

**PARASITIC AND SAPROPHYTE MICROMYCETES ON  
THE TREES AND ORNAMENTAL SHRUBS FROM THE  
DENDROLOGICAL NURSERY OF SCDP IASY AND  
PLANTATIONS**

**MICROMICETE PARAZITE ȘI SAPROFITE PE ARBORII ȘI  
ARBUȘTII ORNAMENTALI DIN PEPINIERA  
DENDROLOGICĂ A S.C.D.P. IAȘI**

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**Abstract:** *The paper presents 11 parasitic or saprophyte micromycetes on the ornamental shrubs from the dendrological nursery of SCDP Iasi. One micromycete *Corineopsis lirella* is new for Romania and for other 10 micromycetes known in the country there are new host plants. The study of parasitic or saprophyte micromycetes on the trees or shrubs from the dendrological nurseries or parks is of great importance in terms of their protection or the prevention of pathogen attack. The studies must be deployed throughout the year to highlight the appearance of the forms of vegetative or asexual reproduction, forms that appear usually during the vegetation period. During the vegetative rest, micromycetes form their last sexual products that we may find in spring on the parasitized organs.*

**Rezumat:** *Lucrarea prezinta 11 micromicete parazite sau saprofite pe arbustii ornamentali din pepiniera dendrologica a SCDP Iasi. O micromiceta *Corineopsis lirella* este noua pentru Romania iar pentru alte 10 micromicete cunoscute in tara se prezinta plante gazde noi. Studiul micromicetelor saprofite sau parazite de pe arborii sau arbustii din pepinierele dendrologice sau parcuri este de mare importanta in ceea ce priveste protectia acestora sau prevenirea atacului patogenilor. Studiile trebuie sa se desfasoare pe tot parcursul anului pentru evidentierea apritiei formelor de inmultire vegetativa sau asexuata, forme ce apar in mod obisnuit in timpul perioadei de vegetatie. In timpul repausului vegetativ micromicetele isi formeaza ultimii produsi de sexualitate care ii putem gasi pe organele parazitare in primavara.*

**MATERIAL AND METHOD**

In the dendrological nursery of the Station for Research-Development in Fruit-growing Iasi we noticed the premature drying of offshoots of different species of ornamental shrubs. The branches or the dried and attacked fruits were harvested on June 15<sup>th</sup> 2007 and then taken to a laboratory for determinations. We went through all the stages of a mycological determination, then we photographed and annexed them to the descriptions of the micromycetes signaled.

## RESULTS AND DISCUSSIONS

Following the determinations, we noticed the following micromycetes:

**1. *Phoma Thujana Thüm.***, Symb. Myc. Austr., III, no.62(1878); Sacc., Syll. *Fung.* III, p.102(1884); C.C.Georgescu, *Bolile criptogamice din pepiniere si plantatii*, I.C.E.S., ser.II-a, p.6(1955); C.C.Georgescu, P. Marinescu, P. Ene, M. Stefanescu si V. Miron, - *Bolile si daunatorii padurilor*, p. 197(1957); Aurelia Crisan – *Observatii asupra catorva micromicete de pe specii de Thuja*-Contr. Bot., Univ.Babes-Bolyai Cluj, p. 35-421(1966); Olga Savulescu, Eugenia Eliade, M. Nägler, Viorica Bontea, *Ciuperci parazite si saprofite din Ramania*, p. 72(1985); M. Mititiuc, Viorica Iacob – *Ciuperci parazite pe arborii si arbusitii din padurile noastre*, Ed. Al. I. Cuza Iasi, p. 296 (1997).

In the dendrological nursery of S.C.D.P. Miroslava - Iasi we noticed during 2007 an attack on the needles of *Chamaecyparis pisifera* Sieb. *Et Zucc.* The needles bleach, dry off and then on their surface we may see (with a magnifying glass) little black spots represented by pycnidia. They are approximately spherical, black, of 110-140 x 110-130 µm, with a circular ostiole of 20 µm in diameter. Through the ostiole there appear little hyaline pycniospores without oily drops, and oval of 2,5-3 x 2µm.

In 2007, due to the mild winter followed by low temperatures for short periods and long drought with high temperatures, the shrubs grew weak and were easily attacked by micromycetes. The same thing is also affirmed by C.C. Georgescu in his papers on the climatic conditions that weaken shrubs.

Micromycetes were first signaled in Romania by C.C. Georgescu on *Thuja* sp. in 1955 and by Aurelia Crisan on *Thuja occidentalis* L. in 1966.

*Chamaecyparis pisifera* Sieb. *et Zucc.* is a new host plant for Romania.

**2. *Phoma spiraeina Paser.***, diagn. F. N. IV, No. 72(1888); Sacc. Syll. *Fung.* X. P. 143(1892); Allescher, *Pilze* VI, ab, p. 249(1901).

On the dry branches of *Spiraea chamaedryfolia* L. *Em. Jacq.*(*sin. S. Ulmifolia Scop.*), there appear very small spots that swell the epidermis by pustules. These are pycnidia having brown walls and are 100 µm in diameter. From the inside of pycnidium appear the unicellular hyaline pycniospores without oily drops of 5 x 2,5 µm. The sizes make this micromycete different from *Ph. Spiraea Desm.* whose pycnidia are smaller but with bigger pycniospores ( 8-10x3 µm) and two oily drops. This micromycete is new for Romania.

*Chamaecyparis pisifera* Sieb. *Et Zucc.* is a new host plant in Romania due to this micromycete.

**3. *Pestalozzia funerea Desm.***, Ann. Sc. Nat. XIX p.335(1843); Sacc., *Fung. Ital.*, tab. 115(1873) Sacc., Syll. *Fung.* III, p. 791(1884); Sacc. Syll. *Fung.* XIII, P. 1234(1898); Allescher – *rabenhorst* Kr. Fl., *Die Pilze, Fungi imperfecti*, VII, p. 681(1903); Migula, Kr. Fl. Bd. III, *Pilze* 4/2, *Fungi imperfecti*, p. 597(1934); C.C. Georgescu, M. Petrescu, P. Ene, M. Stefanescu si V. Miron – *Bolile si daunatorii padurilor*, p. 198(1957); M. Petrescu, *Contributii la cunoasterea micromicetelor din Rezervatia dendrologica Simeria*, Rev. Padurilor,

nr. 77, 1, p. 41-461(1962); M. Petrescu – *Aspecte fitopatologice din padurile R.S.R.*, Ed. Agrosilvica Bucuresti (1966); Olga Savulescu, Eugenia Eliade, M. Nägler, Veronica Tudosescu, *Bolile plantelor ornamentale din Romania*, p. 28(1969); A. Volcinschi – *Contributii la cunoasterea micromicetelor din Rezervatia naturala Padurea Hagieni* – Constanta. Analele Univ. Al.I. Cuza Iasi, XXII. p. 13-18(1977); M. Mititiuc, Viorica Iacob – *Ciuperci parazite pe arborii si arbustii din padurile noastre*. Ed. Al.I. Cuza Iasi, p. 281 (1997).

This micromycete is quite spread in Europe, Russia and even North America.

In our country it was first mentioned at Cluj by Tr. Savulescu and Al. Negru on *Thuja sp.* In his papers, M. Petrescu signaled it on *Juniperus virginiana L.*, on *Thuja Plicata Don.* and on *Chamaecyparis pisifera Sieb. et Zucc.* They noticed a premature drying accompanied by the appearance of some black spots wherefrom appear conidia in a different shape. The spots have 160 - 200 x 140-180 µm, and conidia are spindle-shaped, with four transversal walls of 22-30 x 9 µm, out of the 5 cells, the median cells are brown whereas the terminal ones are hyaline and have 3 terminal cilia.

*Chamaecyparis pisifera Sieb. Et Zucc.* is a new host plant in Romania due to this micromycete.

**4. *Camarosporium pini (West.) Sacc.*** Syll. Fung., III, p. 465(1884). Allescher – Die Pilze, VII ab., *Fungi imperfecti*, p. 259(1903); Diedicke – Kr. Fl. Mark. Br., bd.IX, p. 667(1915); Migula – Kr. Fl. Bd. III, Pilze 4/1, p. 369(1921); Grove, *British stem and leaf fungi*, vol II, p. 93(1967).

Syn. *Henderosonia pini west.*

The micromycete parasitizes the needles of *Chamaecyparis pisifera Sieb. Et Zucc.* weakened by the low temperatures of the winter of 2006-2007 and the drought from the spring-summer of 2007. On the dry needles, one may notice with difficulty (under the magnifying glass) little black spots arranged linearly and in parallel with the nervure. These spots represent pycnidia of 180-300 µm in diameter, black, spherical swelling the epidermis by pustules. Through the pycnidium pore there come out numerous oval brown conidia with three transversal walls and 1-2 vertical walls of sizes ranging between 18-20 x 9-10 µm.

The micromycete we signaled on *Chamaecyparis pisifera Sieb. et Zucc.* harvested on June 15<sup>th</sup> 2007 from the dendrological nursery of S.C.D.P. Miroslva Iasi, is new for the Romanian microflora.

**5. *Alternaria tenuissima (Kunze ex. Pers) Wiltshire,*** Trans. Br. Mycol. Soc. XVIII. p. 157(1933); Ellis, Denatiaceous Hyphomycetes, p. 477(1917).

Syn: *Helminthogonium tenuissima Kunze* (1818);

*Macrosporium tenuissimum Fr.*

The micromycete develops on the annual weakened offshoots a hyaline mycelium on which there appear grouped, simple, easy, flexuous, cylinder,

septupled, brown and smooth conidiophores. These conidiophores normally sustain a single conidium. Conidia are shortly pedicellar, obclavate with rounded end, smooth, brown-golden with 3-4 transversal walls and an oblique-longitudinal wall of 22-27 x 12-13  $\mu\text{m}$ . The pedicel in the shape of a helmet measures 24  $\mu\text{m}$  and is smooth.

This micromycete is known as a cosmopolitan species that appears on tissues previously parasitized or even on the fructifications of some parasitic fungi.

In Romania the fungus is quoted by numerous authors on 35 host plants to which we also add from 2007 *Chamaecypris pisifera* Sieb. et Zucc. harvested at Miroslava-Iasi, on June 15<sup>th</sup> as a new host plant in our country.

**6. *Cladosporium herbarum* (Pers.) Link.,** Mag. Ges. Naturf. Fr. Berlin, VII, p.37(1816); Lindau, Rab, Kr. FL. Deutsch. VIII, p. 800(1907); Migula Kr. Deutsch. III, 4/2, p. 300(1934); Sandu-Ville, *Contr. A la conn. Des Micrmyc. Moldavie*, Bull., Polit. Gh. Asachi I., p. 395 (1946); ellis, dematiaceous Hyphomycetes p. 313, fig. 217(1971).

On the margin of the needles of *Chamaecypris pisifera* Sieb. et Zucc. harvested at Miroslava-Iasy on June 15<sup>th</sup> 2007, we may notice a grey efflorescence made from flexuous, greenish-brown, smooth conidiophores of 200x5  $\mu\text{m}$ , sustaining conidia arranged in chains. These are finely warty, non-septupled or with a septum and measuring 5-20x5  $\mu\text{m}$ . *Chamaecypris pisifera* Sieb. et Zucc. represents a new host plant in our country for this micromycete.

#### **7. *Cladosporium herbarum* (Pers.) Link**

The fruits of *Spiraea chamaedrypholia* L. Em. Jack. that passed the winter get a blackish colour due to the presence of a black layer made from brown thalli from where rise many flexuous, brown, geniculate, smooth conidiophores up to 250  $\mu\text{m}$  high and 3-6  $\mu\text{m}$  thick. Conidia are elongated, brown-greenish, distinctly warty, 0-1 septupled, of 5-23 x 3-8  $\mu\text{m}$ . This micromycete is cosmopolitan, but *Spiraea chamaedrypholia* L. em. Jacq. represents a new plant in our country.

**8. *Fumago vagans* Pers.,** Myc. Eur. I, p.9(1822); Tul., S.F. Carp. II. P. 280(1863); Sacc., Syll. *Fung. IV*, p.547(1886); Lindau, in rab., Kr. Fl.(ed.II) IX, p.268(1910).

Sin: *Cladosporium fumago* Link

*Torula fumago* Cheval

*Dematium salicinum* Alb. Et Schw.

The surface of the fruits of *Spiraea chamaedrypholia* L. em. Jacq covered by a black mycelium presents black sterile hyphae belonging to the micromycete *Fumago vegans* and from them appear a series of conidiophores sustaining conidia arranged in short chains, with 2-3 cells of dark green or even black-greenish colour of 5-15  $\mu\text{m}$  long.

This micromycete may be found together with *Cladosporium herbarum* (pers.) Link., it is cosmopolitan and yet *Spiraea chamaedrypholia* L. em. Jacq. is a new host plant for Romania.

**9. *Phomopsis occulta*(Sacc.) Trav. Var. *Thujae* Grove**, sec Migula, Kr. Fl. Bd. III, pilze 4 teil, 1 ab., p. 170(1021); C.C. Georgescu, *Bolile criptogamice din pepiniere si plantatii*, Ed. Agrosilvica de stat. Ser. II. P. 112(1957); Olga Savulescu, *Bolile plantelor ornamentale din Romania*, p. 27(1969).

Sin. *Phomopsis thujae* Diedicke

On *Thujopsis dolobrata* Sieb. et Zucc. appear small, spherical pycnidia with black peridium that swells the epidermis by pustules. The pore of pycnidia is 7-8  $\mu\text{m}$  in diameter, and through it come out, at their maturity, elliptical spores with sharp ends of 5-8 x 2  $\mu\text{m}$  and two oily drops. C.C. Georgescu as well as Olga Săvulescu quotes this micromycete as being possible to appear on *Thuja plicata* don or pe *Thuja orientalis* L. In the old mycological literature of our country it is quoted on *Thuja occidentalis* L., so that *Tujopsis dolobrata* Sieb. Et Zucc. is a new host plant for Romania.

**10. *Pringsheimia sepincola* (fr.) v.Höhnel**, sec. Munk, danish *Pyrenomicetes*, p. 471, fig.200(1957); C. Sandu Ville, *Ciuperci Pyrenomicetes – sphaeriales din Romania*, p. 152(1971).

Sin. *Sphaeria sepincola* fr.

*Spahaerulina intermixta* (Berk. et.Br.) Sacc.

*Leptosphaeria sepincola*(Fr.) Winter

The dry offshoots of *Spiraea bumalda* Kohne “Anthony Waterer” have large white areas on which we may see black spots represented by the micromycete perithecia. They are arranged in short rows, have thin walls and a pore of 25-30  $\mu\text{m}$ . The asci come out in bunches, are oblong with sizes up to 90-100  $\mu\text{m}$ , and spores arranged on 1,5-2 rows. The ascospores are oblong, spindle-shaped, easily strangled, of yellowish colour and sizes that vary between 10-15 x 5-7,5  $\mu\text{m}$ , with 3 transversal walls. The fungus is rarely quoted in Moldavia (only once in Iasy on *Evonymus europaea* L.) and in other areas of the country only on Rosa, Rubus or *Spiraea ulmifolia* scop. so that *Spiraea bumalda* Koehne “Anthony Waterer”, is a new host plant for Romania.

**11. *Corineopsis Lirella* comb. Nov. Grove W.B.** *British Stem and Leaf Fungi*, vol. II, p. 331(1967).

The surface of the dry offshoots of *Spiraea bumalda* Koehne “Anthony Waterer”, presents pustules with linear deposits. The type *Corineopsis* is characterized by the lack of periderm as compared to other *Coelomycetes*. The spores from deposits are fusiform with 3 septa. The basal cell of conidiophore is less intensely coloured up to being hyaline. The spores measure 14-17,5x5  $\mu\text{m}$ .

*Spiraea bumalda* Koehne “Anthony Waterer” is a new host plant in our country for this micromycete.

The material analyzed was included, after being catalogued, in the „*Mycological Herbarium of Moldavia* “C. Sandu Ville”.

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