

ASPECTS OF MOLDOVIȚA RIVER'S BASIN VASCULAR FLORA (SUCEAVA COUNTY)

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Summary: The authors bring completions to the Moldovița River's basin vascular flora conspectus, identifying a total of 740 species and subspecies. These are analyzed from the view point of affiliation to different categories of endangered species (Red List, I. P. A. Categories, C. E. Directive no. 92/43/EEC from the 21 of may 1992, Bern Convention).

Key words: vascular flora, endangered categories, Moldovița River's Basin.

Introduction

In a previous paper [11] there have been presented the results of the research made between 2000 and 2003 in Moldovița River's basin. The studies have continued in year 2004 and besides the 624 species and 17 atypical subspecies, supplementary there were identified 87 species and 12 atypical subspecies.

Material and method

The epitome contains species identified by us and not quoted before, and also species that have been quoted and confirmed in our field-research. Some of these species have already been quoted in previous papers [8, 10, 11, 13, 18, 19], but the latest researches have completed the dates concerning their spreading in Moldovița River's basin. For the taxon's identification were used papers having the following authors: Flora R. P. R. – R. S. R. (1952-1976) [22], Beldie Al. (1977, 1979) [1], Ciocârlan V. (1988-1990, 2000) [2, 3], Sârbu I. and collaborators (2001) [21]. In this epitome, the species are depicted in the botanical family's systematic order, while within the families was used the alphabetical order. The used classification system is the one adopted by Ciocârlan V. [3]. For each species is specified the area within it was found, the locality's name being coded as following: 1 – Argel; 2 – Ciumârna; 3 – Ciumârna (“La Palmă”); 4 – Deia; 5 – Deia; 6 – Demăcușa; 7 – Dragoș; 8 – Frumosu; 9 – Hoghia Mare; 10 – Hoghia Mică; 11 – lunca Moldoviței; 12 – Moldovița – Rașca; 13 – Moldovița; 14 – Paltin; 15 – Adânc rivulet; 16 – Lunguleț rivulet; 17 – Mic rivulet (Demăcușa); 18 – Petac rivulet (Demăcușa); 19 – Turculeț rivulet (Argel); 20 – Valcan rivulet; 21 – Poiana Calului (Ciumârna); 22 – Rașca; 23 – Rașca – Argel; 24 – Săcrieș; 25 – Servedna; 26 – Strâmtura; 27 – Strâmtura – Vama; 28 – “Trei Movile”; 29 – Ciumârna rivulet; 30 – Vama; 31 – Vatra Moldoviței; 32 – Vatra Moldoviței – Ciumârna; 33 – Vatra Moldoviței – Paltin; 34 – Boul valley.

To establish the jeopardized level of the vascular flora, have been used both scientific papers and laws of the Romanian Government [4, 5, 15, 16, 20, 23, 24, 25 and 26].

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Results and discussions

Fam. *Aspleniaceae*: *Oreopteris limbosperma* (Bellardi ex All.) Holub: 32, 14; *Polystichum aculeatum* (L.) Roth: 32, 14; *Polystichum lonchitis* (L.) Roth: 32; Fam. *Cupressaceae*: *Juniperus communis* L. var. *communis*: 30, 3, 31; Fam. *Ranunculaceae*: *Isoetes thalictroides* L.: 32, 33; *Anemone ranunculoides* L.: 20, 32; *Ranunculus acris* L. ssp. *strigosus* (Schur) Hyl.: 12; *Ranunculus auricomus* L. var. *binatus* (Kit.) Penev.: 32; *Ranunculus flammula* L.: 31; *Ranunculus trichophyllus* Chaix: 31; *Thalictrum aquilegifolium* L.: 31, 32, 20; Fam. *Papaveraceae*: *Chelidonium majus* L.: 31, 20, 7; Fam. *Ulmaceae*: *Ulmus glabra* Hudson: 32; Fam. *Betulaceae*: *Betula pendula* Roth: 30, 31, 14; Fam. *Caryophyllaceae*: *Cerastium glomeratum* Thuill.: 31; *Dianthus barbatus* L. ssp. *compactus* (Kit.) Heuffel: 28; *Dianthus carthusianorum* L. ssp. *carthusianorum*: 30; *Lychnis viscaria* L. ssp. *viscaria*: 30; *Moehringia trinervia* (L.) Clairv.: 30, 32; *Spergularia rubra* (L.) J. et C. Presl.: 30; *Stellaria palustris* Retz.: 14; Fam. *Chenopodiaceae*: *Chenopodium bonus-henricus* L.: 28; Fam. *Polygonaceae*: *Polygonum aviculare* L.: 31, 20, 32, 28, 30; *Polygonum convolvulus* L.: 7; *Polygonum persicaria* L.: 31, 30; Fam. *Grossulariaceae*: *Ribes petraeum* Wulfen in Jacq.: 31; Fam. *Crassulaceae*: *Sedum annuum* L.: 31; Fam. *Rosaceae*: *Aruncus dioicus* (Walter) Fernald: 14; *Potentilla argentea* L. ssp. *argentea*: 8, 30; *Rosa corymbifera* Borkh.: 30; *Rosa nitidula* Besser: 30; *Rubus fruticosus* L.: 30; *Rubus nessensis* W. Hall: 30; *Sanguisorba minor* Scop. ssp. *minor*: 30; *Crataegus monogyna* Jacq. ssp. *monogyna*: 30, 14, 31, 6; *Malus sylvestris* (L.) Miller: 31, 20; *Pyrus pyraeaster* (L.) Burgsd.: 31, 14; Fam. *Fabaceae* (*Leguminosae*): *Anthyllis vulneraria* L. ssp. *polyphylla* (Kit.) Nym.: 30, 14; 31; *Astragalus glycyphyllos* L.: 14, 32; *Coronilla varia* L.: 30, 32; *Dorycnium pentaphyllum* Scop. ssp. *herbaceum* (Vill.) Bonnier et Layens: 30; *Genistella sagittalis* (L.) Gams: 30; *Lathyrus tuberosus* L.: 31; *Lathyrus vernus* (L.) Bernh.: 32; *Melilotus albus* Medik.: 6, 20; *Melilotus officinalis* Lam.: 6, 30, 4, 31, 32; *Trifolium aureum* Pollich: 30; *Trifolium dubium* Sm.: 31; *Trifolium hybridum* L. ssp. *elegans* (Savi) Ascherson et Graebner: 31; *Trifolium spadiceum* L.: 1, 31; *Vicia sepium* L.: 31, 32; *Vicia villosa* Roth: 30; Fam. *Lythraceae*: *Lythrum salicaria* L.: 30, 32, 20, 31; Fam. *Onagraceae*: *Chamaerion angustifolium* (L.) Holub: 30, 8, 32; *Oenothera biennis* L.: 31; Fam. *Loranthaceae*: *Viscum laxum* Boiss. et Reuter ssp. *laxum*: 20; Fam. *Celastraceae*: *Evonymus europaeus* L.: 31; Fam. *Euphorbiaceae*: *Euphorbia helioscopia* L.: 31; *Euphorbia villosa* Waldst. et Kit. ssp. *villosa*: 3; Fam. *Rhamnaceae*: *Frangula alnus* Miller: 14; Fam. *Geraniaceae*: *Erodium cicutarium* (L.) L'Hérit: 30, 31; *Geranium sylvaticum* L.: 30, 31, 8; Fam. *Linaceae*: *Linum austriacum* L.: 30; Fam. *Araliaceae*: *Hedera helix* L.: 31; Fam. *Apiaceae* (*Umbelliferae*): *Bupleurum falcatum* L.: 30, 31, 13; *Chaerophyllum aureum* L.: 30, 13, 1; *Conium maculatum* L.: 30; *Daucus carota* L. ssp. *carota*: 31; *Laserpitium latifolium* L.: 32; *Torilis japonica* (Houtt.) DC.: 30, 32, 14, 13, 7; Fam. *Tiliaceae*: *Tilia cordata* Miller: 31; Fam. *Malvaceae*: *Malva neglecta* Wallr.: 31; *Malva sylvestris* L. ssp. *sylvestris*: 13, 1; Fam. *Violaceae*: *Viola collina* Besser: 32; *Viola mirabilis* L.: 31, 14; Fam. *Cistaceae*: *Helianthemum nummularium* (L.) Mill. ssp. *obscurum* (Pers.) Holub: 30; Fam. *Brassicaceae* (*Cruciferae*): *Alliaria petiolata* (Bieb.) Cavara et Grande: 1; *Alyssum alyssoides* (L.) L.: 14; *Berteroa incana* (L.) DC.: 30; *Cardamine pratensis* L. ssp. *pratensis*: 8, 24; *Dentaria bulbifera* L.: 33, 32; *Descurainia sophia* (L.) Webb ex Prantl: 30; *Lepidium campestre* (L.) R. Br.: 7; *Lunaria rediviva* L.: 30; *Raphanus raphanistrum* L. ssp. *raphanistrum*: 30; *Rorippa pyrenaica* (L.) Reichenb.: 30; *Sinapis arvensis* L.: 31, 32; *Sisymbrium loeselii* L.: 31; *Sisymbrium officinale* (L.) Scop.: 20; Fam. *Resedaceae*: *Reseda lutea* L.: 30, 31; Fam. *Salicaceae*: *Populus tremula* L.: 30, 31, 14; *Salix alba* L. ssp. *alba*: 6, 30, 8; *Salix cinerea* L.: 8; *Salix elaeagnos* Scop.: 31, 30; *Salix fragilis* L.: 13, 31, 32, 6, 30, 8; *Salix purpurea* L. ssp. *purpurea*: 30, 8, 32, 34, 16, 6; *Salix silesiaca* Willd.: 34; *Salix triandra* L. emend. Ser. ssp. *triandra*: 13; *Salix viminalis* L.: 30; Fam. *Pyrolaceae*: *Moneses uniflora* (L.) A. Gray: 24, 14; *Orthilia secunda* (L.) House: 31, 34; Fam. *Monotropaceae*: *Monotropa hypopitys* L.: 28; Fam. *Primulaceae*: *Lysimachia punctata* L.: 32, 14, 13; *Lysimachia vulgaris* L.: 6, 13, 8, 32, 24, 14, 30; *Primula veris* L. ssp. *veris*: 32; Fam. *Gentianaceae*: *Gentianella austriaca* (A. et J. Kerner) Holub: 13, 1, 31, 8; Fam. *Oleaceae*: *Fraxinus excelsior* L.: 30; Fam. *Solanaceae*: *Hyosciamus niger* L.: 31; *Solanum dulcamara* L.: 30; *Solanum nigrum* L. ssp. *nigrum*: 31, 30; Fam. *Convolvulaceae*: *Calystegia sepium* (L.) R. Br.: 30, 31; *Convolvulus arvensis* L.: 13, 30, 32, 31; Fam. *Cuscutaceae*: *Cuscuta epithimum* (L.) L. ssp. *trifolii* (Bab.) Berher var. *trifolii*: 3; var. *prodani* (Buia) Ciocârlan: 3; Fam. *Boraginaceae*: *Echium vulgare* L.: 30; *Pulmonaria obscura* Dumort.: 14; 31; *Symphytum officinale* L. ssp. *officinale*: 34, 6, 30, 31, 13, 8; Fam. *Verbenaceae*: *Verbena officinalis* L.: 31; Fam. *Lamiaceae*: *Ajuga genevensis* L.: 14, 32; *Clinopodium vulgare* L.: 31; *Elsholtzia ciliata* (Thunb.) Hyl.: 31; *Galeopsis bifida* Boenn.: 31; *Lamium album* L.: 13, 30, 7, 31, 32, 14; *Leonurus cardiaca* L. ssp. *villosus* (Desf. ex Sprengel): 7, 31, 13; *Lycopus europaeus* L.: 1, 8, 31, 14, 32; *Mentha arvensis* L. ssp. *austriaca* (Jacq.) Briq.: 31; *Origanum vulgare* L.: 31, 13, 30, 18; *Salvia verticillata* L.: 34, 2, 31; *Stachys germanica* L.: 31; *Thymus balcanus* Borb.: 30; Fam. *Scrophulariaceae*: *Digitalis grandiflora* Miller: 14, 34, 20, 32, 17; *Euphrasia officinalis* L. ssp. *monticola* Silverside: 14; *Lathraea squamaria* L.: 32; *Linaria vulgaris* Miller: 31, 13, 8, 7; *Melampyrum bihariense* A. Kerner: 32, 13; *Melampyrum sylvaticum* L.: 31; *Rhinanthus alectorolophus* (Scop.) Pollich: 30, 32; *Scrophularia nodosa* L.: 30, 13, 1, 32, 20, 14, 8, 7; *Verbascum nigrum* L. ssp. *nigrum*: 31, 13; *Veronica anagallis-aquatica* L.: 31; *Veronica serpyllifolia* L. ssp. *serpyllifolia*: 34, 31; *Veronica teucrium* L. ssp. *teucrium*: 31; Fam. *Orobanchaceae*: *Orobanche caryophyllacea* Sm.: 31; Fam. *Campanulaceae*: *Campanula cervicaria* L.: 31; *Campanula trachelium* L.: 14, 32; *Phyteuma orbiculare* L.: 31, 32; *Phyteuma tetramerum* Schur: 32, 14; *Phyteuma wagneri* A. Kerner: 14; Fam. *Rubiaceae*: *Asperula cynanchica* L.: 30; *Galium aparine* L.: 30; *Galium*

mollugo L.: 30, 32; Fam. *Caprifoliaceae*: *Sambucus ebulus* L.: 7, 14, 13; *Sambucus nigra* L.: 30, 8, 31, 32, 20, 14, 6; *Viburnum opulus* L.: 6; Fam. *Valerianaceae*: *Valeriana officinalis* L.: 30, 31, 32, 14; *Valeriana sambucifolia* Mikan fil.: 31; *Valeriana simplicifolia* (Reichenb.) Kabath: 30; *Valeriana tripteris* L.: 34; Fam. *Dipsacaceae*: *Scabiosa columbaria* L. ssp. *columbaria*: 32; *Scabiosa ochroleuca* L.: 30, 31, 13; Fam. *Asteraceae* (*Compositae*): *Achillea stricta* (Koch) Schleicher ex Gremler: 32, 14; *Arctium lappa* L.: 30, 7; *Arctium tomentosum* Miller: 13, 30, 7, 31, 14, 32, 20, 6; *Artemisia vulgaris* L.: 7, 31; *Carduus crispus* L. ssp. *crispus*: 13, 1; *Carlina vulgaris* L.: 1, 8, 34, 30, 31; *Centaurea scabiosa* L.: 30; *Cirsium decussatum* Janka: 31; *Echinops exaltatus* Schrader: 32; *Eupatorium cannabinum* L.: 30, 32; *Galinsoga ciliata* (Rafin.) Blake: 31; *Galinsoga parviflora* Cav.: 31, 30; *Inula helenium* L.: 14; *Matricaria perforata* Mérat: 30; *Senecio jacobea* L. ssp. *jacobea*: 30; *Senecio sylvaticus* L.: 30, 7; *Serratula tinctoria* L.: 24, 31, 32; *Xanthium spinosum* L.: 30; *Xanthium strumarium* L.: 30; *Cichorium intybus* L. ssp. *intybus*: 34, 2, 4, 31; *Hieracium flagellare* Willd. ex Schlecht: 14; *Hieracium lachenalii* C. C. Gmelin: 32, 28; *Hieracium lactucella* Wallr.: 30, 32, 14; *Hieracium murorum* L.: 32; *Hypochoeris maculata* L.: 31; *Leontodon hispidus* L. ssp. *hispidus*: 30, 31; ssp. *hastilis* (L.) Gremler: 30, 31, 28; *Scorzonera rosea* Waldst. et Kit.: 32; *Sonchus arvensis* L. ssp. *arvensis*: 31, 32; Fam. *Alismaceae*: *Alisma plantago-aquatica* L.: 1, 31, 32; Fam. *Liliaceae*: *Colchicum autumnale* L.: 34, 24; *Streptopus amplexifolius* (L.) DC.: 34; Fam. *Iridaceae*: *Sisyrinchium montanum* E. L. Greene: 14; Fam. *Orchidaceae*: *Dactylorhiza incarnata* (L.) Soó: 30; *Dactylorhiza maculata* (L.) Soó ssp. *maculata*: 30, 14, 7; *Dactylorhiza majalis* (Rchb.) Hunt et Sumerhayes: 30; *Dactylorhiza saccifera* (Brongn.) Soó: 14; *Neottia nidus-avis* (L.) L. C. M. Richard: 33; *Orchis coriophora* L. ssp. *fragrans* (Pollini) K. Richter: 14; *Pseudorchis albida* (L.) A. et D. Löve: 9, 10, 25; *Traunsteinera globosa* (L.) Reichenb.: 3, 14; Fam. *Juncaceae*: *Juncus conglomeratus* L.: 31, 13, 8; Fam. *Cyperaceae*: *Carex acuta* L. ssp. *acuta*: 4, 31; *Carex digitata* L.: 32; *Carex distans* L.: 30, 7; *Carex divulsa* Stokes: 30; *Carex echinata* Murray: 30, 31, 7; *Carex lepidocarpa* Tausch: 30; *Carex montana* L.: 34, 33; *Carex pairae* F. W. Schultz: 13; *Carex pallescens* L.: 30, 7, 32, 14, 9, 10, 25, 19; *Carex pilosa* Scop.: 32; *Carex viridula* Michx. ssp. *viridula*: 1; Fam. *Poaceae* (*Gramineae*): *Poa compressa* L. ssp. *compressa*: 4, 32; *Bromus hordeaceus* L.: 31, 32; *Alopecurus aequalis* Sobol.: 31; *Alopecurus geniculatus* L.: 14; *Alopecurus pratensis* L. ssp. *pratensis*: 34, 8, 31, 13; *Calamagrostis epigeios* (L.) Roth: 30, 8; *Milium effusum* L.: 24, 16, 18, 7; *Echinochloa crus-galli* (L.) Beauv.: 32; *Setaria pumila* (Poir.) Schultes: 30, 32; Fam. *Sparganiaceae*: *Sparganium erectum* L. ssp. *erectum*: 32, 31; Fam. *Typhaceae*: *Typha angustifolia* L.: 31.

On the basis of the research made between 2000 and 2004, the conspectus of the vascular flora from the natural ecosystems includes 740 species and subspecies, from which 711 species (3 hybrids) and 29 atypical subspecies, 124 species being represented by the type subspecies. To this conspectus, 9 varieties may also be added. All these systematic categories belong to 329 genera and 88 botanical families.

It comes out that 698 species and subspecies (94,32%) are not included in neither categories of the Red List, 42 species and subspecies (5,67%) being distributed by the following categories:

28 rare species and subspecies (**R**) (**3,78%**): *Athyrium distentifolium* (after Dihoru Gh., 1994); *Pinus sylvestris*; *Trollius europaeus* ssp. *europaeus* (**V**, after Dihoru Gh., 1994); *Dianthus barbatus* ssp. *compactus*; *Trifolium spadiceum*; *Salix aurita*; *Monotropa hypopitys*, *Trientalis europaea* (**E** – [5]); *Gentiana acaulis*; *Rhinanthus alectorolophus* (**V** – [5]); *Valeriana simplicifolia* [15]; *Scorzonera rosea*; *Streptopus amplexifolius*; *Gladiolus imbricatus* [5]; *Dactylorhiza incarnata* [15], *D. maculata* ssp. *maculata*, *D. maculata* ssp. *schurii*, *D. majalis*; *Epipactis helleborine*, *Goodyera repens*; *Gymnadenia conopsea* ssp. *conopsea*; *Listera ovata*, *Neottia nidus-avis*, *Orchis coriophora* ssp. *fragrans*; *Platanthera bifolia*; *Pseudorchis albida*; *Traunsteinera globosa*; *Luzula pallescens*;

2 vulnerable/rare species (**V/R**) (**0,27%**): *Anacamptis pyramidalis*; *Typha shuttleworthii* (**R** – [5]);

3 sub endemic/rare species (**bR**) (**0,40%**): *Ranunculus carpaticus*, *Phyteuma tetramerum*, *Ph. wagneri*;

3 species having rare European specific spreading area (**BR**) (**0,40%**): *Centaurea melanocalathia*, *Cirsium decussatum*, *Leucanthemum waldsteinii*;

1 vulnerable species (**V**) (**0,13%**): *Arnica montana*;

1 species endemic to Romania, rare (**AR**) (**0,13%**): *Primula elatior* ssp. *leucophylla* (**nt** – not endangered – [5]);

1 species endemic to Romania, not endangered (**A nt**) (**0,13%**): *Helictotrichon decorum*

1 species having endangered European specific spreading area (**BE**) (**0,13%**): *Abies alba*;

1 species not endangered (**nt**) (**0,13%**): *Galanthus nivalis*;

1 species having not endangered European specific spreading area (**B nt**) (**0,13%**): *Cirsium furiens* (**K** – undetermined – [5])

The implementation of the I.P.A. – Romania project requires the coverage of some steps, including drawing up national Red List, in accordance with the following criteria: **A** – endangered species (**Ai** – worldwide level endangered species; **Aii** – European level endangered species; **Aiii** – endemic and endangered species, not included in Ai and Aii categories; **Aiv** – sub endemic and endangered species, not included in Ai, Aii and Aiii categories); **B** – vegetal diversity (**Bi** – list of endangered types of habitats from Romania, not included yet in the Habitats Directive or in the Bern Convention; **Bii** – list of endemic, sub endemic, vulnerable, endangered, rare species); **C** – endangered habitats (**Ci** – list of habitats types from Romania, included as priority in the Habitats Directive and included in the Bern Convention; **Cii** – list of habitats types from Romania, included as non-priority in the Habitats Directive and acknowledged by the Bern Convention) [20].

In Moldovița's Basin have been identified 17 species that suit some of the enumerated criteria (Table no. 1).

Table no. 1 – Rare species from Moldovița' Basin, according to I. P. A. criteria [20]

Species	IPA - Criteria	Vulnerability level in Romania
<i>Lycopodium selago</i>	Aii	VU
<i>Lycopodium clavatum</i>	Aii	VU
<i>Lycopodium annotinum</i>	Aii	VU
<i>Galanthus nivalis</i>	Aii	VU
<i>Campanula abietina</i>	Aii	LR
<i>Campanula serrata</i>	Aii	LR
<i>Arnica montana</i>	Aii	VU
<i>Typha shuttleworthii</i>	Aii	LR
<i>Primula elatior ssp. leucophylla</i>	Aiii	LR
<i>Helictotrichon decorum</i>	Aiii	VU
<i>Taxus baccata</i>	Bii	VU
<i>Trientalis europaea</i>	Bii	VU
<i>Anacamptys pyramidalis</i>	Bii	VU
<i>Trollius europaeus</i>	Bii	R
<i>Dactylorhiza incarnata</i>	Bii	R
<i>Orchis coriophora</i>	Bii	R
<i>Traunsteinera globosa</i>	Bii	R

The C. E. Directive no. 92/43/EEC from the 21 of may 1992 regarding the conservation of natural habitats and wild flora and fauna, in the 5-th Annexe, concerning plant species of communitarian interest, the drawing and exploitation of witch are the

subject of management plans, specify at this category the species of *Lycopodium* genera (*Lycopodiaceae* family), *Galanthus nivalis* (*Amaryllidaceae* family) and *Arnica montana* (*Asteraceae* family), that can be found in the area we have studied. Among these, on the basis of own observations, we may consider that *Arnica montana* appears to be the most affected, at the end of August and beginning of September being very difficult to find a plant with the anthodium, since the inflorescences are collected for medicinal purposes.

Another species, considered rare in normative documents at European level is *Typha shuttleworthii*, included in the law for Romania's adhesion to the Convention regarding the conservation of wildlife and natural habitats in Europe, adopted at Bern in 19 September 1979, published in M. O. no. 62/25.03.1993.

Besides these species, in Bern's Convention (Appendix I, Annex I 1998), is also included *Campanula abietina*, and in Habitats Directive (Annex IVb), *Campanula serrata*, considered, in Annex IIB as a priority species [20].

Bibliography

- BELDIE AL., 1977, 1979. *Flora României. Determinator ilustrat al plantelor vasculare*, I, II, Edit. Acad. Rom.: 412 p., 406 p.
- CIOCĂRLAN V., 1988, 1990. *Flora ilustrată a României*, I, II, Edit. Ceres, București: 512 p., 598 p.
- CIOCĂRLAN V., 2000. *Flora ilustrată a României. Pteridophyta et Spermatophyta*, Edit. Ceres, București: 1138 p.
- COLDEA GH., NEGREAN G., SÂRBU I., SÂRBU ANCA (coord.). 2001. *Ghid pentru identificarea și inventarierea pajiștilor seminaturale din România*, Edit. alo, București!, București: 17 – 58
- DIHORU GH., DIHORU ALEXANDRINA. 1994. Plante rare, periclitare și endemice în flora României – Lista Roșie, *Acta Bot. Horti Bucurestiensis*, București, 1993 – 1994: 173 – 197
- DIHORU GH., PÂRVU C. 1987. *Plante endemice în flora României*, Edit. Ceres, București: 181 p.
- DOBRESCU C., VIȚALARIU GH. 1987. Noi contribuții la studiul vegetației din Moldova, *An. Șt. Univ. "Al. I. Cuza" Iași*, T. XXXIII, s II a (Biol.): 25-26
- HERBICH FR., 1859. *Flora der Bucovina*, Verlag Von F. Volckmar., Leipzig: 460 p.
- IONEL A., MANOLIU AL., ZANOSCHI V. 1986. *Cunoașterea și ocrotirea plantelor rare*, Edit. Ceres, București: 134 p.
- LUCESCU T., 1987. Plante noi sau rare din flora Bucovinei, *Culegere de Stud. și Art. de Biol.*, Univ. "Al. I. Cuza" Iași, *Grăd. Bot.*, 3: 260 – 261
- MÂNZU C. 2004. Contributions to the study of the vascular flora from the Moldovița river's area (Suceava county), *Bul. Grăd. Bot. Iași*, 12: 75-80
- MÂNZU C. 2004. The analysis of the vascular flora from the Moldovița's river basin (Suceava County), *An. Șt. Univ. "Al. I. Cuza" Iași*, t. L, s. II a Biol. veget.: 79 - 88
- MITITELU D., CHIFU T., PASCAL P., 1989. Flora și vegetația Județului Suceava, *Anuar. Muz. Jud. Suceava*, X: 93 – 120
- NEGREAN G. 1975. Protecția unor plante endemice rare din România, *Ocrot. Nat. și a Mediului Înconj.*, 19, 2: 141 – 143
- NEGREAN G. 2001. Lista Roșie a plantelor din România existente în pajiști, inclusiv endemite și subendemite (*Tracheophyta*), in Sârbu Anca (coord.). *Ghid pentru identificarea și inventarierea pajiștilor seminaturale din România*, Edit. „Alo, București!”, București: 30 – 58
- OLTEAN M., NEGREAN G., POPESCU A., ROMAN N., DIHORU G., SANDA V., MIHĂILESCU S.. 1994. Lista Roșie a plantelor superioare din România, *Stud., Sint., Docum. Ecol.*, 1/1994, Acad. Rom., Inst. de Biol., București: 52 p.
- OPRIȘ T. 1990. *Plante unice în peisajul românesc*, Edit. Sport – Turism, București: 158 p.
- PANAIT V., 1969. *Contribuții la studiul vegetației și îmbunătățirii pajiștilor naturale din bazinul Moldoviței, jud. Suceava*. Teză de doctorat, Inst. Agron. Iași, Facult. Agron.
- RĂVĂRUȚ M., MITITELU D., TURENSCHI E., 1969. Contribuție la studiul geobotanic al pajiștilor din Bazinul Moldovei, *Lucr. Șt. Inst. Agr. "I. Ionescu de la Brad"*, Iași, I, Agronom. – Hort.: 187 – 196
- SÂRBU ANCA (coord.), COLDEA GH., SÂRBU I., CRISTEA V., NEGREAN G., OPREA AD., CRISTUREAN I., POPESCU GH. 2003. *Ghid pentru identificarea importanțelor arii de protecție și conservare a plantelor din România*, Edit. alo, București!: 113 p.

21. SÂRBU I., ȘTEFAN N., IVĂNESCU LĂCRĂMIOARA, MÂNZU C., 2001. *Flora ilustrată a plantelor vasculare din Estul României*, I, II, Edit. Univ. „Al. I. Cuza” Iași: 781 p. + 354 pl.
22. ***, 1952-1976. *Flora R. P. R. - R. S. R.*, I-XIII, Edit. Acad. R. P. R. – R. S. R., București
23. ***, Decret pentru promulgarea Legii privind aprobarea planului de amenajare a teritoriului național, Secțiunea a III-a – Zone protejate, M. O. nr. 152/12.04.2000
24. ***, Directiva C. E. nr. 92/43/EEC din 21 mai 1992 privind conservarea habitatelor naturale și faunei și florei sălbatice (Habitats Directive); Anexa V
25. ***, Lege pentru aderarea României la Convenția privind conservarea vieții sălbatice și a habitatelor naturale din Europa, adoptată la Berna la 19 septembrie 1979, M. O. nr. 62/25.03.1993
26. ***, O. U. Nr. 236/24.11.2000 privind regimul ariilor protejate, conservarea habitatelor naturale, a florei și faunei sălbatice, publicată în M. O. nr. 625/4.12.2000