

THE LILIALES ORDER FROM THE LOWER BASIN OF THE MOTRU RIVER

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Abstract. *The paper presents the 35 taxa from Liliales Order, which were identified in the Lower Basin of the Motru River.*

Keywords: *Basin, Motru, flora, Liliales.*

Rezumat. *Ordinul Liliales din Bazinului inferior al Motrului. Lucrarea prezintă 35 taxoni din Ordinul Liliales identificați în Bazinul inferior al râului Motru.*

Cuvinte cheie: *Bazin, Motru, flora, Liliales.*

INTRODUCTION

From the geographical point of view, the Lower Basin of the Motru River lies in the western part of the Getic Piedmont, with the coordinates: 44° 55' north latitude and 23° 45' east longitudes. The studied area is 691 Km². From the administrative-territorial point of view, the territory under research is located at the borderline between the counties of Gorj and Mehedinți – the borderline starts in the eastern part of the Negoiești Hills (Comănești-Mehedinți, altitude 388 m) and reaches Valea Jiului near Gura Motrului (altitude 110 m). Being situated in the south-western part of the country and of the Getic Piedmont, the studied area has a Central-European climate with sub-Mediterranean influences.

In the territory under research, there have been made floristic and phytosociological studies between 1997 and 2005, within the PhD thesis (COSTACHE, 2005).

MATERIALS AND METHODS

The first stage in the research of the Lower Basin of the Motru River was represented by looking into the bibliographic material. Against the background of this bibliographic information there were carried out, several times, personal studies in the field, in order to identify and inventories all the species, to watch all their vegetation stages, to notice the biotope characteristics, to take photos, to collect and preserve the species for a thorough checking in the laboratory, as well as to enrich the Herbarium of the University of Craiova. The collected and preserved material was determined by using specialty literature: Romanian Flora, Flora Europaea, The Illustrated Flora of Romania (BELDIE, 1977; CIOCÂRLAN, 2000 etc.) and others. The critical taxa were checked by Prof Dr. Vasile Ciocârlan and compared to other materials found in the great herbariums of the country (Bucharest, Cluj and Craiova). The terminology of the taxa was adopted according to ROTHMALER, 2002; we have taken into consideration the International Botanical Terminology Index (Code de Tokyo, 1993). For the synonymies, we have taken into account the index worked out by KERGUÉLEN, 1993.

The species were defined within the following systematical units: Phylum, Subphylum, Class, Order, Family and Genus (here, the species are alphabetically presented).

The description of the species includes: scientific name, author (authors), equivalent names, life expectancy, biological form, ecology, territories for rare species (for frequently met species there is no indication of locality), geoelement and coenotaxonomic belonging.

The coenotaxonomic belonging of the species, as well as their affiliation to high-leveled coenotaxonomic units, were made according to RODWELL & al. 2002 etc.

Abbreviations and conventional signs used in our paper: Systematic units (taxa): Sp. - species; subsp. - underspecies; var. - variety; Life expectancy: ☉ - yearly; e, - perennial.

Bioforms (biological forms, life forms): T. - terrophytes (annual plants which go over unfavorable conditions during winter or summer under the form of seeds); H. - hemicriptophytes (perennial plants whose regeneration organs are located at the soil level and are protected, during winter, by vegetal remains or snow).

Frequency (spreading level): Freq. - frequent (numerous specimens with an odd spreading on large areas); Spor. - sporadic (few specimens spread in few stations); R. - rare (very few specimens spread in 1-2 stations).

Ecologic characterization: significance of the indexes U T R used in the paper in order to simplify the carrying out of the spectra when studying vegetation (according to POPESCU & SANDA, 1998).

Soil humidity level (U₁₋₆): U₁ - xerophytes (they grow in dry soils and they can stand the prolonged dryness of the soil); U₂ - xeromesophyte; U₃ - mesophytes (in soils with average humidity, they cannot stand prolonged dryness); U₄ - mesohygrophyte; U₅ - hygrophyte (they grow in wet soils, and their roots are under water or in swampy areas); U₆ - hydrophyte (according to the author - ultrahydrophyte), (plants which grow in water, the regeneration organs are found under water); U₃₍₅₎ - alternately hygrophyte (with oscillations of the humidity level during the plants' vegetation period); U₁₋₅, (includes U₁₋₃, U₂₋₅ etc.) - eurip. = euriphyte (with large amplitude against the soil humidity).

Heat level (T): T₁ - hecistothermic; T₂ - microthermic; T₃ - mesothermic; T₄ - subthermophytes (moderately thermophytes); T₅ - thermophytes; T₁₋₅ (include T₁₋₄, T₂₋₄, T₂₋₅, T₃₋₅) - euriterm. = euriterms.

Acidity level (R): R₁ - high acidophilus species; R₂ - acidophilus; R₃ - acido-neutrophyle; R₄ - low acid-neutrophyle; R₅ - neutral-basophile; R₁₋₅ - (includes R₁₋₄, R₁₋₃, R₂₋₅ etc.) - euriionic.

Geoelement (phytogeographical elements, origin of the species): Adv.- adventive (species which appeared because of man's inconstant activity); Am. - America; As. - Asia; Atl.- Atlantic; Balc. - Balkan; Circ. - Circumpolar (spread in the northern part of Eurasia and North America); Cosm. - Cosmopolite (large spreading all over the world); Euras. - Eurasian; Euras. cont.- Eurasian continental; Eur. - European; Eur. centr. - Central European; Eur. cont. - European continental; Medit. - Mediterranean; Pont. - pontic (North of the Black Sea); Pan. - Panonic (In the Panonic Plain); Submedit. - SubMediterranean; Subatl. - Subatlantic.

Other abbreviations: E. - east; GJ. - Gorj; MH. - Mehedinți; N. - north; Sol.- soils; S. - south; V. - west.

RESULTS AND DISCUSSIONS

The conspectus of the flora in the Lower Basin of the Motru River includes about 1.120 vascular taxa (COSTACHE I., 2005), among which, Liliales order have 35 taxa.

SPERMATOPHYTA

MAGNOLIOPHYTINA (Angiospermae)

LILIÓPSIDA (Moncotyledónatae)

LILIÁLES (incl. ASPARAGÁLES)

Liliáceae

1. *Aspáragus officinális* L. - e, G. Spor. U₂T₄R₃. **MH**: Gura Motrului. Euras. (Submedit.). *Festucetalia valesiaca*, *Festuco-Sedetalia*, *Geranion sanguinei*.
2. *A. tenuifólius* LAM. - e, G. Frecv. U₂₋₃T₄₋₅R₃₋₄. Pont.-medit. Car. *Quercu-Fagetea*.
3. *Cólchicum autumnále* L. - e, G. Frecv. U₂₋₃T₃R₄. Eur. centr. Car. *Molinio-Arrhenatheretea*, *Molinietalia*, *Danthonio-Brachipodion*.
4. *Convallária majális* L. - e, G. Spor. U₃T₄R₄. **MH**: Strehaia, Lunca Banului, Arginești-Gura Motrului (BUIA AL. & al. 1961). Eur. Car. *Quercu-Fagetea*.
5. *Erythrónium dens-cánis* L. subsp. *niveum* (BAUMG.) BUIA & PÁUN - e, G. Spor. U₃T₄R₄. **GJ**: Olteanu, Valea Perilor; **MH**: Comănești, Strehaia, Lunca Banului, Butoiești, Arginești V și SV. Rom. End. Car. *Quercu-Fagetea*.
6. *Gágea lútea* (L.) KER.-GAWL. - e, G. Frecv. U₃₋₄T₄R₃₋₄. Euras. Car. *Quercu-Fagetea*, *Fagetalia sylvatica*, *Alno-Ulmion*, *Quercion roboris*.
7. *G. mínima* (L.) KER.-GAWL. - e, G. Spor. U₃₋₄T₃R₄. **GJ**: Negoiești, Glogova; **MH**: Butoiești (ZAHARIADI C., 1966). Euras. cont. Car. *Quercu-Fagetea*, *Alno-Ulmion*, *Carpinion betuli*.
8. *G. praténsis* (PERS.) DUMORT. - e, G. Frecv. U₂T₃R₄. **MH**: Butoiești (ZAHARIADI C., 1966). Eur. *Carpinion betuli*, *Prunetalia spinosae*, *Robinion pseudacaciae*, *Centaureetalia cyani*.
9. *G. spathácea* (HAYNE) SALIB. - e, G. R., U₃₋₄T₃₋₄R₄. **GJ**: Valea Perilor; **MH**: Pád. Arginești-Gura Motrului, Butoiești (ZAHARIADI C., 1966; BELDIE AL., 1979; CIOCÁRLAN V., 2000; COSTACHE I., 2005). Centr. eur.-subatl. Car. *Quercu-Fagetea*, *Carpinion betuli*, *Convallario-Quercetum robori*.
10. *G. villósa* (BIEB.) SWEET [*G. arvénsis* auct. non DUMORT.] - e, G. Frecv. U₂₋₃T₄R₂₋₅. Eur. *Atriplici-Chenopodietalia albi*, *Centaureetalia cyani*.
11. *Múscari comósum* (L.) MILL. [*Leopóldia comósa* (L.) PARL.] - e, G., Frecv. U₂₋₃T₃₋₄R₂₋₅. **B.S.M.** Eur. (exceptie N.). Car. *Festuco-Brometea*, *Geranion sanguinei*, *Prunetalia spinosae*, *Corynephoretalia*.
12. *Ornithógalum boucheánum* (KUNTH) ASCH. [*Myogalum boucheánum* KUNTH] - e, G., U₂₋₃T₄R₄. **MH**: Strehaia, Breznița, Butoiești, Arginești, Gura Motrului. Pont.-pan.-balc. *Arction lappae*.
13. *O. pyramidále* L. [*O. brevistylum* WOLFNER] - e, G. Spor. U₂₋₃T₃₋₄R₄. **GJ**: Glogova, Motru, Văgiulești; **MH**: Strehaia, Breznița, Butoiești, Arginești-Gura Motrului (ZAHARIADI C, 1966). Eur. centr. *Festucion valesiaca*, *Prunetalia spinosae*, *Centaureetalia cyani*.
14. *O. pyrenáicum* L. [*O. flavéscens* LAM.] - e, G. Frecv. U₂₋₃T₃₋₄R₄. Atl.-medit. *Carpinion betuli*.
15. *O. umbellátum* L. [*O. divérgens* BOREAU; *O. umbellátum* L. subsp. *divérgens* (BOREAU) BONNIER & LAYENS] - e, G. Spor. U₂₋₃T₃₋₄R₄. **MH**: Strehaia, Breznița, Butoiești, Arginești, Gura Motrului. Submedit. *Chelidonio-Robinietalia*, *Centaureetalia cyani*, *Festucetalia valesiaca*.
16. *Polygónatum latifólium* (JACQ.) DESF. - e, G. Frecv. U₂₋₃T₃₋₄R₄. Tox. **MH**: Strehaia, Arginești-Gura Motrului (ZAHARIADI C, 1966). Pont.-pan.-balc. Car. *Quercu-Fagetea*.
17. *P. multiflórum* (L.) ALL. - e, G. Spor. U₃₋₄T₃R₃₋₄. **MH**: Lunca Banului, Arginești. Euras. *Fagetalia sylvatica*, *Carpinion betuli*.
18. *P. odorátum* (MILL.) DRUCE [*P. officinále* ALL.] - e, G. Spor. U₂₋₃T₃R₃₋₄. **MH**: Comănești-Câmpu Mare, Strehaia-Cerângani; Strehaia (ZAHARIADI C, 1966); Buicești (Mitulani)-Argetoaia; **GJ**: Glogova, Samarinești. Euras. Car. *Trifolio-Geranietea sanguinei*, *Geranion sanguinei*, *Prunetalia spinosae*, *Quercetalia pubescenti-petraeae*.
19. *Rúscus aculeátus* L. - e, G. Spor. U₂₋₃T₄₋₅R₄. **MH**: Cerângani, Strehaia, Lunca Banului, Buicești, Mitulani, Argetoaia. Pont.-medit. Car. *Quercetalia pubescentis*, *Quercion frainetto*, *Carpinion betuli*, *Aremonio-Fagion*.
20. *R. hypoglossum* L. - e, G. Spor. U₂₋₃T₄₋₅R₃₋₄. **MH**: Corcova, Pârvulești, Cerângan, Strehaia; Butoiești forest (ZAHARIADI C., 1966). Pont.-balc.-pan. Car. *Quercu-Fagetea*, *Aremonio-Fagion*.

21. *Scilla bifolia* L. subsp. *bifolia* - e, G. Spor. U₃T₃R₄. **MH**: Negoști, Comănești, Corcova, Comanda. Eur. centr. și sudică. Car. *Quercu-Fagetea*.
 - subsp. *drumensis* SPETA - Frecv. U₂₋₃T₃R₄. *Carpinion betuli*, *Alno-Ulmion*, *Quercion frainetto*.
 - subsp. *subtriphyllo* (SCHUR) DOMIN [S. *bifolia* var. *præcox* (WILLD.) MASTERS, S. *præcox* WILLD.] - Frecv. U₂₋₃T₃R₄. *Carpinion betuli*, *Alno-Ulmion*, *Quercion frainetto*.

Alliaceae

22. *Allium atroviolaceum* BOISS. - e, G. **R.**, U₂T₄R₄. **MH**: Buicești, Mitulani. Pont.-pan.-balc. *Festucion valesiacae*, *Stellarietea mediae*.
 23. *Á. oleraceum* L. - e, G. Spor. U₂T₄R₄. **MH**: Comănești, Strehaia; **GJ**: Glogova. Eur. Car. *Stellarietea mediae*, *Sedo-Scleranthetalia*, *Origanetalia vulgaris*.
 24. *Á. rotundum* L. - e, G. Spor. U₂T₄R₄. **MH**: Stângăceaua, Breznița, Butoiești. Centr. eur.-submedit. *Festucion valesiacae*, *Centaureetalia cyani*.
 25. *Á. scorodoprasmum* L. - e, G. Frecv. U₂₋₃T₃R₄. Centr. eur. Car. *Artemisietea vulgaris*, *Prunetalia spinosae*.
 26. *Á. ursinum* L. subsp. *ucraïnicum* KLEPOW & OKSNER - e, G. Frecv. U₄T₃₋₄R₄. **MH**: Arginești-Gura Motrului (ZAHARIADI C, 1966). Pont.-medit. Car. *Quercu-Fagetea*, *Fagetalia sylvaticae*, *Carpinion betuli*.
 27. *Á. vineale* L. - e, G. Spor. U₂₋₃T₃R₄. **MH**: Strehaia, Breznița, Butoiești, Buicești, Arginești. Eur. Car. *Stellarietea mediae*, *Centaureetalia cyani*, *Atriplici-Chenopodietalia albi*.

Amaryllidaceae

28. *Galánthus nivális* L. - e, G. **V.** U₃₋₄T₃R₄. **MH**: Lunca Banului, Arginești-Gura Motrului. Centr. eur.-submedit. Car. *Quercu-Fagetea*, *Carpinion betuli*.
 29. *Leucójum vérnum* L. - e, G. Spor. U₃₋₄T₃R₃₋₄. **MH**: Strehaia-Cerângani, Corcova, Lunca Banului, Arginești-Gura Motrului. **GJ**: Valea Perilor. Centr. eur. Car. *Quercu-Fagetea*, *Carpinion betuli*.

Iridaceae

30. *Crócus flávus* WESTON [*C. moesiácus* KER-GAWL., *C. áureus* SIBTH. & SM.] - e, G. **V.** U₃T₃R₃₋₄. Balc. *Festucion valesiacae*, *Prunion spinosae*.
 31. *C. vérnus* (L.) HILL [*C. heuffeliánus* HERBERT] - e, G. Frecv. U₃T₂R₃. Betwen Negoști-Motru. Carp.-balc. *Trisetopolygonion*, *Fagion sylvaticae*, *Chelidonio-Robinion*.
 32. *Íris pseudácorus* L. - e, G. Spor. U₍₄₎₅₋₆T₃₋₅R₂₋₅. **MH**: Betwen Strehaia and Gura Motrului; Arginești-Gura Motrului (BUIA AL. & al. 1961); Butoiești (ZAHARIADI C., 1966); **GJ**: Negoști. Eur. Car. *Phragmitetea australis*.

CONCLUSIONS

In the Lower Basin of the Motru River have been identified 35 taxa on the Liliales Order (22 taxa - Liliaceae, 6 taxa - Alliaceae, 2 species - Amaryllidaceae and 3 species - Iridaceae), among which, *Gágea spathácea* (HAYNE) SALIB., *Rúscus aculeátus* L., *R. hypoglossum* L., *Allium atrovioláceum* BOISS., *Crócus flávus* WESTON, they are rare in the Lower Basin of the Motru, some have been included in the National Red List.

REFERENCES

- BELDIE AL. 1977, 1979. *Flora României - determinant ilustrat al plantelor vasculare*. Edit. Acad. Rom. București **I**, **II**: 412 pp.; 406 pp.
 BUIA AL., PĂUN M., MALOȘ C. & OLARU M. 1961. *Ghid geobotanic pentru Oltenia*. Întreprinderea Poligrafică Craiova: 28-29.
 CIOCÂRLAN V. 2000. *Flora ilustrată a României. Pteridophyta et Spermatophyta*. Edit. Ceres. București: 1138 pp.
 COSTACHE I. 2005. *Flora and vegetația Bazinului Hidrografic Inferior al Râului Motru*. Teza de doctorat. București: 290 pp. + 47 tabele + 64 grafice + VIII Planșe.
 KERGUELEN M. 1993. *Index synonymique de la Flore de France*. Muséum National D'Histoire Naturelle. Paris.: 128-129.
 MALOS C. 1977. *Flora and vegetația cormofitelor din Bazinul Superior al Motrului*. Teza de doctorat. București.
 POPESCU A. & SANDA V. 1998. *Conspectul florei cormofitelor spontane din România*. *Acta Bot. Horti Bucurest.* Edit. Univ. București: 336 pp.
 RODWELL J. S., SCHAMINÉE J. H. J., MUCINA L., PIGNATTI S., DRING J. & MOSS D. 2002. *The Diversity of European Vegetation*. An overview of phytosociological alliances and their relationships to EUNIS habitats. Landbouw, natuurbeheer en visserij. Wageningen: 167 pp.
 ROTHMALER W. 2002. *Exkursionsflora von Deutschland Gefabpflanzen*: Kritischer Band. **4**. Spektrum Akademischer Verlag Heidelberg-Berlin: 948 pp.
 TUTIN T. G., HEYWOOD V. H., BURGESS N. A., VALENTINE D. H., WALTERS S. M., WEBB D. A. & al. 1964 -1980. *Flora Europaea*. **1-5**. Cambridge University Press. Cambridge.
 ZAHARIADI C. 1966. *Liliaceae*. In Tr. Săvulescu & al. (ed.). *Flora României*. Edit. Academiei Române București. **XI**: 106-404.

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