Species with Ornamental Potential from Spontaneous Flora of Buzău County

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Abstract. Studies regarding cultivation potential for ornamental purposes of the spontaneous flora from Romania were made in different areas of the country. The present paper shows some species with ornamental value identified in the spontaneous flora of Buzău County, in the hilly and mountain area of the Slănic river valley. Identification and gathering of the species was effectuated in 2009 and 2010, during vegetation period (May-October). Were studied more species of plants but, from all of them, are presented only the ones with importance for landscape design, with the possibility of their usage in different landscape compositions: Agrostis capillaris L., Agrostis gigantea Roth., Alyssum murale Waldst. & Kit., Campanula bononiensis L., Dianthus superbus ssp. superbus L Dorycnium pentaphyllum ssp. herbaceum (Vill.) Bonnier et Layen, Luzula luzuloides (Lam) Dandy et Wilmott, Melica ciliata L., Orthilia secunda (L.) House, Pyrola rotundifolia L., Phelum phleoides (L.) Karsten, Silene nutans ssp. nutans L., Trifolium alpestre L. Was used the botanical description and taxonomic nomenclature done by V. Ciocârlan and Flora Europaea. From all these taxons was gathered biologic material (seeds or whole plants) and with this were established the experimental fields for a study in crop conditions. Adoption of different multiplication methods and recommendations regarding usage modalities are based on biological particularities and ecologic demands imposed by the native area of these plants.

Keywords: spontaneous flora, ornamental potential, biodiversity, Slănic basin, Buzău County

INTRODUCTION

Interest for biodiversity study of spontaneous flora was requested also by the necessity of identification and capitalization of new plant species with decorative value starting from the idea that the great majority of floristic thesaurus is unexploited and many of the plants with real ornamental values were never been studied in crop conditions.

In the national and foreigner literature are put in light the concern of researchers in finding the ways and methods through which the biodiversity of spontaneous flora to be preserved, but also to be used as a source of new plants for horticulture, including the ornamental sector (Buta et al., 2009; Halevy, 2003; Heywood, 2003).

Floristic research and studies regarding the cultivation potential for ornamental purpose of the spontaneous species from Romania flora were made in several areas from country (Manda et al., 2009). In the paper are presented, in the context of their ornamental importance, species of plants identified in the hilly and mountain area of the Slănic river valley, Buzău County, the proposed studies having as main goal a deepen knowledge regarding the usage of spontaneous flora as a source of enriching plants’ assortment, to identify and to advance new species in cropping.
MATERIALS AND METHODS

Identification and collection studies of the plants with ornamental interest were held in 2009 and 2010, during the vegetation period (May-October), in areas with natural vegetation in the hilly and mountain territory of Buzău County.

Hilly area, known as the Buzău Carpathians, consists of a succession of hills with depressions, basins and saddles, whose altitude varies between 400 and 800 m. Delimitation of the mountain area and sub-Carpathian area is a bump of about 200 m well marked between Sibiciu and Lopătari; and on these distance as well as to Bisoca, a contact lane. Mountain area consists of Buzău and Vrancea Mountains, components of the Curvature Carpathians. Buzău Mountains form a massive set of peaks and average altitude of 1000-1200 m, only a single point above 1700 m (Penteleu peak) and some over 1600 m. South of Ivăneștului peak there is a broad plateau (Plaiul Nucului) at 850-950 m. The climate is characterized by average annual temperature of 4-8 °C, with rainfall of 400-700 mm/year. Thermal highs are recorded in July and minima in February. In the study area are different types of soil: areal soil (chambic chernozem mezocalcaric, forest soils) and inter-areal soils that occur in the forestry area, on mothers rocks rich in CaCO₃ sometimes associated with CaSO₄ (rendzinas, typical marnie phaeozems and clinogleic phaeozems).

Were studied, recorded and gathered thirteen species from spontaneous flora: Agrostis capillaris L., Agrostis gigantea Roth., Alyssum murale Waldst. & Kit., Campanula bononiensis L., Dianthus superbus ssp. superbus L., Dorycnium pentaphyllum ssp. herbaceum (Vill.) Bonnier et Layens, Luzula luzuloideos (Lam) Dandy et Wilmott, Melica ciliata L., Orthilia secunda (L.) House, Pyrola rotundifolia L., Phelum phleoides (L.) Karsten, Silene nutans ssp. nutans L., Trifolium alpestre L.

The taxonomic nomenclature is that adopted by Ciocârlan V. and Flora Europaea (Tutin et al., 1964-1980, 1993).

Study method consists in observations on the main morphological and ecological characteristics of the species, specifying areas within the spread of taxa in Romania (Oprea, 2005).

RESULTS AND DISCUSSION

Research results are presented for each species, as specified features of each.

Agrostis capillaris L. (sin. A. tenuis Sibth., A. vulgaris With.) – colonial bent or browntop – Poaceae family (Fig. 1)

A native of Europe and Western Asia is found frequently in Romania from sessile floor to beech floor, in grassland or forest glade.

Is a perennial species, with erect stems form of rare shrubs, height of 20-50 cm. Leaves, thin and thick, can form a green carpet, uniformly. Flowers made up terminal panicle and are in green-violet color. Summer flowering occurs in June-August.

The plant has a slow growth rate and is resistant to low temperatures. Prefer low acid soils to moderately ones and a moderate nutrient content.

Easily multiply both by vegetative (by division) and by seeds.

Was recorded in Plaiul Nucului area and were collected seed and whole plants.

Decorate by inflorescences aspect and can be used in landscape design (strips, groups, massive) and as cut-dried flowers.
**Agrostis gigantea** Roth. – redbtop – Poaceae family (Fig. 2)

It is a perennial species originating in temperate and cold areas of Europe and Asia. In Romania it is found in meadows mezohigrofite.

It stems erect, 50-150 cm high, with linear-spear leaves and flowers together in a lax panicle, length about 25 cm. Blooms in July-August. Easily multiply both by vegetative (by division) and by seeds.

Species presents a good resistance to cold and drought. Capitalize well moderate soils to rich ones in nutrients.

Was recorded in Bisoca area and have collected seeds and whole plants.

It can be used in landscape design (strips, groups, massive) or as cut-dried flower.

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**Alyssum murale** Waldst. & Kit., - yellowtuft - Brassicaceae family (Fig. 3).

Originally from Pontic-Mediterranean area, the specie is frequently spread in Romania from forest-steppe to beech floor.

It is a perennial plant with a shrub aspect, stems can reach 25-70 cm long. The leaves colour is green-grey, with small and yellow flowers, arranged in thick and branched raceme. Blossom during summer, from June to August.

Love sunny lands and well drained and rocky soils. Has a good resistance to drought and sun.

The most efficient method of multiplication is through seeds.

Decorate through rich inflorescences, yellow coloured, but also through port and green-grey leaves. It is recommended for alpine gardens, borders, massive, and for walls covering. It is well known the plant capacity to accumulate heavy metals (nickel), being used also for soil decontamination (Bani et al., 2010).

**Campanula bononiensis** L. – campanula - Campanulaceae family (Fig. 4)

Originally from sub-Mediterranean area and frequently encountered in Romania from steppe zone to beech floor, in grassland and forest edge.

It is a hemicryptophyte perennial species with stem 30-70 cm tall, green leaves – tomentosus at bottom. Blue flowers, are united in pyramidal raceme spike-forms. The plant blooms throughout the summer, from July to September.

It is a specie resistant to drought, which builds better land sunny, south exposition and soils with moderate nutrient content.

Was recorded in Bisoca area and have collected seeds and whole plants.

Decorative value is given by long and compact inflorescences, with long flowering period. It can be used in groups and massive, in strips, as well as cut flower.
**Dianthus superbus ssp. superbus** L., Caryophyllaceae family (Fig. 5).

It is a mesophile species originating in Europe and Asia. In Romania there is sporadic in the Carpathians, from oak forests area to beech floor.

It is a herbaceous plant, perennial hemicryptophyte, with a height of 20-40 cm. The leaves are linear-spear, about 8 cm long and a green-gray color. Flowers, 3-5 cm in diameter, have petals fringe. Their fragrance is discrete, characteristic and bloom in summer (June-August).

The plant prefers cool, shady or semi-shady places and weak to moderately acidic soils.

Was recorded in Plaiul Nucului area and have collected seeds and whole plants.

Present ornamental interest due to fragrant and elegant flowers. May find use in arranging rocks, boards or arrays under high vegetation.

**Dorycnium pentaphyllum ssp. herbaceum** (Vill.) Bonnier et Layens, Fabaceae family (Fig. 6)

It is a sub-shrub originating in Central and SE Europe, in our country is reported in most regions, from steppe zone to beech floor. Present a pubescent stem, with a high of 15-60 cm capitulum type inflorescences, each with 12-15 flowers, which bloom in June-August.

It is find in sunny places, on land eroded, limestone. It is an oligotrophic species, xerophyte-xeromesophyte, thermophilic-undertermophilic. Multiply by seeds.

Was recorded on the meadows from Plaiul Nucului area and have collected seeds and whole plants.

Decorate through numerous inflorescences and slightly creepy port or pendulum, can be put in value on rocks, in borders and hanging pots, or as groups and massive. It is recommended for restoring soil contaminated with heavy metals (cadmium and zinc) (Davies, 2005; Lefevre et al., 2009).
**Luzula luzuloides** (Lam) Dandy et Wilmott – white wood rush- Juncaceae family  
(fig. 7)

It is a hemicryptophyte perennial specie originally from Central Europe. In Romania meets frequently in forests and meadows, from sessile floor to mountain pine floor.

Presents short offspring, erect stems, 30-60 cm high, linear leaves and white flowers with reddish brown shades, meeting in terminal inflorescences, umbrella type, lax. It flowers from June to July.

Capitalizes well lands with average nutritive content and low to moderate acidity.

Was recorded in Plaiul Nucului area and have collected seeds and whole plants. Multiply by division and by seeds.

Decorative importance is given by the interesting aspect of inflorescences. It is recommended in landscape (strips, rocks, massive) and as cut flowers fresh or dried (as immortelles or everlasting).

**Melica ciliata** L. – hairy melic or silky spike melic – Poaceae family (Fig. 8)

It is a hemicryptophyte perennial specie originally from Central Europe and Mediterranean area and is frequently meet in Romania from steppe area to beech level.

Strain is 20-60 cm high, with stiff leaves and flowers grouped in panicle lax unilaterally. It blooms from May to June. Species has a good resistance to drought and capitalizes well sunny lands, with a low content in nutrients.

Was recorded in Plaiul Nucului area and have collected seeds and whole plants. Multiply by division and by seeds.

Decorates through bushes and inflorescences appearance in landscaped (strips, rock, massive) and as cut flowers (especially immortelles or everlasting).

**Orthilia secunda** (L.) House (Pyrola secunda L.; Ramischia secunda (L) Garcke) – sidebells wintergreen – Pyrolaceae family (Fig. 9).

A perennial specie originating from Siberia. In Romania meets frequently in hardwood and pine forests of the hilly region to the mountain.

It is presented as a sub-shrub with a height of 10-30 cm. Have thin fragile rhizomes, branched, whose length can sometimes reach up to 1 m. The stem is erect, leafy ovate, leather, shiny, evergreen. The flowers are yellow-green, small bell shaped and are grouped in a raceme unilaterally. It blossoms in June-July and form globular fruit capsules.

Is an oligotrophic species, xeromesophyte-mesophyte who prefer low to moderately acidic soils.

Was recorded in Plaiul Nucului area and have collected seeds and whole plants.
Multiply vegetatively and by seed. Where seed production does occur, persistence of seedlings is dependent on the presence of mycorrhizal fungi of the genus *Tricholoma* (Beatty *et al.*, 2008).

The ornamental qualities of plant could be shown in rocky design and groups placed under high vegetation, in wet places and on acid soils.

**Pyrola rotundifolia L. – round-leaved wintergreen** - Pyrolaceae family (Fig. 10)

Home circumpolar species, found sporadically in Romania, especially in mountainous areas and pre-mountain.

It is perennial, with repent rhizome, fragile. Strain is glabra, based on lying, otherwise ascending, truncated and slightly twisted ruled spiral, 6-40 cm high. Leaves, evergreen, broad-ovate or elliptical to round, long petiole and are arranged in rosette. Presents campanula flowers, white, white-pink, grouped by 8 to 15 in raceme terminal located all around the axle. Blossoms in June-July. The fruit is a globular capsule with persistent style base.

From an environmental perspective is a plant who prefer moderately acidic soils and wetlands and shady.

Was recorded in Plaiul Nucului area and have collected seeds and whole plants.

The recommend usage is the same as at *Pyrola secunda* L.

![Fig.9. Orthilia secunda](image)

![Fig.10. Pyrola rotundifolia](image)

**Phleum phleoides** (L.) Karsten – Boehmer's cats-tail and **Purple-stem cats-tail** - Poaceae family (Fig. 11)

Species is Eurasian origin, frequently encountered in Romania in grassland and edge of forest, from steppe zone in beech floor.

It is a hemicryptophyte perennial specie with a 30-60 cm stem height. Flowers are grouped in a cylindrical panicle.

It is a species with good resistance to drought and capitalized well lands with a moderate nutrient content. It flowers from June to July.

Was recorded in Plaiul Nucului area and have collected seeds and whole plants.

Multiply by division and by seeds.

It can be used in landscape design (strips, groups, massive) or as cut-dried flower.

**Silene nutans ssp nutans** L., Caryophyllaceae family (Fig. 12)

Is a perennial species with Eurasian origin and commonly widespread in Romania in grassland from steppe zone to the beech forest.

Strain reaches 30-60 cm tall and has small and curly hairs at the bottom. The leaves are pubescent, the flowers form composed inflorescences.

Based truncated calyx is covered with setiform hairs with few glands and petals are yellow-white.

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As regards environmental requirements, fall within mesophile plants, which installs easily on rocky slopes.

Was recorded in Plaiul Nucului area and have collected seeds and whole plants.

Plant presents ornamental interest due to its flowers and inflorescences, with the possibility of using in rocky lands.

**Trifolium alpestre** L. – mountain clover – Fabaceae family (Fig. 13)

Species originates from Central and SE Europe often widespread in Romania, on lawns and shrubbery, in the forest steppe to boreal floor.

It is a perennial species hemicryptophyte, 15-40 cm high strain and leaflets oblong-spear, with cilia. Reddish flowers are grouped in globular inflorescences, terminal, usually solitary. Blossom in June-August.

The species is xeromesophyte, mesotrophic, and indicates a soil with low nitrogen supply.

Was recorded in Plaiul Nucului area and have collected seeds and whole plants.

Decorative part is the inflorescences, plus port plant respectively compact bush. It can be used in borders, rock and groups or massive.

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2. The establishment of cultivation technologies and placement modalities in ornamental assembly of these plants will take in account the specific biologic and ecologic particularities.

3. Depend on the above mentioned ornamental features; capitalization could be done both in different types of landscape designs and also as cut flowers (fresh or dried).

4. Some species have also other utilisations, mentioned in literature (fodder plants and for turf, medicinal plants, hyper-batteries for soils’ heavy metals).

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REFERENCES


