus nivalis* (Benedec D. et al., 2018; Pârvu C., 2003); at this species it was discovered that Lycorine has anti-HIV action (Handbook of Ethhnopharmacology, 2008). It is harvested in small quantities only from large populations (Dihoru G., Boruz V., 2014).

Narcissus poeticus L. subsp. *radiiflorus* (Salisb.) Baker, Wild Daffodils, Zarnacadele, has sporadic distribution in meadows from the hilly region to the spruce level. It is vulnerable, globally threatened and in Europe. Harvesting is strictly prohibited (Oprea A., 2005; Dihoru G., Boruz V., 2014). If it is introduced into culture it has decorative, toxic and medicinal value. Petals and bulbs are used for medicine. Uses of the petals are indicated in tachycardia, cardiac neurosis, agitation, anxiety, skin diseases, whooping cough, diarrhea (Scarlat M.A., 2019). Fresh bulbs contain narcissin and other substances with anticancer effects (Wu L., Bao J.K., 2013). Oily extract of the plant is used in traditional medicine for uterine tumors (Benedec D. et al., 2018; Kornienko A., Evidente A., 2008; Ločárek M. et al., 2015). They are well-known plants; numerous works have appeared that have brought information on biochemistry, neurology, immunology, etc. We do not have information with which to compare subsp. *poeticus* and subsp. *radiiflorus* (Salisb.) Baker but we believe that the daffodils frequently cultivated by Romanians have the same effects.

Sternbergia colchiciflora Waldst. & Kit. grows in the steppe zone up to the sessile oak level, it is rare and under threat, it contains alkaloids with strong biological effects, cytotoxic, apoptotic, antiviral (Berkov S. et al., 2009).

Table 3. Species from Amaryllidaceae Family from spontaneous flora

No. crt.	Species	Categories of uses	Observations
1	*Allium albidum* Fisch. ex M. Bieb. subsp. *albidum*	a nectar source	under threat
2	*Allium angulosum* L	edible, medicinal, repels insects	-
3	*Allium atropurpureum* Waldst. & Kit.	edible, medicinal, decorative	-
4	*Allium atroviolaceum* Boiss.	medicinal	rare and under threat
5	*Allium carinatum* L. subsp. *pulchellum* Bonnier	medicinal	rare and under threat
6	*Allium flavescens* Besser	a very poor nectar source	-
7	*Allium flavum* L.	edible 2/5, high medicinal value, a nectar source, decorative	-
8	*Allium paniculatum* (Waldst. & Kit.) subsp. *fuscum* Arcang	a very poor nectar source	-
9	*Allium gutatum* Steven	medicinal	rare and under threat
10	*Allium lusitanicum* Lam.	edible, medicinal, a poor nectar source	-
11	*Allium moschatum* L.	a poor nectar source, edible	in Romania is rare and under threat
12	*Allium obliquum* L.	edible, medicinal	vulnerable and protected
13	*Allium paniculatum* L.	edible	not used in Romania
14	*Allium rotundum* L.	medicinal-food,	-

No. crt.	Species	Categories of uses	Observations
		a nectar source, decorative	
15	*Allium scorodoprasum* L.	medicinal, a nectar source	-
16	*Allium sphaerocephalon* L.	high medicinal value, edible, a nectar source	subsp. *sphaerocephalon* is sporadic, subsp. *arvense is* rare
17	*Allium ursinum* L.	very good culinary food, high medicinal value, a poor nectar source, decorative	-
18	*Allium victorialis* L.	edible, medicinal, a poor nectar source	sporadic and threatened
19	*Allium vineale* L.	good edible, appreciated medicinal	small quantities of bulbs can be harvested
20	*Bulbocodium versicolor* (Ker Gawl.) Spreng.	decorative	rare and underthreatened, bulbs are harvested alternately at intervals of 1-3 years
21	*Galanthus elwesii* Hook. f.	decorative, high medicinal value	in Romania it is rare and under threat
22	*Galanthus nivalis* L	medium nectar source, high medicinal value, insecticide, decorative, dyeing, toxic	vulnerable in Romania, is globally threatened and in Europe
23	*Galanthus plicatus* M. Bieb.	decorative, medicinal	rare and under threat
24	*Leucojum aestivum* L.	high medicinal value, toxic, dyeing, decorative	vulnerable species, harvesting is strictly prohibited
25	*Leucojum vernum* L.	decorative, toxic, medicinal	harvesting with caution
26	*Narcissus poeticus* L. subsp. *radiiflorus* (Salisb.) Baker	medicinal, toxic, decorative	in Romania it is vulnerable, harvesting is strictly prohibited
27	*Sternbergia colchiciflora* Waldst. & Kit.	medicinal	rare in the Flora of Romania

Araceae Family

Araceae family has only 3 attractive species with a modified, white or yellowish-green leaf that envelops the inflorescence; the most widespread are *Arum orientale* and A. *maculatum*, popularly known as the Fruit of the Earth; they are toxic, decorative, they have significance in popular beliefs, they have been used empirically in human and veterinary medicine, their harvesting must be done with caution, alternately at intervals of 2-3 years. They are not important for beekeeping.

Calla palustris L., the Dragon's Tail, is decorative in landscaped swamps, it has therapeutic properties for flu, colds, rheumatism, bleeding (Plants for a Future, 2012–2022). It is sporadically spread in ponds, swamps, watersides, reliefs, from the plain to the spruce forest level, it is a glacial relic, under threat in the flora of Romania; harvesting the underground parts is strictly prohibited (Table 4).

Table 4. Species with economic value from the Araceae Family

No. crt.	Species	Categories of use	Observations
1	*Arum maculatum* L.	medicinal, toxic, veterinary medicine, decorative, very weak nectar source, popular beliefs	
2	*Arum orientale* M. Bieb. subsp. *orientale*	toxic, medicinal, decorative,	

No. crt.	Species	Categories of use	Observations
		meliferă	
3	*Calla palustris* L.	decorative, medicinal	glacial relict, under threat, in Romania it is strictly protected

Butomaceae Family

Butomaceae Family is represented by a single species, *Butomus umbellatus* L., Marsh Lily, commonly found in swamps, reedbeds, along the banks of slow-flowing waters, in plains and hills.

It has decorative value, the flowers are attractive, fragrant, can naturalize ponds and swimming pools, they attract fauna, the seeds are fodder for water birds (Preda M., 1989; Oakes A.J., 1990; Khanbabyeva O.E. et al., 2021), it is a mediocre honey plant (Pop I., 1982).

The roots and the seeds can be consumed (3/5) without any danger (Pop I., 1982; Plants for a Future, 2012–2022; Keskin M., et al., 2024). As a medicinal plant it has antimicrobial activity on *Bacillus subtilis* (Marian S.F., 1870-1907; Özbay H., Alim A., 2009). In Romania it is rarely used (Table 5).

Table 5. Useful species from the *Butomus umbellatus* L.

No. crt.	Species	Categories of uses	Observations
1	*Butomus umbellatus* L.	edible 3/5, medicinal, mediocre nectar source, decorative	-

Colchicaceae Family

All species of the genus *Colchicum* are toxic and decorative (Table 6).

Colchicum arenarium Waldst. & Kit. contains alkaloids and polyphenols in all parts of the plant, including colchicine 0.16%; in the flowers there are higher amounts of polyphenols (Gasič V., Popovič M., 1979; 1980). It grows on sandy places in forest-steppe and oak forests, it is rare and endangered, bulbs and seeds are used but harvesting is strictly prohibited (Dihoru G., Boruz V., 2014).

Colchicum autumnale L. is common and depreciates the quality of mountain meadows, is toxic in fodder for all animals, it gives an attractive autumn appearance to meadows after they are mowed. It has been studied a lot as a medicinal plant and for cytogenetics, but its toxicity must be taken into account. For beekeepers it is a medium nectar source plant.

Colchicum soboliferum (C. A. Mey.) Stef. (Syn. *Merendera sobolifera* C. A. Mey) from salty coastal sands, is rare and vulnerable on the territory of Romania.

Colchicum triphyllum Kunze is sporadic in the steppe and forest-steppe, under threat; harvesting of roots and seeds is strictly prohibited (Dihoru G., Boruz V., 2014).

Table 6. Appreciations for *Colchicum*

No. crt.	Species	Categories of use	Observations
1	*Colchicum arenarium* Waldst. & Kit.	toxic, medicinal, decorative	rare and endangered
2	*Colchicum autumnale* L.	medium nectar source, medicinal, toxic, decorative	-
3	*Colchicum soboliferum* (C. A. Mey.) Stef	medicinal, decorativ	rare and vulnerable
4	*Colchicum triphyllum* Kunze	toxic	under threat

Cyperaceae Family

Only few species of Cyperaceae are used as animal fodder. *Carex curvula* plants have medium fodder value but with very low degree of consumption. Mediocre fodder are *Carex leporina* and *C. riparia* are mediocre fodder. The poor fodder category includes: *Bolboschoenus maritimus, Carex acuta, C. divisa, C. hirta, C. humilis, C. pallescens, C. praecox, C. sempervirens, C. vulpina* and *Scirpus sylvaticus*. There are biochemistry studies for the following fodder plants: *Carex diandra, C. lepidocarpa, C. pseudocyperus, Schoenoplectus lacustris,* etc. It is said that these plants have minerals and metabolically active compounds useful for animals and from this point of view they are suitable for feeding. If they are not preferred we must also take other factors into account, such as high content of indigestible fibers, taste, habituation to another fodder of better quality, etc.

Cyperaceae are considered harmful in grasslands exploited in pastoral regime; Romanian authors refer to their presence in swamps, sandy soils or soils that are very poor in minerals where they cover the soil to the detriment of species with good fodder value. This category includes the following: *Bolboschoenus maritimus* (L.) Palla,

Carex acuta L., *C. caryophyllea* Latourr., *C. colchica* J. Gray, *C. curta* Gooden, *C. davalliana* Sm., *C. hirta* L., *C. hostiana* DC., *C. montana* L., *C. melanostachya* M. Bieb., *C. michelii* Host., *C. nigra* (L.) Reichard, *C. panicea* L., *C. pauciflora* Lightf., *C. pilosa* Scop., *Schoenoplectus lacustris* (L.) Palla, *S. tabaernaemontani* (C. C. Gmel.), *Scirpus sylvaticus* L., etc.

For ecological restoration, the following plants are good: *Carex colchica, C. sylvatica, Schoenoplectus lacustris*, etc. For phytoremediation, can be used *C. pendula, C. riparia, Eleocharis acicularis, Scirpus sylvaticus,* etc. Weak decontamination is done with *C. pilosa, C. remota, C. rostrata, Cyperus longus*, etc. For covering and protecting the soil with vegetation in ecological restoration works, the following can be used: *Carex caryophyllea, Carex cuprina, Carex divisa, C. precox, C. stenophylla, Schoenoplectus triqueter* etc.

For the establishment of green spaces and for some ecological restoration works, plants from this family can also be used; in this regard we mention the following examples: *Carex acuta, C. acutiformis, C. appropinquata. C. atrata, C. capillaris, C. colchica, C. disticha, C. elata, C. flacca, C. flava, C. hirta, C. lasiocarpa, Carex nigra, C. pendula, C. riparia, C. sylvatica, C. vesicaria, C. vulpina, Cladium mariscus, Eleocharis acicularis, Eriophorum angustifolium, E. latifolium, E. vaginatum, Schoenoplectus lacustris, Scirpoides holoschoenus* (*Holoschoenus vulgaris*) etc.

Most species of *Carex* are biochemically unknown and are not toxic. The most important substances of these plants are stilbenes and flavonoids; some of them have food value, their seeds and the very young leaves are edible (Niesen D.B. et al., 2014; Gajbhive R. et al., 2024; Plants for a Future, 2012–2022).

The inflorescence buds and their seeds contain nutrients; we believe that they are not sufficiently studied and they were occasionally consumed in difficult life situations by other peoples, but we do not know if by ours. These plants are: *Bolboschoenus maritimus* (L.) Palla *Carex acutiformis* Ehrh., *C. brizoides* L., *C. caryophyllea* Latourr., *C. colchica* J. Gray, *C. cuprina* (Sándor ex. Heuff.) Nendtv. ex A. Kern, *C. divisa* Huds., *C. divulsa* Stokes, *C. echinata* Murray, *C. elata* All., *C. filiformis* L., *C. flacca* Schreb., *C. hirta* L., *C. muricata* L., *C. pallescens* L., *C. pendula* Huds., *C. pilosa* Scop., *C. remota* L., *C. riparia* Curtis, *C. sylvatica* Huds, *C. vesicaria* L., *Cyperus flavescens* L., *C. fuscus* L., *C. glomeratus* (L.) Palla, *C. hamulosus* M. Bieb and *Cyperus longus* L., *Eleocharis carniolica* W. D. J. Koch, *E. palustris* (L.) Roem & Schult, *Fimbristylis bisumbellata* (Forsk.) Bubani, *F. dichotoma* (L.) Vahl, *Isolepis setacea* (L.) R. Br., *Schoenoplectus supinus* (L.) Palla, *Schoenus nigicans* L., etc. (Keskin M. et al., 2024)

Bolboschoenus maritimus (L.) Palla had culinary interest in the past for some peoples, the tubercles are edible in early spring, during the growth phase and the seeds are edible in autumn; they have 1/5 medicinal value, they are beneficial in amenorrhea, dysmenorrhea, abdominal pain, indigestion, etc. (Plants for a Future, 2012–2022; Keskin M. et al., 2024), In China the roots are used as astringents and diuretics (David G.Z. et al., 2021).

It has no fodder importance, it is undesirable in grazed swamps, it has high productivity, 19.5 t/ha (Dykyjová D. 1983), hay is of poor quality (Mishra S., et al., 2016); it is used in ancient times as a filling for pillows, mattresses, braids, baskets, fuel, (Plants for a Future, 2012–2022; Erkal-Tsetsekos A., 2008).

After grassing it allows the restoration of grasslands diversity in degraded and fragmented natural habitats, in wetlands (Török P. et al., 2009).

It is a valuable bioindicator for sediment monitoring (Jenačković D.D. et al., 2016), it accumulates Mn, Ba, Cd, Co, Ti, Fe in small quantities (Grãtao et al., 2005; Mishra S. et al., 2016), it tolerates salty soil (Khan A., Qaiser M., 2006), it participates in the decontamination of waters polluted with DDT (Syranidon E. et al., 2016).

Carex acuta L. is widely spread, from the plain to the spruce forest floor, it is not important as a fodder; there are different opinions; it is useful as a decorative ground cover in wet and shady areas, also in gardens with aquatic basins (Oakes A.J., 1990).

Carex acutiformis Ehrh. is common in swamps, from plains to mountainous areas; it produces significant amounts of phytomass with medium calorific value (Busch J., 2001; Grzelak M. et al., 2016); the aerial parts are good for animal bedding (Plants for a Future, 2012–2022); it is used as decorative plant in landscaped spaces for ground cover and in dried bouquets (Oakes A.J., 1990).

Carex appropinquata A. Schumach. forms very dense clumps in swamps, wet meadows, temporarily submerged, from the hilly area to the spruce forest floor. It is harmful to meadows (Kovacs A., 1979); where it is dominant it produces large quantities of phytomass, with very good energy value, from which pellets and briquettes can be obtained as a fuel source. It has also a decorative appearance. (Harkot et al., 2007; Grzelak M. et al., 2019).

Carex atrata L. has almost black and attractive inflorescences; with it we can naturalize humid, cool and shady places (Oakes A.J., 1990).

Carex brevicolis DC. is toxic (Pop I., 1982).

Carex brizoides L. is coloring (Pop I., 1982).

Carex capillaris L., covers the ground in decorative gardens; it is also used in bouquets with dried flowers.

Carex caryophyllea Latourr. is frequent, harmful to meadows (Kovacs At., 1979), protects dry and semi-dry soils (Török P. et al., 2019).

Carex colchica J. Gray is rare, from sandy, maritime and continental dunes, from the plain area, it has no fodder value, it is competitive and harmful in controlled exploited meadows (Maruşcă T., 2019).

The roots and seeds are edibility score of 2/5, a medicinal score of 2/5, with effects in bronchitis, catarrh, stomach and abdominal disorders, arthritis, rheumatism, psoriasis, pruritus (Plants for a Future, 2012–2022; Keskin M. et al., 2024).
It is very good for stabilizing sands and for covering and protecting sandy soils. It is invasive in other countries, it is competitive and recommended as a decorative plant on sandy places. After maturation it is brown and can be used in floral arrangements (Oakes A.J., 1990).
Carex curvula All. subsp. *curvula* grows sporadically, it il locally abundant in the alpine zone, can be consumed green, it has a medium fodder value of 5/9, with a useful phytomass of 1/9 (Marușcă T., 2019). It produces a small amount of pollen (Dihoru G., 2023).
Carex diandra Schrank. it grows sporadically in wet meadows and peat bogs, in hilly and mountainous areas; it is a glacial relic in the Flora of Romania, it contains phenolic acids and appreciable amounts of micro- and macroelements, it is suitable for animal feed (Janyszek-Soltysiak M. et al., 2021; Gajbhive R. et al., 2024).
Carex digitata L. and *C. distans* L. contain luteolin (Gajbhive R. et al., 2024).
Carex disticha Huds. produces a large amount of phytomass for pellets and briquettes but is sporadically spread in Romania and economically unprofitable. In landscaped gardens it is decorative, the seeds are very poorly edibility score of 1/5 (Plants for a Future, 2012–2022; Gajbhive R. et al., 2024; Harkot et al., 2007; Grzelak M. et al., 2019).
Carex divisa Huds. has a sporadic spread on the salty soils of the plain, it is fodder (Khan A., Qaiser M., 2006).
Carex divulsa Stokes is frequent from the plain to the beech floor, contains flavonoids- such as luteolin, it was used in the past by the Turkish for nutritional purposes (Gajbhive R. et al., 2024; Keskin M. et al., 2024).
Carex elata All., has sporadic distribution, seeds edibility score of 2/5 (Keskin M. et al., 2024; Gajbhive R. et al., 2024), significant amounts of phytomass with medium caloric value (Busch J., 2001; Grzelak M. et al., 2016) and it is useful in zootechnics and for animal bedding (Plants for a Future, 2012–2022). As a decorative plant it covers the ground as it is weakly invasive (Davidson C.G., Gobin S.M., 1998).
Carex flacca Schreb is widely distributed, from the evergreen oak level to the spruce level, it is decorative; can be a substitute for grass in shady places, it covers the ground well, it is drought resistant (Oakes A.J., 1990).
Carex flava L. is widely distributed in hilly and mountainous areas swamps, it is suitable for decorative gardens with aquatic pools, peat bogs, shady places. It can be grown in pots (Oakes A.J., 1990), it contains nutrients (Gajbhive R. et al., 2024).
Carex hirta L. is widely distributed, from the plain to the spruce forest floor, it forms dense populations, it is harmful to controlled exploited grasslands, it has poor fodder value (Kovacs A., 1974; Pop I., 1982). In decorative spaces it covers the ground (Oakes A.J., 1990). The roots and seeds were empirically consumed by Indians and Turkish, they contain nutrients, they have a diuretic, antitumor effect, can be used in bronchitis, hematopoietic disorders, amenorrhea, (Usher G., 2024; Gajbhive R. et al., 2024; Keskin M. et al., 2024; Plants for a Future, 2012–2022).
Carex humilis Leyss has a sporadic spread in hilly and mountainous areas, is a poor fodder 4/9, with very little useful phytomass 1/9 (Marușcă T., 2019), it is studied as a medicinal plant (David G.Z. et al., 2021; Gajbhive R. et al., 2024).
Carex hostiana DC. is sporadic in swampy meadows and undrained springs, from the evergreen oak level to the spruce level, it is harmful to meadows (Kovacs A., 1979), it is studied for pharmacy (Gajbhive R. et al., 2024).
Carex lasiocarpa Ehrh. has landscape, caloric value, poor source of biogas from wet plants (Grzelak M. et al., 2016; Roj-Rojewski S. et al., 2019).
Carex lepidocarpa Tausch. is an adequate source of nutrients for animal feed (Janyszek-Soltysiak M. et al., 2021; Gajbhive R. et al., 2024).
Carex leporina L. has frequent distribution, from the hilly area to the spruce level, mediocre fodder value (Pop I., 1982).
Carex nigra (L.) Reichard is harmful in swampy meadows, can be decorative in natural green spaces, is moderately invasive (Kovacs At., 1979; Oakes A.J., 1990; Davidson C.G., Gobin S.M., 1998).
Carex pallescens L. is common in hilly and mountainous areas, has poor fodder value 4/9, with useful phytomass 3/9 (Marușcă T., 2019).
Carex paniculata L. is common on swampy soils, from the hilly area to the mountainous area, it produces large amounts of phytomass, it has very poorly edibility roots and seeds score of 1/5. It is useful for mountain human settlements; it can be used in zootechnics as bedding for animals. If it is cultivated after farm manure settling stations, it is effective for the treatment of rainwater and wastewater contaminated with NH_4 and NO_3. (Busch J., 2001; Fernandez D.C. et al., 2019; (Plants for a Future, 2012–2022).
Carex pauciflora Lightf. is sporadically widespread in well-lit places in peat bogs and peaty swamps, from the mountain to the subalpine level. It is considered harmful to exploited meadows (Kovacs A., 1979) but it should be emphasized that it is a glacial relic in the Flora of Romania and needs to be protected.
Carex pendula Huds. is a tall plant, attractive with its hanging inflorescences, frequent in forests, on permanently moist but not flooded soils, it is rich in humus, widespread from the floors of the evergreen oak and beech forests.

As a decorative plant it holds up well in landscaped green spaces because it is weakly invasive (Davidson C.G., Gobin S.M., 1998). In its roots it can accumulate and tolerate Pb from wastewater up to 1600 mg/kg (Yadev B. et al., 2011). If it is used for phytoremediation it is effective because it produces a large amount of phytomass. There is little information about the value of the seeds (David G.Z. et al., 2021; Keskin M., et al., 2024).
Carex pilosa Scop. is widely spread, from the plain to the beech forest floor, it is harmful to exploited meadows (Kovacs At., 1979), it accumulates Cu (Jamnická G. et al., 2015).
Carex praecox Schrb. is widely spread, from the plain to the beech forest level, has a poor fodder value of 4/9, with a useful phytomass of 2/9 (Maruşcă T., 2019), it covers and protects the soil (Török P. et al., 2019).
Carex pseudocyperus L. is an adequate source of nutrients, it is suitable for animal feeding (Janyszek-Soltysiak M. et al., 2021; Gajbhive R. et al., 2024).
Carex remota L. is widely spread from plains to mountains, it stabilizes soils on sloping sites in wetlands, it accumulates small amounts of Pb, Cd, Cr, Mn (Kempers, 2001; Mishra S., et al., 2016). The seeds contain nutrients (Gajbhive R. et al., 2024; Keskin M. et al., 2024).
Carex riparia Curtis is widely spread, from the plains to the spruce forest level, it produces a large amount of phytomass, it is a mediocre fodder if it is young harvested; in the stem elongation phase, old plants with spikes are used in zootechnics as bedding for animals. It has good calorific value and can be a source of energy for pellets and briquettes (Busch J., 2001; Pop I., 1982; Plants for a Future, 2012–2022; Harkot et al., 2007; Grzelak M. et al., 2016; 2019). It cleans waters that are contaminated with heavy metals and it has a decorative appearance (Preda M., 1989; Syranidon E. et al., 2016).
Carex rostrata Stokes has the same uses as *C. riparia*, it is frequent but spread over smaller areas because it grows in swamps covered by water. If it is cultivated on mine tailings dumps it achieves poor decontamination (Soltz and Greger, 2002; Lehman C., Rebell F., 2004).
Carex sempervirens Vill. is frequently spread in high mountain areas, has a poor fodder value 4/9, with a very low useful phytomass 2/9 (Maruşcă T., 2019).
Carex stenophylla Wahlenb. is heliophilous, sporadically spread from the plain area to the beech level, it has ecological importance, it can cover saline lands with vegetation (Khan A., Qaiser M., 2006; Török P. et al., 2019).
Carex supina Willd. ex Wahlenb. It is rare spread, from steppe areas to the beech level, it has ecological importance, it is adapted to severe conditions of dryness and nitrogen deficiency, it covers and protects soils (Török P. et al., 2019).
Carex sylvatica Huds is common in the herbaceous carpet of shady forests, especially in the mountains, it remains in the climax stage (Burri K. et al., 2009); it often protects the soil against erosion, can be grown as a decorative and ground cover, under trees and shrubs on slopes and banks, it attracts fauna (Oakes A.J., 1990; Plants for a Future, 2012–2022).
Carex vesicaria L. is common in swamps covered with water, from the plain to the mountain level, has high productivity, if it is predominant in meadows, can be used for pellets and briquettes, has very good energy value, decorative appearance (Harkot et al., 2007; Grzelak M. et al., 2019).
Carex vulpina L., forms dense populations in meadows on heavy, slightly saline soils. If it is harvested before flowering, it is poor fodder 4/9, with useful phytomass 5/9 (Maruşcă T., 2019), after flowering it is decorative (Preda M., 1989).
Cladium mariscus (L.) Pohl. is sporadically distributed, it has the same uses as reed; in economically disadvantaged areas it has been used for roofs of animal shelters, haystacks, source of phytomass, fuel. It is rich in textile fibers, indigestible by animals, it has poor fodder value, cannot be consumed by animals. The leaves and the sprouts contain nutrients; they have very poor edibility 1/5, (Plants for a Future, 2012–2022; Keskin M. et al., 2024); the seeds can be consumed for colds, kidney and gastrointestinal problems, they do not present toxicity. In Spain this plant is in the attention of veterinary medicine, the pharmaceutical and cosmetic industries (Oliveira M., et al., 2021; Rodriguez M.J. et al., 2022). It has also been used as a source of sawdust in textile factories to retain dyes from wastewater (Bartczak P. et al., 2022). It has an attractive appearance (Oakes A.J., 1990).
Cyperus flavescens L., *C. fuscus* L. and *C. glomeratus* (L.) Palla, are honey plants without nectar but with a low pollen content (Dihoru G., 2023). *C. longus* L. subsp. *longus* has a sporadic spread in humid environments in steppe and hill areas; it is vulnerable. The root and seeds contain stilbenes, antioxidant and antiallergic substances (David G.Z. et al., 2021); they can be used to obtain drinks. The stems are tall, contain good quality textile fibers, can be used to weave baskets and hats. *C. glomeratus* (L.) Palla (*Clorocyperus glomeratus* (L.) Pala) contains fibers but it is shorter than the other one (Zeven A.C., de Wet J.M.J., 1975).
Eleocharis acicularis (L.) Roem. & Schult. has a sporadic distribution in Romania. This plant has been studied in many countries for the decontamination of waters polluted with heavy metals; it is easy to be cultivated, effectively, it removes, in different proportions, As, Mo, St, Cu, Zn, Pb, Sb, Zn, Cd, Hg, Sb, Ni, Fe, Mn, Cr (Hasegawa H., 2011; Ha N.T.H., 2009; Gao J. et al., 2015; Rahman M.A. ; Sakaibara M., 2011; 2016; Sood A. et al., 2012; Thi Hoang Ha N. et al., 2011; Yamazaki Sh. et al., 2018). It accumulates salt (Guesdon G. et al., 2016). It is decorative in green spaces with water bodies and peat bogs (Oakes A.J., 1990).

Eleocharis palustris (L.) Roem & Schult has been used in zootechnics for animal bedding and for restoration of wetlands; it accumulates small amounts of Pb, Cu, Ni, Cr, Zn, Al, (Fernandez-Garciá, Perez F.J., 2016; Vardanyan, Ignole, 2006, in: Mishra S., et al., 2016; Plants for a Future, 2012–2022) etc.
On the swamps in mountainous areas, there are landscapes with *Eriophorum* which are attractive with tufts of white hairs in the inflorescences.
Eriophorum angustifolium Honck. can be grown in tailings dumps from mines but has low phytomass (Soltz and Greger, 2002; Lehman C., Rebell F., 2004).
Eriophorum latifolium Hoope can be cultivated as a decorative plant in eutrophic or slightly acidic swamps (Preda M., 1989).
Eriophorum vaginatum L. grows on acidic swamps; it can be cultivated on peaty, very acidic soils (Oakes A.J., 1990).
Fimbristylis bisumbellata (Forssk.) Bubani is rare in Romania. In England, it naturally colonizes ash deposits from thermal power stations (Gajic G. et al., 2019).
Schoenoplectus has ecological importance, it retains suspensions from water, participates in soil formation, in decontamination and vegetation succession in humid environments. The biochemistry of these plants is little known, in Romania they are not used as fodder.
Schoenoplectus lacustris (L.) Palla produces a large amount of phytomass, is a good bioindicator for sediment monitoring (Jenačković D.D. et al., 2016). It is good for restoring vegetation in wet mining areas contaminated with heavy metals. It is decorative, very attractive on the water's edge, it is among the most appreciated water plants (Preda M., 1989; Oakes A.J., 1990; Khanbabyeva O.E. et al., 2021). I have seen it growing luxuriantly in water with oil residues.
S. tabernaemontani (C. C. Gmel.) Palla has the same uses.
S. triqueter (L.) Palla tolerates salty soil and it is good for covering salty marshlands with vegetation (Khan A., Qaiser M., 2006).
S. litoralis (Schrad.) Palla is rare, undermentioned, accumulates heavy metals.
Scirpoides holoschoenus (L.) Sojak (*Holoschoenus vulgaris* Link.) is decorative (Preda M., 1989); the basal part of the young stems can be eaten raw as a snack (Tardio J. et al., 2006; Keskin M. et al., 2024).
Scirpus sylvaticus L. is a poor fodder for horses if it is harvested in the growth phase, it is good for retaining organic substances (Vergeles Y. et al., 2015), As, Sb but also smaller amounts of Fe, Mn from polluted sediments (Hozhina E. I, et al., 2001).
In the table below we have inserted only the species with well-defined uses (Table 7).

Table 7. Species with ecological and economic value from the Cyperaceae family

No. crt.	Species	Categories of use	Observations
1	*Bolboschoenus maritimus* (L.) Palla	poorly edible, poorly medicinal, very poorly fodder, textile industry, poorly phytoremediation, bioindicators	-
2	*Carex acuta* L.	mediocre fodder, decorative	-
3	*Carex acutiformis* Ehrh.	poorly edible 1/5, zootechnics, good source of phytomass, decorative	-
4	*Carex appropinquata* A. Schumach.	source of phytomass, decorative	-
5	*Carex atrata* L.	decorative	-
6	*Carex brevicolis* DC.	toxic	-
7	*Carex brizoides* L.	poorly edible 1/5, coloring	-
8	*Carex capillaris* L.	decorative	-
9	*Carex caryophyllea* Latourr.	protects soils	-
10	*Carex colchica* J. Gray	edible 2/5, medicinal 2/5, ecological restoration, decorative	rare
11	*Carex cuprina* (Sándor ex. Heuff.) Nendtv. ex A. Kern.	ground cover	-
12	*Carex curvula* All.	mediocre fodder	-
13	*Carex diandra* Schrank.	mediocre fodder	glacial relict in the Flora of Romania
14	*Carex disticha* Huds.	decorative, source of phytomass, poorly edible 1/5	-
15	*Carex divisa* Huds.	ground cover,	

No. crt.	Species	Categories of use	Observations
		poor fodder	
16	*Carex elata* All.	edible seeds 2/5, source of phytomass, zootechnics, decorative	
17	*Carex flacca* Schreb	decorative	
18	*Carex flava* L.	decorative	
19	*Carex hirta* L.	fodder, poorly edible 1/5, medicinal 1/5, decorative	
20	*Carex humilis* Leyss	poorly fodder, medicinal	
21	*Carex lasiocarpa* Ehrh.	poorly energetic, decorative	
22	*Carex lepidocarpa* Tausch.	good fodder	
23	*Carex leporina* L.	mediocre fodder	
24	*Carex nigra* (L.) Reichard	decorative	
25	*Carex pallescens* L.	poorly fodder	
26	*Carex paniculata* L.	poorly edible 1/5, zootechnics	
27	*Carex pendula* Huds.	decorative, phytoremediation	-
27	*Carex pilosa* Scop.	poorly phytoremediation	-
28	*Carex praecox* Schrb.	poorly fodder, protects the soil	-
29	*Carex pseudocyperus* L.	good fodder	-
30	*Carex remota* L.	poorly phytoremediation	-
31	*Carex riparia* Curtis	mediocre fodder, poorly edible 1/5, zootechnics, source of phytomass, decorative, phytoremediation	-
32	*Carex rostrata* Stokes	source of phytomass, poor phytoremediation	-
33	*Carex sempervirens* Vill.	poorly fodder	-
34	*Carex stenophylla* Wahlenb.	ground cover	-
35	*Carex supina* Willd. ex Wahlenb.	ground cover	rare
36	*Carex sylvatica* Huds	ecological restoration, decorative	-
37	*Carex vesicaria* L.	phytomass source, decorative	-
38	*Carex vulpina* L.	poorly fodder, decorative	-
39	*Cladium mariscus* (L.) Pohl.	household uses, veterinary medicine, decorative, poorly edible 1/5	-
40	*Cyperus glomeratus* (L.) Palla	handicraft	-
41	*Cyperus longus* L.	edible 2/5, handicraft, phytoremediation	vulnerable
42	*Eleocharis acicularis* (L.) Roem. & Schult.	very good phytoremediation, decorative	-
43	*Eleocharis palustris* (L.) Roem & Schult	zootechnics, poor phytoremediation	
44	*Eriophorum angustifolium* Honck.	decorative, poor phytoremediation	-
45	*Eriophorum latifolium*	decorative	-
46	*E. vaginatum* L.	decorative	-
47	*Fimbristylis bisumbellata* (Forssk.) Bubani	ecological restoration	rare in Romania
48	*Schoenoplectus lacustris* (L.) Palla	ecological restoration, decorative	-
49	*Schoenoplectus litoralis* (Schrad.) Palla	phytoremediation	rare, under threat
50	*Schoenoplectus tabernaemontani* (C. C. Gmel.) Palla	ecological restoration	-

No. crt.	Species	Categories of use	Observations
51	*Schoenoplectus triqueter* (L.) Palla	ground cover	-
52	*Scirpoides holoschoenus* (L.) Sojak	decorative	-
53	*Scirpus sylvaticus* L.	poorly fodder, phytoremediation	-

Dioscoreaceae Family

Dioscorea communis (L.) Caddick & Wikin (*Tamus communis* L.), Butter of the Earth, is sporadically distributed in forests, at the edges of forests and glades, from the forest-steppe to the beech level (Table 8).

The leaves and braised or raw shoots are edibility score of 1/5. By boiling, the toxicity of the shoots is removed. The rhizome is consumed in France, Italy, Turkey and Hungary. (Tardio J. et al., 2006; Plants for a Future, 2012–2022). It is a rich source of antioxidants, flavonoids and carotenoids, it can be used in the food industry, for protection against oxidative damage (Boumerfeg S. et al., 2009; Zerargui F. et al., 2016).

It has been used as an anti-inflammatory and analgesic remedy for centuries (Slavova I., 2024).

Crăciun F. et al. (1976 - 1977) and Pârvu C. (2014) highlight uses of this plant for treating contusions, bruises, gout, rheumatism. Scarlat M.A. (2019) reminds us that the rhizome macerated in lamp oil is used by Romanians for articular rheumatism, lumbosciatica, arthritis, cervical spondylosis, leg pain, gout, arthrosis, contusions, bruises, mounts, trauma, hematomas, frontal and maxillary sinusitis.

Wissane A. (2018) indicates it to quickly treat hematomas; it is good for osteoarthritis, lumbago, dermatoses, gout, rheumatism.

Amraoni N. et al. (2019) states that it is antirheumatic in small doses.

In Bulgaria, the plant juice or the macerate is applied externally on trauma, rheumatic and muscular pain, in sciatica to increase blood supply due to irritation, in lumbago (El Beyrouthy Mare et al., 2008), externally on bruises, joints, rheumatism, together with arnica in blows. (Plants for a Future, 2012–2022).

Other effects are in pleurisy, whooping cough, bronchitis, inflammatory conditions (Capasso F. et al., 1982). It has antiproliferative effects on cancer cells in the bladder and lungs (Bilušić T. et al., 2019).

The berries are coloring.

It is toxic, irritating to the skin, internally it causes vomiting, diarrhea, irritation of the digestive mucosa (Zanoschi V. et al., 1981; Wissane A., 2018; Plants for a Future, 2012–2022).

Harvesting is strictly prohibited. In recent decades, very old specimens have been harvested and we believe that no one has replanted them. It can be cultivated in dendro-floricultural spaces and as a medicinal plant (Pârvu C., 2002; Pop I., 1982; Preda M., 1989; Dihoru G., Boruz V., 2014).

Table 8. Uses of *Dioscorea communis* (L.) Caddick & Wikin (*Tamus communis* L.)

No. crt.	Species	Categories of use	Observations
1	*Dioscorea communis* (L.) Caddick & Wikin	edible, high medicinal value, dye, decorative, toxic	-

Hydrocharitaceae Family

To *Hydrocharitaceae family* groups aquatic plants that provide attractive landscapes on ponds, attract aquatic fauna and retain heavy metals; some of them are of nutritional and therapeutic interest. Water birds consume the turions of *Hydrocharis* and *Vallisneria*.

Elodea canadensis Michx and E. *nutalii* (Planch.) H. St. John, Plague of the waters, is adventitious and invasive in the Flora of Romania, it is frequently spread in the waters of the plain area, it has also penetrated the hilly area. It is known as a plant harmful to fish farming, currently it is appreciated for its role as a purifier of polluted waters and as a source of food for water birds, mammals, herbivorous fish.

The appearance of submerged plants in an aquatic basin is an indicator of the installation of the aging phase of the respective ecosystem.

There are numerous studies that attest to its role as a purifier of waters that are contaminated with heavy metals. Once these reach the metabolism of plants, they are accumulated in different quantities. It is indicated for biomonitoring and wastewater treatment (Samecka-Cymerman A., Kempers H.J., 2012; Ceglowska A. et al., 2015).

It resists and tolerates high levels of nitrates and heavy metals that it accumulates in different concentrations, the biomass of the plants is high, they are threadlike plants but they multiply quickly, they also occupy a large biovolume of water. From wastewater it accumulates Al, V, Cr, Mn, Co, Ni, Cu, Zn, Cd, Pb, S, Mn, Fe (Krems P. et al., 2013; Maleva et al., 2009; Rahman M.A., Hasegawa H., 2011; Sankaranaryanan V. et al., 2023; Sood A. et al., 2012; Trojanowski J. et al., 2013). It accumulates large amounts of Zn, Cu and Cd (Myquist J., Greger M., 2006). It retains As, predominantly in the stems, it can remove it from water up to 75%. It is the best for removing

this heavy metal (Bergqvist C., Greger M., 2016; Picco P. et al., 2019). According to Borisova G. et al. (2016) it performs moderate phytoremediation with heavy metals.
Elodea together with *Lemna minor* has a better yield (Bishop P.L., Eighmy T.T., 1989).
Radionuclides discharged into ponds and wetlands accumulate in this plant which has a role in decontamination through bioaccumulation, one of this radioactive element is Cs_{137} (Cecal A. et al., 2001; Dushenkov S., 2003).
It absorbs and transforms organophosphorus pesticides, accumulates DDT (Chi J., Yang Q., 2012; Gao J. et al., 2000), it removes fungicides (Danson-Olette R. et al., 2009).
If the work of removing this plant is economically profitable, it is a source of green organic fertilizer for agriculture and biogas (Escobar M.M. et al., 2011; Poveda J., 2022).
Where restoration of wetlands with hydrophytes is necessary, *Elodea canadensis* is decorative, often it naturally invades (Preda M., 1989; Rodrigo M.A., 2021).
Hydrocharis morsus-ranae L. is fodder for many animals, including insects, rodents, waterfowl, snails and fish (Zhu B. et al., 2018).
It is a bioindicator, very good for bioremediation, very well removes Pb, Cu, Mn, Fe, Ni, Co, Hg, Cr, Fe (Galczyńska M. et al., 2019; Polechońska L., Samecka-Cymerman L., 2015; Polechońska L. et al., 2018). Cultivated downstream of household water basins, it has a decorative appearance and produces a large amount of biomass (Preda M., 1989).
Vallisneria spiralis L., the Water Snake, is an adventitious plant in the Romanian flora, sporadically distributed in stagnant or gently flowing waters, in plain and hilly areas. It is often cultivated as an ornament in aquariums, providing food and shelter for fish and other aquatic animals. Harvested from clean waters, it has nutritional and therapeutic value (Keskin M. et al., 2024; Khare C.P., 2007).
The leaves and the roots can be bioindicators, they accumulate Cu, Cd, Hg, Cr., Ni, pesticides from agriculture (Gupta M., Chandra P., 1998; Rahman M.A. & Hasegawa H., 2011; Sarma H., 2011; Sinha et al., 1994; ap. Qayoon I. & Jaies I., 2022; Vernia et al., 2008); the plant is also good for the elimination of polycyclic aromatic hydrocarbons (He Y., Chi J., 2014; Liu H., et al., 2014). It is vulnerable in Romania, it can be introduced to restore wetlands with hydrophytes (Oprea Ad., 2005; Rodrigo M. A., 2021).
Stratiotes aloides L., Pond Scissors, is sporadically spread, sometimes frequent in stagnant or gently flowing waters, from the steppe zone to the sessile level. It covers the water surface of ponds very well, it is invasive, it has a decorative appearance (Preda M., 1989), it chelates heavy metals (Gawlik-Dziki U. et al., 2020), it contains nutrients (Buckingham J., Munasinghe V.R.N., 2015; Keskin M. et al., 2024). The shoots and young shoots are a very good fodder for wild ducks (Strzmeski M. et al., 2024). It is vulnerable (Table 9).

Table 9. Species with ecological and economic value from the Hydrocharithaceae Family

No. crt.	Species	Categories of use	Observations
1	*Elodea canadensis* Michx.	good phytoremediation, green manure, decorative, ecological restoration	-
2	*E. nutalii* (Planch.) H. St. John	good phytoremediation, green manure, decorative, ecological restoration	-
3	*Hydrocharis morsus-ranae* L.	good phytoremediation, decorative,	
4	*Vallisneria spiralis* L.	good phytoremediation, decorative	vulnerable
5	*Stratiotes aloides* L.	decorative, attracts fauna	vulnerable

Iridaceae Family
Irises are ornamental and medicinal plants with similar properties that could be better highlighted on a dendrogram. They are widely used in the perfume industry, food industry, pharmaceutical industry for the treatment of diseases related to oxidative stress, they can also be used in aromatherapy. There are very few studies on toxicity (Table 10).
Crocus banaticus J. Gay is sporadic in meadows and forests in hilly and mountain areas. In past centuries it was a dye plant, used in empirical treatments (Marian S.F., 1870-1906). In Romania it is used empirically and rarely, it does not produce nectar but it has a medium share of pollen (Dihoru G., Boruz V., 2014; Dihoru G., 2023).
Crocus chrysanthus (Herb.) Herb., Crocus, is a honey plant without nectar but with a medium share of pollen, rarely spread in lowland and mountain areas (Dihoru G., 2023).
Crocus flavus Weston, Yellow Croscus, common but vulnerable, it has decorative value (Pop I., 1982), a nectar source with only a medium share of pollen (Dihoru G., 2023) and protective. We don't have information about

biochemistry; past authors cite it as a toxic plant (Pop I., 1982), others have some indications about the nutritional substances (Keskin M. et al., 2024).
Crocus reticulatus Stev. is sporadic and vulnerable, widespread in plains and hills areas, used by Romanians as a dye, decorative, a nectar source plant with a medium share of pollen (Pop I., 1982; Dihoru G., 2023).
Crocus vernus (L.) Hill., Spring crocus, Mountain crocus, is frequent in hill and mountain areas, is dye, decorative, a medium nectar source (Preda M., 1989; Dihoru G., 2023; Pop I., 1982; Pop M., Pop O., 2007).
Gladiolus illyricus W. D. J. Koch, Gladiolas, is rarely spread, in plains and hills areas, it is a nectar source without nectar but with a medium share of pollen (Dihoru G., 2023). We have no information about biochemistry.
Gladiolus imbricatus L., Little Sword, is relatively frequently spread in wet meadows, from the sessile oak level to the beech level. The seeds and the alcoholic extract have an antibacterial effect in leucorrhoea (Crăciun F. et al., 1976 - 1977; Pârvu C., 2013). It is attractive, it can be cultivated in dendro-floricultural spaces (Pop I., 1982, Preda M., 1989), it is a nectar source, it is found on the red lists, harvesting it is strictly prohibited (Dihoru G., Boruz V., 2014).
Iris aphylla L. (Syn. I. *hungarica* Waldst. & Kit.) is sporadically spread in dry meadows, very poor in mineral nitrogen, on sandy-stony places, in plains and hills areas. It is medicinal, it contains polyphenols, it has a cardioprotective effect, it prevents neurodegenerative diseases, it is antidepressant, anti-inflammatory, analgesic, antibacterial, antioxidant, anticancer, improves metabolic diseases, treats candidiasis (Khatib S. et al., 2022). Extracts from rhizomes are used against influenza (Mykhailenko O. et al., 2023). It is decorative.
Iris graminea L., is frequently spread, it is destroyed by tourists, it is protected, very good for introduction into decorative crops (Kaššák P., 2012; Preda M., 1989).
Iris halophila Pall. is sporadically spread in steppe and forest-steppe areas, in marshes, meadows with saline or not saline soils. It is a medicinal plant, with ecological importance in phytoremediation (Han Y. et al., 2016). It is tolerant to Pb, which it accumulates more in the underground parts. For phytoremediation it has similar effects as *I. pseudacorus* and *I. sibirica*, it attenuates the concentrations of toxic metals and metalloids, also the excess nutrients (P, N), pesticides, petroleum hydrocarbons, pharmaceuticals, dyes (Crișan I. et al., 2021).
Iris humilis Georgi is rare, a tertiary relict in the Flora of Romania, it is globally threatened but also in Europe, it is spread from the forest-steppe to the sessile oak level (Oprea A., 2005). In the rhizomes it contains iridoids and other antioxidant substances in appreciable quantities that produce antiallergic, anticancer, analgesic, antibacterial, anti-inflammatory effects (Khatib S. et al., 2022; Kostic A.Ž. et al., 2019). It is a bio accumulator of heavy metals (Milinčic D.D. et al., 2018).
Iris palida Lam. is rare, widespread only in Mehedinți County, it is not used by Romanians, its biochemistry and therapeutic value are not sufficiently known, it has antimicrobial, anti-inflammatory, antioxidant, anticancer, analgesic and antiallergic effects. It has been used for ascites, swelling etc. (Khatib S. et al., 2022). It is good for introduction into decorative crops on dry and very poor soils in N (Kaššák P., 2012).
Iris pontica Zapal. is decorative.
Iris pseudacorus L., Flag Iris, Yellow Flag Iris, is frequently spread in swamps, thickets, ravines, from the beech and spruce levels. The rhizomes are used externally and internally, mostly in folk medicine. Externally it has uses on wounds, hives and dandruff. Internally it is used in diseases of the respiratory system (asthma, expectorant, cough and convulsions), the digestive system (stomach tonic, stimulation of digestion), the reproductive system (dysmenorrhea, leucorrhoea); the root juice it is used internally in ascites and jaundice (Crăciun F. et al. 1976 - 1977; Pârvu C., 2014; Scarlat M.A., 2019). In pratolgy it is known as a toxic plant (Zanoschi V. et al., 1981; Pop I., 1982). It is frequently used for phytoremediation of waters contaminated with heavy metals; this method is a cheaper alternative. It removes total nitrogen and phosphorus, it is more efficient than *Acorus calamus* and *Lythrum salicaria*.
It has a high capacity to tolerate and accumulate Cr and Zn, which accumulate predominantly in the underground parts. For monitoring it is a bioindicator of contaminated waters (Parzych A. et al., 2016). It attenuates the concentrations of As, Cd, Cr, Cu, Fe, Hg, Mn, Ni, Pb, Zn, excess organic substances, pesticides, petroleum hydrocarbons, pharmaceuticals, dyes (Crișan I. et al., 2021).
The pesticides remove them in small quantities (Syranidon E. et al., 2016). Its biomass can be used as a source of biogas (Caldelas C., et al., 2010). It is very good for introduction into decorative cultures both in clean waters and as an ornamental hydrophyte for decontamination of wastewater polluted with Cr, Pb, Cd (Kaššák P., 2012; Preda M., 1989; Zhang X. B. et al., 2006; 2007). It has very poor nectar source value (Pop I., 1982; Dihoru G., 2023), it is advisable to be harvested in small quantities (Dihoru G., Boruz V., 2014). It is of interest for the cosmetics industry (Crișan I. et al., 2021).
Iris pumilla L. is widely spread from the steppe zone to the beech forest level, its rhizomes contain substances with antioxidant, antimicrobial and antiallergic effects (Kostic A.Ž. et al., 2019; Khatib S. et al., 2022). The leaves are very good bioindicators of Pb and Hg pollution, accumulating larger amounts of pollutants than *Aesculus hippocastanum* and *Tilia* sp. (Miljković D. et al., 2014). It is decorative (Kaššák P., 2012; Pop I., 1982, Preda M., 1989).

Iris reichenbachii Heuff. is rare and under threat, it can be introduced into decorative crops (Kaššák P., 2012; Pop I., 1982, Preda M., 1989).
Iris ruthenica Gawl. It is frequently spread from the hilly region to the alpine level, It is decorative. (Kaššák P., 2012; Preda M., 1989).
Iris sibirica L. is sporadically spread in humid places, from the sessile oak level to the spruce level, it contains polyphenols with antioxidant, chemopreventive, anticancer, antimicrobial and laxative effects (Khatib S. et al., 2022). In polluted places, it reduces in different proportions the concentration of As, Cd, Cr, Cu, Fe, Hg, Mn, Ni, Pb, Zn, Co, Hg. It has good efficiency for removing Cd. It tolerates Ni, Cu, Pb from mining areas. (Crișan I. et al., 2021; Jingqing Gao et al., 2015; Ma N. et al. 2017; Wang Y., 2020; 2021). It is decorative. (Kaššák P., 2012; Preda M., 1989). We do not know the reason why Pop I. (1982) considered it a toxic plant.
Iris sintenisii Janka subsp. *sintenisii* is sporadically spread in some areas of plains and hills, it is decorative. It is not sufficiently studied biochemically.
Iris spuria L. subsp. s*puria*, subsp. *halophila* (Pall.) D. A. Webb & Chate L is found sporadically in the Flora of Romania and is under threat. It tolerates saline soils. It contains flavonoids in rhizomes, it can be used as a diuretic, hepatoprotector, etc. (Buckingham J.V. et al., 2015; Khatib S. et al., 2022). It is decorative.
Iris suaveolens Boiss & Reutt. is rarely distributed in Dobrogea, it is not studied biochemically, there are only citations from traditional uses (Keskin M. et al., 2024).
Iris variegata L. is frequently spread, in the rhizomes it contains substances with antioxidant, antimicrobial, anticancer, analgesic, antibacterial, anti-inflammatory, antiallergic effects (Kostic A.Ž. et al., 2019; Khatib S. et al., 2022). It is decorative.
I. aphylla L., *I. pontica* Zapal., *I. pumilla* L., *I. reichenbachii* Heuff., *I. ruthenica* Gawl., *I. sibirica* L., *I. sintenisii* Janka, *I. spuria* L., *I. variegata* L., etc. are very good for introduction into decorative crops (Kaššák P., 2012).
Sisyrinchium montanum Greene was rarely distributed in a few places in the country, on wet meadows in the level of the sessile oak and the beech. According to more recent authors, it is sporadic and it has been given the status of an invasive species. It has decorative value, it naturalizes and covers the ground in arboretums, rock gardens, floral arrangements (Preda M., 1989; Oakes A.S., 1990).

Table 10. Species with economic and ecological value from the Iridaceae Family

No. crt.	Species	Categories of use	Observations
1	*Crocus banaticus* J. Gray	decorative, a poor nectar source	-
2	*Crocus chrysanthus* (Herb.) Herb.	decorative, a poor nectar source	rare
3	*Crocus flavus* Weston	decorative, a medium nectar source	vulnerable
4	*Crocus reticulatus* Stev.	dye, decorative, a medium nectar source	-
5	*Crocus vernus* (L.) Hill.	dye, decorative, a medium nectar source	-
6	*Gladiolus illyricus* W. D. J. Koch	A medium nectar source	rare
7	*Gladiolus imbricatus* L.	decorative, medicinal, a nectar source	it is on the red list
8	*Iris aphylla* L.	medicinal, decorative	-
9	*Iris graminea* L.	decorative	protected
10	*Iris halophila* Pall.	medicinal, phytoremediation	-
11	*Iris humilis* Georgi	medicinal, phytoremediation	rare, tertiary relict in the Romanian Flora, threatened globally and in Europe
12	*Iris palida* Lam.	medicinal, decorative	rare
13	*Iris pontica* Zapal.	decorative	
14	*Iris pseudacorus* L.	medicinal, toxic, bioindicator, good phytoremediation, decorative, biomass source, very poor nectar source, cosmetic industry	-

No. crt.	Species	Categories of use	Observations
15	*Iris pumilla* L.	medicinal, very good bioindicator, decorative	-
16	*Iris reichenbachii* Heuff.	decorative	rare and under threat
17	*Iris ruthenica* Gawl.	decorative	-
18	*Iris sibirica* L.	toxic and medicinal, good phytoremediation, very good decorative	-
19	*Iris sintenisii* Janka	decorative	-
20	*Iris spuria* L.	medicinal, decorative	-
21	*Iris suaveolens* Boiss & Reutt.	? medicinal	rare in Dobrogea
22	*Iris variegata* L.	medicinal, decorative	-
23	*Sisyrinchium montanum* Greene	decorative	? rare in Romania

CONCLUSION

It is a review of plants of economic interest that brings additions to each family. A comparative analysis of species in the genera allows us to approach those that are not yet known.
In the **Acoraceae** family there is 1 species with 7 types of uses: edible, medicinal, good for veterinary medicine, cosmetic, phytoremediation, decorative, biopesticide.
In the **Amaryllidaceae** family, there are 27 species with 63 uses, of which 11 are decorative, 21 medicinal, 3 toxic, 2 for dyes, 12 as a nectar source, and 1 as an insecticide. Only 1 species has been confirmed to repel insects.
We believe that by comparing their biochemical compounds, additional uses could be identified for the less-utilized species. In contrast, their conservation status is concerning: almost all are listed on the Red List, with 8 classified as rare and 4 as vulnerable. Six species affected by habitat destruction are classified as 'under threat'.
In the **Alismataceae** family there are 7 species with 17 uses grouped as following: 4 decorative, 5 for phytoremediation, 3 medicinal, 1 toxic, 1 for veterinary medicine, 3 edible and 1 nectar source. Among them are 3 rare species**.**
In the **Araceae** family there are 3 species with 10 uses grouped in the following categories: 3 decorative, 3 medicinal, 2 toxic, 1 in veterinary medicine, 2 nectar source, 1 remembered by popular beliefs. Among them 1 is a glacial relict.
Butomaceae family has 1 species with 4 uses: edible, decorative, medicinal and nectar source.
Colchicaceae family includes 4 toxic species to which 7 uses are attributed, grouped as following: 3 medicinal, 3 decorative. 1 mediocre nectar source. In terms of distribution, 2 are rare and 1 is under threat.
Cyperaceae family has 53 species, of which we know 76 mentions for economic importance and 24 for ecological uses. Economic uses are grouped as follows: 11 species with poorly edible seeds, 4 medicinal species, 15 poorly fodder species, 25 decorative species, 5 species for animal husbandry, 6 species for biomass, 1 textile, 1 energy, 3 for household uses and 1 for veterinary medicine. Ecological uses are grouped as following: 1 bioindicator species, 12 species for phytoremediation, 5 species for ecological restoration, 7 species cover and protect the soil layer.
The red lists warn us that 4 species are rare, 1 glacial relict species, 1 vulnerable species, 1 under threat species and 1 toxic.
Dioscoreaceae family has 1 species with 4 types of uses: medicinal, edible, decorative, dyeing but also toxic.
Hydrocharitaceae family has 5 species with 9 citations for ecology and 6 for economy. For ecological economy there are 2 citations for ecological restoration, 4 for phytoremediation and 1 for attracting fauna. For economy there are 5 decorative and 1 for phytotherapy.
Iridaceae family has 23 species with 38 citations for practical uses and 4 for phytoremediation. There are 19 decorative, 10 medicinal, 8 nectar sources, 1 dyeing, 1 toxic. We are warned that among them there are 7 rare species of which 1 is glacial relict, to which is added 1 vulnerable and 1 protected.

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