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THE LICHEN GENUS *CHAENOTHECA* (TH. FR.) TH. FR. IN ROMANIA

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Abstract: The paper deals with the taxonomical review of the genus *Chaenotheca*. 12 species occurring in Romania are presented, the actual nomenclature, synonymy and the identification key are given. For each species distribution map is presented, using the UTM grid system of 50 x 50 km. *Ch. hispidula* and *Ch. subroscida* are new species for Romania, identified by Tibell in 1973 in Bucegi Mts.

Introduction

De Notaris [70] first recognized *Chaenotheca* on generic level and clearly distinguished it from *Calicium* and *Coniocybe*. Keissler [71] gave a voluminous treatment of *Chaenotheca*, and Schmidt (in Poelt 1969) supplied a key to the species in Europe. Our knowledge of the *Chaenotheca* in Romania had begun with Fuss [29], Hazslinszky [34], Heufler [38], and Lojka [40]. In the XX century Cretzoiu [16], Szatala [60], Nadvornik [51] and Tibell [78] dealt with the Romanian species of the genus *Chaenotheca*.

Material and method

Our study is based on herbarium materials, literature data and own field investigations. Besides the herbarium materials found in different natural history museums of Romania (Botanical Garden Herbarium of the “Babeș-Bolyai” University of Cluj-Napoca, the Herbarium of the Natural History Museum of Sibiu and the University “Al. I. Cuza” of Iași) we also studied the collection of the Natural History Museum of Budapest, Hungary. The key of the Romanian species is based on Purvis [74] and Tibell [80]. The species distribution maps are given, using the UTM grid system of 50 x 50 km.

Genus *Chaenotheca* (Th. Fr.) Th. Fr.

in Nova Acta Reg. Soc. Scient. Upsal., ser. 3, vol. III, 1861, p. 350 et Genera Heterolich., 1861, p. 102; - in Oefvers. Kgl. Vetensk.-Akad. Förhandl., vol. XIII, 1856.

Thallus crustose, superficial or immersed, (always immersed in *Chaenotheca hispidula*, usually immersed in *Ch. brunneola*, though it may also rarely form a visible crust), farinose, granular, verrucose or squamulose, grey, greenish grey, golden yellow or brownish. There is a wide variation as to the shape

of the thallus. Thus *Ch. phaeocephala* and *Ch. trichialis* have a granular, verrucose or squamulose thallus whereas in *Ch. ferruginea* and *Ch. subroscida* it is granular or verrucose. The thallus is granular in *Ch. chrysocephala* and farinaceous in *Ch. stemonea*. Photobiont ***Dictyochloropsis*** (*Ch. brunneola*), ***Trebouxia*** (*Ch. phaeocephala*, *Ch. chrysocephala*, *Ch. ferruginea*), ***Chlorococcales*** (*Ch. subroscida*), ***Stichococcus*** (*Ch. trichialis*, *Ch. cinerea*, *Ch. furfuracea*, *Ch. gracilentia*, *Ch. stemonea*), or ***Trentepohlia*** (*C. brachypoda*, *Ch. hispidula*).. Ascomata apothecia, stalked; stalk short to long and slender, consisting of periclinally arranged brown hyphae; head globose to obconical. Thalline exciple absent. True exciple ± well developed, formed as a continuation of the stalk tissue. Hamathecium of paraphyse, sparingly branched, continuing to grow into the ascospore mass. Asci cylindrical, ellipsoid or irregular, dissolving at an early stage, formed from ascogenous hyphae, with or without croziers, either singly or in chains. Ascospores forming a dry brown spore mass, globose, brown to pale brown, not or rarely 1 to 5 septate, ellipsoid - cylindrical; spore wall thick, smooth or with an ornamentation of irregular cracks. Conidiomata absent. Chemistry: pulvinic acid derivatives occur as pruina and more rarely within the thallus; sometimes also contain unidentified Pd + yellow-red depsides or depsidones. Ecology: mainly on bark and wood, rarely on soil and rocks, mostly in very sheltered situations with high humidity and low light levels.

Calicium differs in the black ascospores mass and exclusively ellipsoid ascospores; it also always has *Trebouxia* as photobiont. In *Microcalicium* the ascospores mass is greenish black or dark brown, and all the species are saprobes or grow on lichens.

- 1a. Ascospores ellipsoid; pruina on apothecia yellow-green....**3. *Ch. chrysocephala***
 1b. Ascospores spherical; pruina on apothecia white, yellow-green or absent.....2
 2a. Photobiont cells with red-green contents, the walls thick (*Trentepohlia*); ascospores 5-7,5 µm diam.....**8. *Ch. hispidula***
 2b. Photobiont cells with bright green contents, the wall thinner.....3
 3a. Photobiont cells elongate or rectangular, in short chains, transversely septate, the cells < 10 µm wide (*Stichococcus*).....4
 3b. Photobiont cells rounded, clustered or solitary, not transversely septate, the cells 10-15 µm diam. (chlorococcoid).....10
 4a. Pruina on apothecia bright yellow-green.....5
 4b. Pruina on apothecia white or absent.....6
 5a. Thallus inconspicuous, immersed; ascospores 3-4 µm diam...**1. *Ch. brachypoda***
 5b. Thallus conspicuous, leprose, bright yellow-green; ascospores 2-3 µm diam.....**6. *Ch. furfuracea***
 6a. Thallus immersed or thin and leprose.....7
 6b. Thallus superficial, distinctly squamulose or coarsely granular; ascospores 4-5 µm diam.....8

- 7a. Photobiont Ulotrichales (*Stichococcus*)9
 7b. Photobiont (Chlorococcales).....**11.***Ch. subroscida*
 8a. Ascospores 3-5 µm diam.....**12.***Ch. trichialis*
 8b. Ascospores 4,5-5,5 µm diam.....**4.***Ch. cinerea*
 9a. Ascospores 2,5-3 µm diam.....**7.***Ch. gracilentata*
 9b. Ascospores 3,5-5 µm diam.....**10.***Ch. stemonea*
 10a. Thallus without rusty spotting; ascospores 3,5-4,5 µm diam. rarely larger11
 10b. Thallus grey with yellow-orange to rusty spots and patches; ascospores 5,5-7,5 µm diam.....**5.***Ch. ferruginea*
 11a. Thallus superficial; apothecia with yellow pruina; ascospores 5,5-7 µm diam.....**9.***Ch. phaeocephala*
 11b. Thallus immersed; apothecia ± whit-pruina or pruina absent; ascospores 3,5-4,5 µm diam.....**2.***Ch. brunneola*

1.*Chaenotheca brachypoda* (Ach.) Tibell in Nova Hedwigia, Beih. 1978, 72, p. 187-188; - *Coniocybe brachypoda* Ach. in Kgl. Vetensk.-Akad. Nya Handl., 1816, p.287, tab. VIII, fig. 16; - *Coniocybe sulphurea* (Retz) Nyl. apud Cromb in Grevillea vol. XV, 1886, p. 14; - *Lichen sulphureus* Retz. in Kgl. Vetensk.-Akad. Handl., 1769, p. 249.

Ecology: on dry bark in crevices of deciduous trees and wood of hollow trunks; it mainly occurs on decorticated stumps of conifers, but also on stumps of *Populus* and *Alnus*.

Distribution in Romania (Fig. 1):

Hunedoara District: near Hunedoara , FR-46/47 (37, 51).

2.*Ch. brunneola* (Ach.) Mull. Arg. in Mémoir Soc. Phys. et Hist. Nat. Genève, vol. XVI, 1862, p. 360; - *Calicium brunneolum* Ach. in Kgl. Vetensk. Akad. Nya Handl., 1816, p. 279, tab. VIII, fig. 12; - *Cyphelium brunneolum* DNotrs. in Giorn. Botan. Ital., anno II, parte I, tomo I, 1846, p. 318; - *Cyphelium trichiale* var. *brunneolum* Mudd, Manual Brit. Lich., 1861, p. 260.

Ecology: both on conifers and deciduous trees (it has been recorded particular of *Pinus*, *Picea* and *Qercus*), but definitely prefers lignum of various kind (*Abies*, *Alnus*, *Castanea*, *Chamaecyparis*, *Ilex*, *Juniperus*, *Salix*, *Thuja* and *Tilia*). Sometimes occurs on old fruiting-bodies of *Polyporus* sp. It seems to be rather tolerant to air pollution, in polluted areas, however, it is usually sterile.

Distribution in Romania (Fig. 2):

District Braşov: Bucegi Mts, on Dihamu LL-73 (26).

District Caraş-Severin: near Remetea, ER-63/64 (60, 62); Cozla EQ-84 (5); Pescari EQ-54 (5);

District Maramureş: Maramureşului Mts., LN-29/GT-18 (17, 28, 51).

District Neamţ: Cârligata forest (Soveja), MN-80 (4).

District Prahova: near Sinaia LL-81/82 (17, 26, 67); Bucegi Mts. LL-82/83 (26); between Gura Dihamului and Poiana Morarului LL-83 (26).

District Satu-Mare: Valea Mare at Ciocîrlău, FT-78/88 (17, 28, 51).

3. *Ch. chrysocephala* (Turn. ex Ach) Th. Fr. in Nova Acta Reg. Soc. Scient. Upsal., ser. 3, vol. III, 1861, p. 350; - *Lichen chrysocephalus* Turn. in Transact. Linn Soc. London, vol. VII, 1803, p. 88, tab. VIII, fig. 1; - *Calicium chrysocephalum* Ach., Method. Lich., Suppl., 1803, p. 15, in Kgl. Vetensk. Akad. Nya Handl., 1808, p. 218 et 1816, p. 269.

Ecology: mainly occurs on bark of conifers, particular *Picea*, *Larix* and *Pinus* and also often on lignum of conifers. It has also been recorded as corticolous on the following trees: *Abies*, *Alnus*, *Betula*, *Juniperus*, *Pseudotsuga*, *Quercus*, *Thuja* and *Tsuga*. It has been recorded on lignum of *Alnus*, *Betula*, *Quercus*, *Picea*, *Pinus* and *Sorbus*.

Distribution: one of the commonest species of the genus *Chaenotheca*, having a wide zonal and geographical distribution in Europe, Asia and America. It occurs in boreal zones, in the Hemiboreal zone and in corresponding oroboreal zones. Altitudinal range: 0 - 2000 m (Europe) - 3300 m (Nepal).

Distribution in Romania (Fig. 3):

District Alba: Cugir Mts, Măgura Mt, FR-96, (27, 61); Herb. Muz. Nat. Hung. leg. Fóris, 8, VIII, 1913, nr. 62670, 62672, 62674; Sebeșului Mts, FR-95 (19, 22, 26, 27, 61, 62, 63, 65).

District Bihor: Crișul Repede Pass, FT-10 (13).

District Brașov: Făgăraș Mts, LL-25/35 (12); Urlea Chalet, LL-25/35 (12).

District Caraș-Severin: near Remetea, ER-63/64 (60, 62).

District Cluj: Feleacului Hill, FS-97/GS-07 (19); Turului Valley, GS-06/16 (62).

District Harghita: near Tușnad, MM-11 (11, 23); Bicazului Gorge: Lapoșului Gorge, Politele Bardosului, MM-08 (53).

District Hunedoara: Retezat Mts, Valeriasca Valley, FR-42/43 (19, 26, 31, 37, 40, 62, 63, 65); Radeș Mt, FR-31/32 (41).

District Neamț: Ceahlău Mts: Izvorul Muntelui, Poiana Maicilor, Piciorul Odăii, Piciorul Humăriei, Duruitoarea, Răchitiș, Lutul Roșu, MN-20 (53).

District Prahova: Bucegi Mts LL-82/83 (2); Bușoiu peak between Poiana Morarului and Pichetul Roșu LL-83 (2).

District Sibiu: Cugir Mts, Comanului Hill GR-15 (19, 22, 26, 27, 61, 62, 63, 65); Herb. Muz. Nat. Hung. leg. Fóris, 10, VII, 1913, nr. 62675; Avrig, Plaiul cerii Mt, KL-96 (31); Noul Săsesc, LM-10 (25, 26), leg. M. Fuss, 1847, 17, II.

District Suceava: Călimani Mts, LN-62/63 (11, 23); Obcina Feredeului, LN-97 (3, 51); Rarău Mts: Turnuri, Schitul Rarău, Piciorul Călugărului, Piatra Șoimului, Pietrele Doamnei, LN-95 (53).

District Vrancea: Urechești Forest (Adjud), NM-10 (54).

Unknown location in Maramureș, (39).

4. *Ch. cinerea* (Pers.) Tibell in Nova Hedwigia, Beih. 79, 1984, p. 597-713 (662-664); - *Calicium cinereum* Pers., Icones et Descript. Fungor. Minus Cognit., fas. II, 1803, p. 58, tab. XIV, fig. 5; - *Calicium trichiale* var. *cinereum* Nyl., Herb. Mus. Fennic., 1859, p. 78; - *Chaenotheca schaeferi* (DNotrs.) Zahlbr in Catal. Lich. Univ, 1922, I, p. 575; - *Cyphelium schaeferi* DNotrs. in Giorn. Botan. Ital., anno 11, parte I, tomo I, 1846, p. 317.

Ecology: occurs mainly on *Quercus* in Europe and *Thuja* in North America. It has also been collected on the bark of *Acer*, *Populus* and *Ulmus*. Occasionally it

also occurs on hummocks of decaying *Dryas* and mosses well north of the limit of the distribution of the phorophytes mentioned. Altitudinal range: 0 - 1800 m.

Distribution: a rare species with a poorly known distribution. It is known from the Southern Boreal, Hemiboreal and Temperate Zones in Europe and North America

Distribution in Romania (Fig. 4):

District Hunedoara: Retezat Mts, to Jghiabu, FR-42/43 (19, 26, 51, 62, 63); Valeriasca Valley, FR-42/43 (40, 41).

5. *Ch. ferruginea* (Turn. ex Borrer) Mig., Flora von Deutschl., Abt. II, vol. XII/II, 1930, p. 479 et 480, tab. CXIV, fig. 4-8; - *Calicium ferrugineum* Turn. apud Sm., Engl. Botan., vol. XXXV, 1813, tab. 2473 et Specim. Lichenogr. Brit., 1839, p. 136; - *Calicium melanophea* (Ach.) Zw. in Flora, vol. XLV, 1862, p. 535; - *Calicium melanophaeum* Ach. in Kgl. Vetensk.-Akad. Nya Handl., 1816, p. 276, tab. VIII, fig. 8.

Ecology: mainly occurs on bark of *Pinus*, *Larix*, *Picea* and *Quercus*, it has also been recorded from the bark of *Abies*, *Alnus*, *Betula*, *Pseudotsuga*, *Thuja*, *Tsuga* and *Ulmus* and from the lignum of *Pinus*, *Picea*, *Quercus* and *Chamaecyparis*. No rarely it is founded on burnt wood, and occasionally on rocks. It seem to be rather tolerant to air pollution, but, in polluted areas it is usually sterile.

Distribution: it has a wide distribution in the Middle Boreal - Temperate Zones and corresponding oroboreal zones. It occurs in Europe, Asia and North America, from sea level - 3000 m.

Distribution in Romania (Fig. 5):

District Alba: Cugir Mts, Măgura Mt, FR-96, Herb. Muz. Nat. Hung. leg. Főriss, 8, VIII, 1913, nr. 62649, 2880.

District Bistrița-Năsăud: Arcalia, KN-91/LN-01 (7).

District Suceava: Călimani Mts, to Drîglele Valley, LN-62/63, Herb. Univ. Cluj, leg. Codoreanu, VI, 1958.

District Brașov: Făgăraș Mts, LL-25/35 (12); Bilea Chalet, LL-15 (12).

District Caraș-Severin: Cozla, EQ-84 (5); Pescari, EQ-54 (5).

District Vrancea: Urechești Forest (Adjud), NM-10 (54); Măgura, NM-10 (54).

Unknown location in Maramureș, (39, 51, 63).

6. *Ch. furfuracea* (L.) Tibell in Nova Hedwigia, 1978, 72, p. 183-185; - *Mucor furfuraceus* L., Spec. Plant., 1753p. 1185 et edit. 2, vol. II, 1763, p. 1565 et Flora, edit. 2., 1755, p. 462; - *Coniocybe furfuracea* Ach. in Kgl. Vetensk.-Akad. Nya HAndl., 1816, p. 288 et 1817, p. 242; - *Calicium furfuraceum* Pers., Tentam. Dispos. Method. Fungor., 1797, p. 60; - *Trichia furfuracea* Wither., A Syst Arrang., edit4, vol. IV, 1801, p. 392.

Ecology: it occurs in shaded and moist situations, mainly on old, decorticated trunks of conifer, where is found near the base, generally under overhanging parts. It is also found on thin rootlets of fallen conifers and sometimes on rocks in shaded habitats. Most frequent in upland situations.

Distribution: through British Is., Europe, North America.

Distribution in Romania (Fig. 6):

District Alba: Cugir Mts, Măgura Mt, FR-96, Herb. Muz. Nat. Hung. leg. Foriss, 9, VIII, 1913, nr. 62604; Măgura Hill, FR-96 (27); Sebeșului Mts, FR-95 (19, 26, 27, 40, 62, 63); Sebișelului Valley, FS-94 (14).

District Arad: Arad, ES-20/21 (19, 26); Stâna de Mureș ES-91, Herb. Univ. Cluj, leg. Bartók 28, VII, 1994); Arăneag, ES-52 (19, 59, 63), Herb. Muz. Nat. Hung. leg. Simonkai, 1885.

District Bihor: Stâna de Vale, Fs-27 (15).

District Bistrița-Năsăud: Arcalia, KN-91/LN-01 (7).

District Brașov: Bucegi Mts, Urlătoarea Valley, LL-73 (26).

District Caraș-Severin: near Remetea, ER-63/64 (60, 62); Domogled Mt, FQ-16/17 (19); Cernei Valley, to Băile Herculane, FQ-17 (26, 43, 63).

District Gorj: Măgura Mt, near Gureni, FQ-69 (26, 32).

District Harghita: Bicazului Gorge, Polițele Bardosului, Lapoșului Gorge, MM-08 (53).

District Hunedoara: Retezat Mts, FR-42/43 (27); National Park Retezat FR-42; Colții Valley, FR-42/43 (63); Valeriasca Valley FR-42/43 (18, 26, 31, 40, 41, 62, 63); Râului Bărbat Valley FR-63 (41).

District Maramureș: Maramureșului Mts, LN-29/GT-18 (26, 28).

District Neamț: Uzului Valley to Gura Bărzăuței, MM-50 (54); Ceahlău Mts: Piciorul Maicilor, Piciorul Odăii, Piciorul Humăriei, Piciorul Poeni, Duruitoarea, Poiana Verzuri, Bîtca Durăului MN-20 (53).

District Prahova: Bucegi Mts, LL-82/83 (2, 26); Bucegi Mts, Jepilor Valley, LL-82 (2, 26, 50), Herb. Muz. Nat. Hung. leg. Cretzoiu, 26, X, 1935, Exsiccata nr. 62602; Bucegi Mts, Bucșoiu Mt, to Pichetul Roșu, LL-82/83 (2, 26); Morarului Mt, near Poiana Morarului, LL-83 (2, 26), leg. P. Crețoiu et O. Klement, 1943; Urlătoarea Valley above Bușteni, LL-82/83 (2, 26), Herb. Univ. Iași, leg. Cretzoiu, 18, VIII, 1940; Paltinu Forest, MK-09 (47); Păltinoasa Valley, MK-09 (47); Secăria Valley, MK-09 (47).

District Satu-Mare: Mare Valley to Ciocîrlău, FT-78/88 (26, 28), Herb. Muz. Nat. Hung. leg. Foriss, 17, VI, 1918, nr.62601.

District Sibiu: near Sibiu KL-77/87 (19, 26); Sura Mare, KL-78, (19, 26, 31, 37, 63); Făgăraș Mts, Cîrțișoara, LL-16 (41); Cugir Mts, Comanului Hill, GR-15 (19, 26, 27, 40, 62, 63).

District Suceava: Rarău Mts, Turnuri, Pietrele Doamnei, LN-95 (41, 51, 53, 66).

Unknown location in Maramureș, (39).

7.Ch. gracilenta (Ach.) Tibell - *Cybebe gracilenta* (Ach.) Tibell in SBT, 1978, 72, p. 185; - *Coniocybe gracilenta* Ach., in Kgl. Vetensk.-Akad. Nya HAndl., 1816, p. 289; - *Calicium gracilentum* Ach., in Lichenogr. Univers., 1810, p. 242, tab. III, fig. 6 et Synops. Lich., 1814, p. 62.

Ecology: lignicolous, especially on stumps of various trees, also corticolous, on dry bases of old *Acer pseudoplatanus* and *Ulmus glabra*. Probably the most shade tolerant species in Caliciales.

Distribution: British Islands, North and Central Europe, Macaronesia, North America.

Distribution in Romania (Fig. 7):

District Maramureș: Maramureșului Mts, LN-29/GT-18 (26, 28).

District Neamț: Ceahlău Mts, Bîtca Durăului, Piciorul Odăii, MN-20, (53); Izvorul Muntelui, MM-29 (53).

District Satu-Mare: Mare Valley to Ciocîrlău, FT-78/88 (26, 28), Herb. Muz. Nat. Hung. leg. Főriss, 18, V, 1918, nr.62592.

District Suceava: Călimani Mts, to Drîglele, LN-62/63, (10, 51); Rarău Mts, Pietrele Doamnei, LN-95 (53).

8.Ch. hispidula (Ach.) Zahlbr. in *Catalogum lichenus universalis*, I, 1922, p. 567 - *Calicium hispidulum* Ach. in Kgl. Vetensk. Akad. Nya. Handl. , 1816, p. 268, tab. VIII, fig. 9; - *Calicium chlorellum* Turn., Specim. Lichenogr. Brit., 1839, p. 146; - *Calicium aciculare* Fries, Summa Veget. Scand., pars. prior., 1846, p. 119 (non ach.); - *Chaenotheca acicularis* Zwackh in Flora, vol. XLV, 1862, p. 535.

Ecology: it is most often found on *Quercus* in Europe and *Thuja* in North America and has also been found several times on *Ulmus* and lignum. Occassionally it occurs on the bark of *Acer*, *Aesculus*, *Alnus*, *Castanea*, *Fraxinus*, *Juniperus*, *Pyrus* and *Salix* and has also been recorded from the lignum of *Ilex*, *Picea* and *Thuja*..

Distribution: wide geographical distribution range and occurs in the Southern Boreal, Hemiboreal and Temperate zones in Europe, Asia and North America. Altitudinal range: 0-1400 m (Europe), - 3250 m (Nepal).

Distribution in Romania (Fig. 8):

Dâmbovița District: Ploiești, Bucegi Mts., 0,5 km SW of Cab. Cheile Zănoagei, LL-72 (80).

9.Ch. phaeocephala (Turn.) Th. Fr. in Nova Acta Reg. Soc. Scient. Upsal., ser. 3, vol. III, 1861, p. 351; - *Lichen phaeocephalus* Turn. in Transact. Linn. Soc. London, vol. II, 1807, p. 260, tab. VI, fig. 1; - *Calicium chlorellum* Ach., Method. Lich., 1803, p. 95, tab. II, fig. 5, 1816, p. 267; - *Lichen trabinellus* Sm. apud Sm. et Sowerb., Engl. Botan., vol. XXII, 1806, tab. 1540 (non Ach.)

Ecology: it occurs mainly on the lignum of coniferous and deciduous trees, particular in the Southern Boreal zone. In the Hemiboreal zone it is comparatively often collected on bark of *Quercus*, *Alnus*, *Juniperus*, *Larix*, *Picea* and *Ulmus*. It occurs on the lignum of *Picea*, *Pinus*, *Quercus* and occassional also on *Juniperus* and *Alnus*.

Distribution: wide geographical distribution range and occurs in the Hemiboreal-Southern Boreal, and Temperate zones in Europe. Altitudinal range: 0-1400 m (Europe), - 3300 m (Nepal).

Distribution in Romania (Fig. 9):

District Hunedoara: Retezat Mts, FR-42/43 (19, 26, 37, 41); Radeș Mt. FR-31/32 (19, 26, 37, 41, 63).

Unknown location in Maramureș, (51, 63).

10.Ch. stemonea (Ach.) Mull. Arg in Memoir. Soc. Phys. et Hist. Nat. Geneve, vol. XVI, 1862, p. 360; - *Calicium stemoneum* Ach. in Kgl. Vetensk. - Akad. Nya Handl., 1816, p. 278, tab. VIII, fig. 15 a-b; - *Cyphelium stemoneum* DNotrs. in Nuovo Giorn. Botan. Ital., anno II, parte 1, tomo I, 1846, p. 317.

Ecology: it is not very specialized as to substrate, but seems to depend on a humid microclimate and tolerates strongly shaded situations. It is most often found on the lignum and bark of *Picea* and *Pinus*, but has also been recorded from a variety of other tree species. It occurs on the bark of *Alnus*, *Betula*, *Juniperus*, *Larix*, *Prunus*,

Fig. 1-6: Distribution of *Chaenotheca brachypoda*, *C. brunneola*, *C. chrysocephala*, *C. cinerea*, *C. ferruginea* and *C. furfuracea* in Romania.

Legend: ● = data recorded between 1854 – 1960

+ = data recorded after 1960

x = data recorded from 1854 up to the present

Fig. 7-12: Distribution of *Chaenotheca gracilentata*, *C. hispidula*, *C. phaeocephala*, *C. stemonea*, *C. subroscida* and *C. trichialis* in Romania.

Legend: ● = data recorded between 1854 – 1960

+ = data recorded after 1960

x = data recorded from 1854 up to the present

Quercus, *Thuja*, *Tilia*, *Tsuga* and *Ulmus* and on the lignum of *Alnus*, *Betula*, *Pyrus* and *Quercus*.

Distribution: wide geographical distribution in the Temperate - Northern Boreal zones and corresponding oroboreal zones in Europe, Asia and North America. Altitudinal range: 0-1600 m (Europe), - 3000 m (Nepal).

Distribution in Romania (Fig. 10):

District Brașov: Piatra Craiului Mts, LL-54/64 (26,65).

District Caraș-Severin: Mt. Măgurica, near Remetea, ER-63/64 (60, 62, 63).

District Hunedoara: Retezat Mts, FR-42/43 (19, 37, 63); Radeș Mt. FR-31/32 (19, 26, 31, 37, 40, 41, 51, 62, 63); Valeriasca Valley, FR-42/43 (19, 26, 31, 37, 40, 41, 51, 62, 63).

District Neamt: Ceahlău Mts: Piciorul Poeni, Duruitoarea, Poiana Verzuri, MN-20 (53); Ceahlău Mts., Izvorul Muntelui, MM-29 (53).

Unknown location in Maramureș, (51, 63).

11. *Ch. subroscida* (Ach.) Zahlbr. in *Catalogum lichenus universalis*, I, 1922, p. 578 - *Cyphelium subroscidum* Eitner in 88. Jahresber. Schlesisch. Gesellsch. Vaterl. Kultur., 1911, p. 53; - *Calicium subroscidum* Migula, Flora von Deutschl., II, Vol. XII/II, 1930, p. 499.

Ecology: it occurs almost exclusively on the bark of *Picea abies* in Europe and in North America mainly on the bark of *Picea* and *Thuja*. Occasionally it has been found on the bark of *Abies*, *Pinus* and *Betula*, and a few times only, on lignum.

Distribution: occurs in the Southern - Northern Boreal zones and corresponding oroboreal zones in Europe and North America. Altitudinal range: 0-1600 m.

Distribution in Romania (Fig. 11):

Dâmbovița District: Ploiești, Bucegi Mts., 0,5 km SW of Cab. Cheile Zănoagei, at Cab. Peștera and Poiana Pichetul Roșu, LL-72 (80).

12. *Ch. trichialis* (Ach.) Th. Fr. in *Nova Acta Reg. Soc. Scient. Upsal.*, ser. 3, vol. III, 1861, p. 351; - *Calicium trichiale* Ach. in *Kgl. Vetensk.-Akad. Nya. handl.*, 1808, p. 283 et 1816, p. 277, tab. VIII, fig14; - *Calicium aeruginosum* Turn. apud Sm. et Sowerb., *Engl. Botan.*, vol. XXXV, 1813, tab. 2502 et *Specim. Lichenogr. Brit.*, 1839, p. 156.

Ecology: it has a low degree of substrate specificity, being one of the more common of the *Chaenoteca* species. It occurs both on the bark of old trees and on lignum. It has been recorded from the bark of the following genera: *Abies*, *Acer*, *Alnus*, *Betula*, *Fraxinus*, *Juniperus*, *Larix*, *Picea*, *Pinus*, *Pseudotsuga*, *Pyrus*, *Quercus*, *Salix*, *Thuja*, *Tsuga* and *Ulmus*. It has also been recorded from lignum of *Alnus*, *Betula*, *Fraxinus*, *Picea*, *Pinus*, *Sorbus* and *Tilia*.

Distribution: very wide range of distribution, occurring in the Temperate - Northern Boreal zones and corresponding oroboreal zones in Europe, Asia and North America. Altitudinal range: 0-2000 m (Europe), - 3800 m (Nepal).

Distribution in Romania (Fig. 12):

District Alba: Cugir Mts, Măgura Mt, FR-96 (19, 26, 27, 61, 62, 63), *Herb. Muz. Nat. Hung. leg. Fórisz*, 8, VIII, 1913, nr. 730, 734, 735, 62629; Sebeșului Mts, FR-95 (19, 26, 27, 61, 62, 63); Sebișelului Valley, FS-94 (14).

District Bistrița-Năsăud: Arcalia, Herb. Univ. Cluj, leg. Ciurchea et Szabó, 10, V, 1965.

District Brașov: Piatra Craiului Mts, LL-54/64 (26, 65); Cascada Bîlea, LL-15, Herb. Univ. Cluj, leg. Codoreanu, VII, 1957.

District Caraș-Severin: near Remetea, ER-63/64 (60, 62).

District Dâmbovița: Bucegi Mts, Mălăești Valley, LL-72/73 (21, 26).

District Harghita: near Tușnad, MM-11 (11).

District Hunedoara: Brad, FS-30/31 (19, 25, 63); Retezat Mts, FR-42/43 (19, 37, 62, 63); Radeș Mt. FR-31/32 (19, 25, 26, 37, 41, 42, 63).

District Maramureș: Turica Valley, LN-29/GT-18 (31, 62).

District Neamț: Ceahlău Mts: Piciorul Maicilor, MN-20 (53).

District Prahova: near Sinaia, LL-81/82 (26, 51, 67).

District Sibiu: Bradu, KL-96 (31, 37).

District Suceava: Călimani Mts, LN-62/63 (11).

Unknown location in Maramureș, (39, 63).

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GENUL *CHAENOTHECA* (TH. FR.) TH. FR. ÎN ROMÂNIA

(Rezumat)

Lucrarea realizează o revizuire taxonomică a genului *Chaenotheca*, care este reprezentat în România prin 12 specii: *Chaenotheca brachypoda*, *Ch. brunneola*, *Ch. cinerea*, *Ch.*

chrysocephala, *Ch. ferruginea*, *Ch. furfuracea*, *Ch. gracilentia*, *Ch. hispidula*, *Ch. phaeocephala*, *Ch. stemonea*, *Ch. subroscida* și *Ch. trichialis*. Două specii, *Ch. hispidula* și *Ch. subroscida* au fost identificate prima dată în România de Tibell în M-ții Bucegi în anul 1973. Este prezentată cheia de determinare a speciilor din România, pentru fiecare specie fiind redată nomenclatura actuală, sinonimiile și ecologia. Corologia este ilustrată prin hărțile de distribuție în sistem UTM 50 x 50 km, executate pe baza datelor colilor de herbare din România și din Ungaria (Herbarul Grădinii Botanice a Universității “Babeș-Bolyai” din Cluj-Napoca, Herbarul Muzeului de Istorie a Științelor Naturii din Sibiu, Herbarul Universității “Al. I. Cuza” din Iași și Herbarul Muzeului Național de Istorie Naturală din Budapesta), a revistelor de specialitate și a cercetărilor proprii.

Am reprezentat cu simbolul “●” datele menționate între anii 1854-1960, cu “+” datele semnalate după anul 1960, iar cu “x” datele din 1854 - până în prezent.