RESEARCH ON MYCOBIOTA FOREST HABITATS IN ”SILVOSTEPA OLTENIEI” (I)

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ABSTRACT

In the protected area ”Silvostepa Olteniei” are present 3 forest habitats with different area: 91M0, 91I0, 91E0. Studies are focused on the 3 forest habitats for several reasons: they are the most stable natural ecosystems, a synonym of their mycobiote can be established, fungi are a major component in the establishment of natural ecosystems...

The main objective of our research is to make contributions to the corology of the area of mushroom species in forest habitats present in ”Silvostepa Olteniei” and to come up with data and suggestions related to solving problems of local forestry interest.

Following the determination of the collected material, an inventory was made containing 95 taxa which are either parasites on different grassy or woody species or saprofitons on various substrates.

INTRODUCTION

”Silvostepa Olteniei” was proposed as a protected area in 2007 on the basis of OM 1964/2007 and declared in 2008. It is located in the SV of Romania, in the plain Romanian, in the western part of the Oltenia Plain, in the Plain of Desnățui. From an administrative point of view it belongs to dolj (mostly) and Mehedinți (locality Bălăcița). The hydrographic network in the area is tributary to the Desnățui River.

The climatic conditions are those characteristic of the temperate-continental climate, with weak Mediterranean influences.

The site preserves relics of forests that once covered the SV area of the Oltenia Plain, classified as three forest habitats that provide optimal development conditions for sozologically valuable plants (e.g. *Acanthus balcanicus*, *Ziziphora capitata*).

Few works include information about the flora or vegetation of a particular territory, which have data on fungi (e.g. Coldea et al. 1987, Răduțoiu et al., 2014).

Monographic mycological studies involving different areas of Oltenia, some of which were part of Natura 2000 sites, research that did not include data from the Protected Area ”Silvostepa Olteniei”, led us to carry out an inventory of forest habitats in this area.

The oldest mycological information is easily found in the local population near the habitats/habitats studied.

The oldest data on this category of organisms can be found in Dr. Gheorghe Silaghi-Sălăgeanu (1966), with the subject "Macromycetele" from the former great Cluj Region".

On pratic habitats in Oltenia, mycological studies were carried out by several authors, such as Comes Ene, 1962, Comes, 1971, Comes al., 1975, etc.

Data on Oltenia macromycets are published by Popescu et al. (2003), Ciortan (2004a, 2004b, 2005a, 2005b, 2006, 2007a, 2007b, 2007c, 2007d, 2008a, 2008b, 2009a, 2009b, 2009c, 2010, 2013a, 2013b, 2013c), Corneanu et al. (2010), Ciortan et Negrean (2013).

MATERIAL AND METHOD

In order to carry out the conspect, numerous field trips were made to collect material necessary for further identification in the laboratory. The identification was carried out both on fresh material and preserved by herborization.

Numerous field observations have been made regarding the host-parasite-environment plant complex of the three forest habitats with area in the researched area.

RESULTS AND DISCUSSIONS

Following the determination of the collected material, an inventory was made containing 95 taxa which are either parasites on different grassy or woody species or saprofitons on various substrates.

Consure of identified species: Albuginaceae: *Albugo amaranthi* (Schwein.) O. Kuntze on the leaves of *Amaranthus retroflexus* L.; Peronosporaceae: *Basidiophora entospora* Roze Cornu - on the leaves of *Erigeron annuus* (L.) Pers., *Bremia lactucae* Regel - on the vegetative organs of *Hieracium murorum* L., *Lapsana communis* L. and *Taraxacum officinale* Weber.; *Bremia sonchi* K. Sawada on the leaves of *Sonchus arvensis* L., *Peronospora alchemillae* Otth - on the leaves of *Potentilla reptans* L., *Peronospora alta* Fuck. - on the leaves of *Plantago major* L., *Peronospora ficariae* L. R. Tul. ex de Bary - on *Ranunculus repens* L., *Peronospora lamii* A. Br. - on the vegetative parts of *Lamium maculatum* L., *Peronospora niesleana* Berl. - on the leaves of *Alliaria petiolata* (Bieb.) Cavara Grande., *Peronospora trifoliorum* De Bary - on the stem and leaves of *Trifolium hybridum* L., *Peronospora verbenae* U. Braun, Jage, Udo Richt. and H. J. Zimmerm. - on the leaves of *Verbena officinalis* L.; Taphrinaceae: *Taphrina pruni* Tul. - on fruit of *Prunus spinosa* L., Erysiphaceae: *Blumeria graminis* f sp. *secale* (sin. *Erysiphe graminis* f. sp. *secale*) - on leaves and inflorescences of *Secale cereale* L. and on *Elymus repens* (L.) Gould., *Diaporte adunca* (Rob.) Niessl - on the leaves of *Plantago lanceolata* L., *Erysiphe cichoracearum* D.C. ex Merat. - on the leaves of *Sonchus arvensis* L. on the leaves of *Lapsana communis* L., *Erysiphe circaeae* L- on the leaves of *Circaea lutetiana* L., *Erysiphe convolvuli* D.C ex St. Am. - on the leaves of *Convolvulus arvensis* L., *Erysiphe graminis* D.C ex Merat. - on the leaves of *Brachypodium sylvaticum* Huds., *Erysiphe heraclei* DC. - on the leaves of *Anthriscus sylvestris* (L.) Hoffm. *Heracleum sphondylium* L., *Erysiphe martii* Lév. – on the leaves of *Robinia pseudacacia* L., *Erysiphe polygoni* D.C. ex. St. Am. - on the leaves of *Rumex crispus* L., on *Polygonum aviculare* L. and on the leaves of *Rumex conglomeratus* Murray., *Erysiphe sordida* L. Junell. - on the leaves of *Plantago major* L., *Erysiphe syringae* Schwein. - on the leaves of *Ligustrum vulgare* L. and *Syringa vulgaris* L., *Erysiphe urticae* (Wallr.) Blumer - on the stem and leaves of *Urtica dioica* L., *Erysiphe viburni* Duby (*Microsphaera viburni* (Duby) Blumer) - on the leaves of *Viburnum opulus* L., *Erysiphe viciae* Fuss. - on the leaves of *Robinia pseudacacia* L., *Microsphaera alphitoides* Griff. and Maubl., on the leaves of *Quercus robur* Willd., *Phyllactinia guttata* (Wallr.) Lev. - on the leaves of *Corylus avellana* L., *Podosphaera fugax* (Penz. Et Sacc.) U. Braun et S. Takam., *Sphaerotheca fugax* Penz. et Sacc.) – on the leaves of *Geranium phaeum* L., *Podosphaera tridactyla* (Wallr.) De Bary - on the leaves of *Prunus spinosa* L., *Sawadea bicornis* (Wallr.) Homma - on the leaves of *Acer campestre* L., *Acer tataricum* L., *Sphaerotheca alchemillae* (Grev.) L. Junell - on the leaves of *Agrimonia eupatoria* L., *Sphaerotheca balsaminae* (Wallr.) Kari - on the stem and leaves of *Impatiens noli-tangere* L., *Sphaerotheca erigerontis-canadensis* (Lev.) L. Junel - on the leaves of

Taraxacum officinale Web. ex F.H.Wigg., *Uncinula adunca* (Wallr. ex Fr.) Lev. - on the leaves of *Salix fragilis* L., *Uncinula prunastri* (D.C. ex Merat) Sacc. - on the leaves of *Prunus spinosa* L.; Clavicipitaceae: *Claviceps purpurea* (Fr.) Tul. *Dactylis glomerata* L.; Phyllacoraceae: *Phyllachora graminis* (Pers.) Fuck - on the leaves of *Brachypodium sylvaticum* (Huds.) Beauv., *Polystigma rubrum* (Pers.) DC. - on the leaves of *Prunus spinosa* L.; Valsaceae (sin. Gnomoniaceae): *Gnomonia leptostyla* (Fr.) Ces. et de Not. - on the leaves of *Juglans regia* L., *Hypoxylon fragiforme* (Pers.) J. Kickx f. – on branches of *Cerasus avium* (L.) Moench., *Xylaria longipes* Nitschke - common on rotting stumps, fallen branches, deciduous stumps; in the territory of *Carpinus betulus*.; Mycosphaerellaceae: *Mycosphaerella graminicola* (Fuckel) J. Schröt - on the leaves of *Elymus repens* (L.) Gould, *Mycosphaerella mori* (Fuck.) Lind. - on the leaves of *Morus alba* L., *Mycosphaerella plantaginis* (Sollm.) Vestergr. – on *Plantago major* L., *Mycospherella rubi* (Fr.) Roark - on the leaves of *Rubus caesius* L., *Mycosphaerella sentina* (Fuck.) Schroet. - on the leaves of *Pyrus pyraster* (L.) Burgsd., *Mycosphaerella ulmi* Kleb. – on the leaves of *Ulmus glabra* Huds., *Ramularia geranii* (Westend.) Fuckel – on stems and leaves of *Geranium phaeum* L.; Venturiaceae: *Venturia pirina* Aderh. - on the leaves and fruits of *Pyrus pyraster* (L.) Burgsd.; Dermateaceae: *Diplocarpon rosae* Wolf. - on the leaves of *Rosa canina* L.; Polyporaceae: *Fomes fomentarius* (L.) J.K. Kickx – common on deciduous trunks throughout the researched territory; *Lentinus tigrinus* (Bull.) Fr. - present on willow and poplar trunks and stumps in most of the localities of the researched territory; *Phellinus igniarius* (L.) Quel. – present on the ritidom of *Salix fragilis*; *Polyporus squamosus* (Huds.) Fr. – on the ritidom de *Juglans regia* L., on the carpen ritidom (*Carpinus betulus* L.); *Trametes hirsuta* (Wulfen) Pilat - frequently on willow and carpen stumps; *Trametes versicolor* (L.) Lloyd in the advanced stage of putrefaction; Ganodermataceae: *Ganoderma applanatum* (Pers.) Pat. present by species of maple, lime; *Russula lepida* Fr. – present in the forest by *Carpinus betulus* L. with *Quercus robur* L.; Stereaceae: *Stereum hirsutum* (Willd.) Pers. – present on deciduous stump (*Alnus glutinosa*, *Quercus spp.* etc.); *Stereum insignitum* Quel. - present on stumps and branches of gorun; *Stereum gausapatum* (Fr.) Fr. on oak branches (*Quercus robur*) and carpen (*Carpinus betulus*) at various stages of putrefaction; Sclerodermaae: *Scleroderma verrucosum* (Bull.) Pers. – on the ground in the forest clearing of *Carpinus betulus* with *Quercus robur*; Tricholomataceae: *Collybia fusipes* (Bull. et Fr.) Quel – present on the stumps of *Carpinus betulus* in the forest; Agaricaceae: *Agaricus arvensis* Schaeff. - found in meadows; *Agaricus bisporus* (J.E. Lange) Imbach - present in meadows, roadsides, forest edges, gardens; *Agaricus sylvaticus* Schaeff. ex Secr. - on the ground in the forest of *Carpinus betulus* with *Quercus robur*; *Lycoperdon foetidum* Bon. - on the ground in the forest of *Carpinus betulus* with *Quercus robur*; *Lycoperdon giganteum* Koke – parasite on the ground in forests mixed by *Carpinus betulus* with *Robinia pseudacacia*; *Macrolepiota procera* (Scop.) Singer – common in the forests built by *Quercus robur*; Pleurotaceae: *Pleurotus ostreatus* (Jacq.) P. Kumm. - present on willow, poplar and acacia; Schizophyllaceae: *Schizophyllum commune* Fr. – on branches of *Carpinus betulus* L.; Coprinaceae: *Coprinus comatus* (O.F. Müll.) Pers. – present on the ground at the edge of the forest of *Quercus cerris* and *Quercus frainetto*, in places more or less related; Fistulinaceae: *Fistulina hepatica* (Schaeff.) With. – parasite on the ritidom de *Quercus polycarpa*; Pluteaceae (syn. Amanitaceae); *Amanita alba* Gillet - on the ground in the forest of *Carpinus betulus* with *Quercus robur*; *Amanita*

caesarea (Scop. et. Fr.) Pers. et. Schw. – parasite in the forest of *Quercus cerris* and *Quercus frainetto*; Gomphaceae: *Ramaria flava* (Tourn. ex Battarra) Quel. – present in forests of *Quercus cerris* and *Quercus frainetto*; Phallaceae: *Phallus impudicus* L. – on the ground in the forest of *Quercus cerris* and *Quercus frainetto*; Melampsoreaceae: *Cronartium flaccidum* (Alb. et Schw.) Mr. Wint. - on the leaves of *Vincetoxicum hirundinaria* Medicus., *Melampsora allii-salicis-albae* Kleb. - on the leaves of *Salix alba* L., *Melampsora amygdalina* Klebathn - on the leaves of *Salix fragilis* L.; Phragmidiaceae: *Phragmidium disciflorum* (Tode) James - on leaves of *Rosa canina* L., *Phragmidium potentillae* (Pers.) Karst - on leaves of *Potentilla recta* L., *Phragmidium violaceum* (Schultz.) Mr. Wint. - on the leaves of *Rubus candicans* Weihe et Rchb.; Pucciniaceae: *Puccinia behenis* (DC.) Otth, I'm not going to - on the leaves of *Silene vulgaris* (Moench) Garcke., *Puccinia circaeae* Pers. – on the leaves of *Circaea lutetiana* L., *Puccinia glechomatis* DC. - on the leaves of *Glechoma hirsuta* Waldst. and Kit., *Puccinia lapsanae* (Schultz) Fuck - on leaves of *Lapsana communis* L., *Uromyces dactylidis* Otth. - on the leaves of *Dactylis glomerata* L., *Uromyces polygoni* (Pers.) Fuck. - on leaves of *Polygonum aviculare* L., *Urocystis agropyri* (Preuss) A.A. Fisch. Waldh, I'm going to - on the leaves of *Elymus repens* (L.) Gould, *Cladosporium epihyllum* (P.) Mart - on the leaves of *Robinia pseudacacia* L., *Cladosporium herbarum* (Pers.) Link. on the leaves of *Holcus lanatus* L. on the leaves of *Elymus repens* (L.) Gould, *Stigmina carpophila* (Lev.) Ellis on the leaves of *Cerasus avium* (L.) Moench. and *Prunus spinosa* L.; Botryosphaeriaceae: *Phoma pomorum* Thüm. – on the leaves of *Prunus spinosa* L.; Sphaeropsidaceae: *Ascochyta glechomae* Sandu et Mititiuc – on the leaves of *Glechoma hederacea* L., *Septoria agropyri* Ellis et Everh. - on the leaves of *Elymus repens* (L.) Gould, *Septoria calaminthae* Massal. - on the leaves of *Calamintha menthifolia* Host., *Septoria cornicola* Desm. - on the leaves of *Cornus sanguinea* L., *Septoria cytisi-hirsuti* Savul. et Sandu - on the leaves of *Chamaecytisus hirsutus* L. subsp. *leucotrichus* (Schur) A. and D. Löve, *Septoria erigerontis* Peck - on the leaves of *Erigeron annuus* (L.) Pers., *Septoria gei* Rob et Desm. - on leaves of *Geum urbanum* L., *Septoria lamii-maculati* (Mass.) Died. - on the leaves of *Lamium maculatum* L., *Septoria rubi* West. - on the leaves of *Rubus caesius* L., *Septoria tiliae* West. - on the leaves of *Tilia tomentosa* Moench., *Septoria veronicae* Roberge ex Desm. on the leaves of de *Veronica chamaedrys* L.

The taxonomic analysis of the mycobiota identified in the forest habitats from “Silvostepa Olteniei” highlights the presence in large numbers of species from the families Erysiphaceae, Peronosporaceae and Pucciniaceae (Table 1).

CONCLUSIONS

Preliminary data regarding the mycobiota present in Silvostepa Olteniei highlight the presence of 95 taxa belonging to 27 families. The families with the most representatives are Erysiphaceae (24), Peronosporaceae (10), Pucciniaceae (10). The rest have less than 10 taxa.

As regards polyphagia, most species are present on one species (e.g. *Acer campestre, Acer tataricum, Amaranthus retroflexus, Verbena officinalis*, etc.), rarely being more phytopathogenic agents on the same host plant: *Sonchus arvensis, Prunus spinosa, Elymus repens, Robinia pseudacacia*, etc.

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Table 1

Taxonomic analysis

Family	Number of representatives
Erysiphaceae	24
Peronosporaceae	10
Pucciniaceae	10
Mycosphaerellaceae	7
Polyporaceae	6
Agaricaceae	6
Valsaceae	3
Stereaceae	3
Melampsoraceae	3
Phragmidiaceae	3
Pluteaceae	2
Phyllacoraceae	2
Ganodermataceae	2
Venturiaceae	1
Pleurotaceae	1
Albuginaceae	1
Schizophyllaceae	1
Clavicipitaceae	1
Taphrinaceae	1
Coprinaceae	1
Fistulinaceae	1
Sclerodermataceae	1
Tricholomataceae	1
Gomphaceae	1
Phallaceae	1
Botryosphaeriaceae	1
Sphaeropsidaceae	1