

## FUNGI ASSOCIATED WITH RED LIST SPECIES (RL) OF WOODY PLANTS OF GEORGIA

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**Abstract.** The paper deals with 27 species of fungi first recorded with Red List (RL) species of woody plants (*Astragalus caucasicus*, *Astragalus sosnowskyi*, *Astragalus microcephalus*, *Berberis iberica*, *Crataegus pontica*, *Ruscus ponticus*) from Georgia.

**Keywords:** Red List, Georgia, Fungi, Mycobiotic complexes, NBG.

**Introduction.** Due to different reasons the Red List plants are in danger of extinction. Thus, it is very important to study their satellite mycobiotic complexes, which are essential for the viability of the plants. At the same time, registration of species composition of mycobiotic fungi of trees and shrubs has great importance for studying fungi diversity.

Mycobiota of the Red Book trees and shrubs, with few exceptions, has not been the subject of a special study so far. The novelty includes both fundamental and applied issues.

### Materials and methods.

Identification of mature fungi fertility on plant samples (branches, leaves, flowers, roots) was conducted according to macro and micromorphological features. Collection, storage, preparation of temporary agents were implemented by using traditional methods. The results of the research work deal with the pathogenic and non-pathogenic representatives of the fungi of the investigating plants. Both traditional and contemporary guide books were used for identifying fungi (Saccardo, 1882-1931; Grove, 1935, 1937; Diedike, 1915); (Sutton, 1980; Ellis, 1971; Ellis, Ellis, 1985; Vasilevskii, Karakulin, 1937, 1950; Sivanesan, 1985; Melnik, 1992; Merezko, 1991; Nakhutsrishvili, 1986).

### Results.

The results of research work are presented below:

#### ***Astragalus caucasicus* Pall.**

1. *Camarosporium* sp. Conidia light brown, brown, with 3 transversal and 1 incomplete septa, 16.2-20x 8-11.2 µm. Tbilisi, Botanic Institute. In Georgia recorded for the first time.

2. *Cucurbitaria astragali* Karst. [8]. Syn.: *Gibberella astragali* (P. Karst. & Har.) Kuntze. On dead branches. Tbilisi.

3. *Leptosphaeria* sp. On dead branches. Didi Digomi, Tbilisi.

4. *Lewia scorpariae* (Desm.) M.B. Barr et E.G. Simmons. On dead branches. Didi Digomi, Tbilisi.

On *Astragalus caucasicus*, recorded for the first time.

5. *Phomasp.* Pycnidia 150-200 µm., Conidia elliptic, oval 4-6x 3µm. On dead branches. Didi Digomi, Tbilisi.

6. *Pleospora* sp. Peritecia 250-300 µm., Asci 100-125x 15-18 µm., Ascospores wide spindle-shaped, color-smoky, yellowish-brown, with 6-7 transversal and 1 incomplete septa. On dead branches. Didi Digomi, Tbilisi.

In Georgia recorded for the first time.

7. *Uromyces punctatus* J. Schröt. [10] On leaves. National Botanical Garden, Tbilisi.

On *A. caucasicus* in Georgia recorded for the first time.

#### ***Astragalus sosnowskyi* Grossh. Syn.: *A. tanae* Sosn.**

1. *Coniothyrium fuckelii* Sacc., [2] On dried sprouts and thorns. Tbilisi, Digomi.

Current name - *Paraconiothyrium fuckelii* (Sacc.) Verkley & Gruyter, Studies in Mycology 75: 25 (2012) [MB#564787]

Saprotrophic fungus, widely spread on many woody and herbaceous plants.

On *Astragalus* recorded for the first time from Georgia.

2. *Pleospora herbarum* (Pers.) Rabenh. Ex Ces. et De Not [8]. On dead branches. Tbilisi, Digomi.

Polyphagous cosmopolitan fungus.

On *Astragalus* recorded for the first time in Georgia.

3. *Pleospora* sp. On dead branches. Tbilisi, Digomi.

***Astragalus microcephalus* Willd. Syn: *Astracantha microcephala* (Willd.) Podleeh.**

1. *Fusarium lateritium* Nees. [1]. Syn.: *Selenosporium lateritium* (Nees.) Desm. On dead Branches. NBG.

*Fusarium lateritium* occurs on the following plants in Georgia: *Ailanthus altissima*, *Albizzia julibrissin*, *Amorpha fruticosa*, *Astragalus microcephalus*, *Celtis caucasica*, *Ficus carica*, *Forsythia* sp., *Jasminum nudiflorum*, *Morus alba*, *Populus simonsii*.

2. *Phomopsis* sp. On dead branches. NBG.

3. *Tubercularia vulgaris* Tode [6]. On dead branches. NBG.

*Tubercularia vulgaris* occurs on the following plants: *Acer* sp., *Cerasus mahaleb*, *Diospyros lotus*, *Fraxinus* sp., *Juglans regia*, *Laburnum anagyroides*, *Morus alba*, *Parthenocissus quinquefolia*, *Pterocarya pterocarpa*, *Robinia pseudacacia*, *Rosa* sp., *Salix* sp., *Styphnolobium japonicum*.

4. *Uromyces punctatus* Schöt [10]. On leaves. NBG. branches. NBG.

The above listed fungi recorded for the first time on *A. microcephalus*.

***Berberis iberica* Stev. Et Fisch.**

1. *Alanzozythia* sp., On dead branches. King Tamar Bridge, Tbilisi.

2. *Didimosphaeria* sp. On dead branches. King Tamar Bridge, Tbilisi.

On *Berberis iberica* recorded for the first time.

3. *Nectria coryli* Fuckel [6]. On dead branches. King Tamar Bridge, Tbilisi.

On *Berberis iberica* recorded for the first time.

9 fungi species observed on *Berberis iberica* in Georgia, rust fungus – *Puccinia graminis* Pers. is not among them, though it has intensive spread on leaves and flowers of this species in the Botanical Garden.

***Crataegus pontica* C. Koch**

1. *Cytospora* sp. On dead branches. Tetrtskaro, Georgia.

2. *Diplodia crataegi* Westend. [4]. On dead branches. Institute of Botany, Tbilisi.

3. *Eutypella* sp. On dead branches. Institute of Botany, Tbilisi.

4. *Gymnosporangium confusum* Plovr. [10]. On fruit. Tetrtskaro, Georgia.

5. *Microdiplodia microsporella* (Sacc.) Allesch. [3]. On dead branches. Tetrtskaro, Georgia.

6. *Sphaeropsis malorum* Berk., [5]. *Botriodiplodia malorum* (Berk.) Petr. & Syd. (current name). On dead branches. Tetrtskaro, Georgia.

7. *Spilocae apomi* Fr. Syn.: *Fusicladium dendriticum* (Wallr.) Fuckel. [11]. On fruit. Tetrtskaro, Georgia.

*Spilocae* is generally known as causing apple scab. It has never been observed on hawthorn except *Crataegus pontica* C. Koch. It was noticed on *Crataegus orientalis* Pall.

***Ruscus ponticus* Woronov ex Grossh. Syn.: *Ruscus acuelatus* L.**

1. *Coniothyrium* sp. On dead branches. NBG.

In Georgia recorded for the first time on *Ruscus ponticus*.

2. *Leptosphaeria rusci* Sacc. [6]. Syn.: *Phaeosphaeriopsis glaucopunctata* (Grev) M.P.S. Camara, M.E. Palm, A.W. Ramaley On dead branches. Mtskheta, Georgia.

3. *Phomopsis rusci* (West) Grove. [9]. On dead branches. Mtskheta, Georgia.

In Georgia is recorded for the first time.

**Conclusions.**

27 species of fungi first recorded on the above listed plants in Georgia. Two species belong to Basidiomycota and 25 to Ascomycota.

Mycobiota of the Red Book trees and shrubs, with few exceptions, has not been the subject of a special study so far. At the same time, registration of species composition of mycobiota of trees and shrubs has great importance for studying fungi diversity. The novelty includes both fundamental and applied issues.

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