

A further contribution to the knowledge of lichen-forming and lichenicolous fungi in Crete

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Abstract: VONDRÁK, J., GUTTOVÁ, A. & MAYRHOFER, H. 2008. A further contribution to the knowledge of lichen-forming and lichenicolous fungi in Crete. – *Herzogia* 21: 105–124.

212 taxa of lichen-forming and 13 species of lichenicolous fungi are recorded from Crete. Nine lichen genera (*Cetraria*, *Lasallia*, *Miriquidica*, *Peltula*, *Porocyphus*, *Schaereria*, *Seiophora*, *Thelenella* and *Umbilicaria*), 67 species and infraspecific taxa of lichenized fungi and eight species of lichenicolous fungi are new to Crete. Many other records are new for one or more administrative regions. *Acarospora contigua*, *Caloplaca sororicida* and *Candelariella antennaria* are new to Europe.

Zusammenfassung: VONDRÁK, J., GUTTOVÁ, A. & MAYRHOFER, H. 2008. Ein weiterer Beitrag zur Kenntnis der lichenisierten und lichenicolen Pilze von Kreta. – *Herzogia* 21: 105–124.

212 Taxa von lichenisierten und 13 Arten von lichenicolen Pilzen werden von Kreta gemeldet. Neun Flechtengattungen (*Cetraria*, *Lasallia*, *Miriquidica*, *Peltula*, *Porocyphus*, *Schaereria*, *Seiophora*, *Thelenella* und *Umbilicaria*), 67 Arten und infraspezifische Taxa von Flechten und acht Arten lichenicoler Pilze sind neu für Kreta. Viele Aufsammlungen sind Neufunde für eine oder mehrere administrative Regionen. *Acarospora contigua*, *Caloplaca sororicida* und *Candelariella antennaria* sind neu für Europa.

Key words: Biodiversity, Ascomycota, lichens, *Caloplaca*, *Candelariella*, *Rinodina*, Mediterranean region.

Introduction

Although the first lichen records from Crete date back to 1904 and 1906 (Zahlbruckner 1904, 1906) and a first checklist was published by Kleinig (1966), the investigation of the lichen flora in Crete in the 20th century was rather poor and the second checklist of lichen-forming and lichenicolous fungi by Grube et al. (2001) contains only 440 taxa including *Caloplaca rhinodinoidea* J. Steiner and *Caloplaca rechingeri* (Servít) ined. (= *Caloplaca calcicola* var. *rechingeri*). The former is a synonym of *Caloplaca variabilis* and the latter of *C. cretensis* (Wunder 1974). According to Degelius (1974: 208) the holotype of *Collema sublimosum* J. Steiner from Crete comprises two different lichens: *Collema crispum* and a small *Leptogium* species. Therefore the name is a nomen confusum. Pišút (2003) mentioned in his contribution on lichens from the Greek islands 11 species from Crete including one new record (*Staurothele sienae*). After that Roux & Sérusiaux (2004) report *Strigula ziziphi* (A. Massal.) Cl. Roux & Sérus. and Kainz & Rambold (2004) *Protoblastenia cyclospora* (Körb.) Poelt from Crete. Two years later, a large addition (103 new taxa of 248 records, but one of the new taxa was *Protoblastenia cyclospora*) was published by Spribille et al. (2006). Llop et al. (2007) described the new species *Bacidia thyrrenica* from the Mediterranean region, which they also reported from Crete. Christensen (2007) reported 4 taxa from *Cupressus sempervirens* as

new to Crete, and CHRISTENSEN & SVANE (2007) mentioned 34 new taxa, but *Lecidea lurida* had already been recorded (e.g., KLEINIG 1966), which raised the number of known taxa considerably to 581. Nevertheless, even widespread genera (e.g., *Cetraria*, *Lasallia*, *Peltula* and *Umbilicaria*) or rather common species (e.g., *Agonimia tristicula*, *Caloplaca teicholyta*, *Melanelixa fuliginosa*, *Melanohalea exasperatula* and *Xanthoria elegans*) were still lacking in these lists. These cited genera and species are presented here among 67 taxa of lichens and eight lichenicolous fungi new to Crete. In addition many of the listed taxa represent new records for one (or even several) of the four administrative regions of Crete. Regarding the large habitat diversity, a fairly higher number of species can be expected to occur in Crete.

In May 2005 the first author had the opportunity to collect lichens and lichenicolous fungi in Crete and the results are presented here. The collection sites are situated in the regions of the Orosira Dikti Mountains and the Levka Ori Mountains, as well as in the coastal regions of Matala-Kali Limenes, Sidonia, and Agia Pelagia (Table 1). The main emphasis was placed on saxicolous lichens (especially on the species-rich genus *Caloplaca*), but some corticolous, lignicolous and terricolous lichens were gathered as well. Some unpublished material with special consideration on the genus *Rinodina* and other saxicolous species especially from siliceous rocks collected by the third author in 1976, 1997, 1999 and 2007 is also included.

Material and Methods

This study is based on c. 600 samples deposited in the herbaria CBFS and GZU. Registration numbers of CBFS are given in brackets at the end of each entry. Microscopical examinations were carried out in water or after pretreatment with KOH at a magnification of 1000×. TLC was used for determination of selected specimens and HPLC for the confirmation of *Caloplaca xanthostigmoidea*. Selected samples of *Candelariella* were checked by M. Westberg (Lund) and of *Verrucaria* by Josef Halda (Rychnov nad Kněžnou). The nomenclature of the lichen-forming fungi follows NIMIS & MARTELOS (2003) or modern taxonomic treatments, that of the lichenicolous fungi corresponds to SANTESSON et al. (2004). Taxa new to Crete are indicated by an asterisk. The administrative regions of Crete are Nomós Chanion, Nomós Rethimnis, Nomós Irakliou and Nomós Lassithiou, their abbreviations are C, R, I and L.

Table 1: Collecting sites of Jan Vondrák.

	Region	Locality	Alt. (m)	Date
1	Irakliou	Mires, Kali Limenes, valley c. 3 km W of the village	10–100	2 May 2005
2	Irakliou	Mires, Kali Limenes, coastal hills c. 4 km W of the village	200–250	3 May 2005
3	Irakliou	Mires, Kali Limenes, siliceous rocks near the monastery Moni Odigitrias	c. 100	4 May 2005
4	Irakliou	Mires, Pitsidia, hills above the village	100–150	4 May 2005
5	Irakliou	Agii Deká, olive orchard next to the town	c. 100	5 May 2005
6	Irakliou	Agii Deká, Loukia, in the village	c. 250	5 May 2005
7	Irakliou	Agii Deká, Loukia, Kapetaniana, in the village	c. 700	5 May 2005
8	Irakliou	Harakas, Sternes, around the cave Koudouma on rocky coast	40	6 May 2005
9	Irakliou	Harakas, Sternes, around the monastery Moni Koudouma	10–100	6 May 2005
10	Irakliou	Harakas, Sternes, in the town	c. 100	7 May 2005
11	Irakliou	Pirgos, in the town	c. 50	7 May 2005
12	Irakliou	Pirgos, Mesohori, in the village	c. 50	7 May 2005

	Region	Locality	Alt. (m)	Date
13	Irakliou	Pirgos, Ano Kasteliana, in the village	100	7 May 2005
14	Irakliou	Orosira Dikti Mts: Ano Viannos, on the S-slope of Mt Trolou	700–1200	7 May 2005
15	Irakliou	Orosira Dikti Mts: Ano Viannos, around the small church in the valley between Mt Afendis Christos and Mt Trolou	1200	8 May 2005
16	Irakliou	Orosira Dikti Mts: Ano Viannos, lower part of the southern slope of Mt Afendis Christos	1200–1800	8 May 2005
17	Irakliou	Orosira Dikti Mts: Ano Viannos, upper part of the southern slope of Mt Afendis Christos	1800–2140	8 May 2005
18	Irakliou	Ano Viannos, Loutraki, in the village	150	9 May 2005
19	Irakliou	Ano Viannos, Kalami, around the road between Kalami and Sidonia	100	9 May 2005
20	Irakliou	Ano Viannos, Sidonia, coastal rocks near the village	10–50	10 May 2005
21	Chanion	Levka Ori Mts: Hania, Kambi, next to the village	200	12 May 2005
22	Chanion	Levka Ori Mts: Hania, Kambi, in a <i>Cupressus sempervirens</i> forest above the alpine restaurant “Psychropigadi”	900–1300	12 May 2005
23	Chanion	Levka Ori Mts: Hania, Kambi, N-slopes of the Levka Ori Mts above the alpine restaurant “Psychropigadi”, above the tree line	1300–2000	13 May 2005
24	Rethimnis	Rethimnon, ruins of the fortress Fortezza	20	14 May 2005
25	Irakliou	Agia Pelagia, coastal rocks near the village	20–50	15 May 2005

Results

1. Lichenized fungi

Acarospora cervina A.Massal.: 16, on calcareous rock (CBFS JV4171).

[Nomós Chanion], Omalos, Xiloskalo-Pass, um 1070 m, 17.8.1976, M. & H. Mayrhofer 1033 (GZU).

New to C.

**Acarospora contigua* H.Magn.: 7, on calcareous stone (CBFS JV4179).

The sample fits well to the description provided by TEMINA et al. (2005). However, the key for the yellow *Acarospora* species in POELT & VÉZDA (1977) leads to *A. lavicola* J.Steiner. It is uncertain if these names represent two different taxa.

**Acarospora hilaris* (Dufour) Hue

Nomós Chanion, southwest of Platanos, along the road to Sfinari, SW-exposed cliffs above the road, c. 200–235 m, 35°27'N/23°35'E, siliceous rocks, 14.5.1999, H. Mayrhofer 18103 & E. Baloch (GZU).

Acarospora umbilicata Bagl.: 12, on lime-rich sandstone boulder (CBFS JV4197).

**Agonimia tristicula* (Nyl.) Zahlbr.: 22, over *Homalothecium sericeum* with *Thelidium* sp., conf. J. Halda (CBFS JV4189).

Anaptychia ciliaris (L.) Körb.: 16, on bark of *Quercus coccifera* (CBFS JV3929); 25, on coastal siliceous rocks parasitized by *Stigmidium* sp. (CBFS JV3808).

Anema decipiens (A.Massal.) Forssell: 22, on overhanging limestone rock (CBFS JV4209).

The morphology, anatomy and ecology of the specimen correspond to the description given by MORENO & EGEA (1992). The thalli are densely pruinose with substantial carbonate accumulations and grow together with *Lecania* sp. and *Caloplaca* sp.

New to C.

Arthonia calcicola Nyl.: 1, on calcareous rock (CBFS JV4975).

SPRIBILLE et al. (2006) reported *Arthonia* aff. *calcicola*. Two of their collections possess a very low hymenium. We consider the coal-black hypothecium, the protococcoid photobiont and the blue-green epithecium as the diagnostic characters for *A. calcicola*.

**Arthonia lapidicola* (Taylor) Branth & Rostr.: 17, on calcareous rock (CBFS JV3780). [Nomós Lassithiou], Insel Koufonisi, 1400 m S der Kapelle, 34°55'43"N/26°08'32"E, 25.5.2001, E. Sterner (GZU).

Aspicilia calcarea (L.) Mudd: 2, 16, 22, on limestone rocks (CBFS JV3802, 4031, 4084, 4170).

Aspicilia contorta (Hoffm.) Kremp. subsp. *contorta*: 19, on xerothermic lime-rich siliceous rock (CBFS JV4110); 25, on coastal siliceous rock (CBFS JV3787).

Aspicilia contorta subsp. *hoffmanniana* S.Ekman & Fröberg: 17, on calcareous rock (CBFS JV4218).

Aspicilia intermutans (Nyl.) Arnold: 25, on coastal siliceous rock (CBFS JV4026, 4028).

Nomós Chanion, southwest of Platanos, along the road to Sfinari, SW-exposed cliffs above the road, c. 200–235 m, 35°27'N/23°35'E, siliceous rocks, 14.5.1999, H. Mayrhofer 18044 & E. Baloch (GZU, under *Caloplaca aegaea*). Above the village Temenia, c. 1.5 km S of Bambakados, c. 830 m, 35°18'N/23°45'E, siliceous rocks, 13.5.1999, H. Mayrhofer 18079 & E. Baloch (GZU).

New to C.

**Aspicilia substerilis* Sipman

Nomós Rethimnis, c. 6 km SE of Nea Kria Vrasi on the road to Agia Gallini, NE-exposed slopes with scattered boulders above the road, c. 130–150 m, 35°08'N/24°40.5'E, 16.5.1997, H. Mayrhofer 18006 (det. M. Sohrabi), 18009 & R. Ertl (GZU).

SIPMAN (2007) has described this species from the Aegean area in Greece and also reported from Croatia and Italy.

**Bilimbia sabuletorum* (Schreb.) Arnold

Nomós Lassithiou, Oropedio Lassithiou, path to Diktio Andro cave SW of Psihro, c. 900 m, 35°10' N/25°27'E, bryophytes, 13.8.1976, H. Mayrhofer 18105 (GZU).

Botryolepraria lesdainii (Hue) Canals et al.: 8, on calcareous rock under dimly lit conditions in a cave (CBFS JV3930).

**Buellia abstracta* (Nyl.) H.Olivier: 25, on coastal siliceous rock (CBFS JV4167).

This species is known from siliceous rocks of the Aegean islands Kalimnos, Telendos and Kos (SIPMAN & RAUS 2002).

Buellia stellulata (Taylor) Mudd: 20, on coastal siliceous rock with *Caloplaca aegaea* (CBFS JV4127).

Buellia subdisciformis (Leight.) Vain.

Nomós Chanion, above the village Temenia, c. 1.5 km S of Bambakados, cliffs along the road, c. 830 m, 35°18'N/23°45'E, siliceous rocks, 13.5.1999, H. Mayrhofer 18061, 18062, 18063 & E. Baloch (GZU). Southwest of Platanos, along the road to Sfinari, SW-exposed cliffs above the road, c. 200–235 m, 35°27'N/23°35'E, siliceous rocks, 14.5.1999, H. Mayrhofer 18064 & E. Baloch (GZU). – Nomós Lassithiou, entlang der Bergstraße c. 1 km W von Karidi, c. 620 m, Silikat, 9.8.1976, H. Mayrhofer 1059 (GZU, det. C. Scheidegger).

New to C.

**Caloplaca adriatica* (Zahlbr.) Servit: 22, on limestone (CBFS JV4220).

**Caloplaca aegatica* Giralt, Nimis & Poelt: 1, 4, on bark of *Ceratonia siliqua* and *Pistacia* sp. (CBFS JV3849, 3857, 3864, 3874, 4036).

**Caloplaca aegaea* Sipman: 20, 25, on coastal siliceous rock (CBFS JV3872, 4113, 4128).

Nomós Chanion, southwest of Platanos, along the road to Sfinari, SW-exposed cliffs above the road, c. 200–235 m, 35°27'N/23°35'E, siliceous rocks, 14.5.1999, H. Mayrhofer 18044 & E. Baloch (GZU).

According to the original description (SIPMAN & RAUS 2002), this species differs from *C. thallincola* by shorter and less convex, loosely appressed marginal lobes with orange colour. Although the distinguishing characters of these taxa occurring on coastal siliceous rocks are somewhat insufficient and their relationship needs further study, many specimens from the eastern Mediterranean and the Black Sea coast called *C. thallincola* may refer to *C. aegaea* (e.g. KHODOSVITSEV 2002, GÜVENÇ & ÖZTÜRK 1999, VONDRÁK & SLAVÍKOVÁ-BAYEROVÁ 2006, YAZICI 1999). At least the samples from the western Black Sea coast (Bulgaria, European part of Turkey) are morphologically identical with *C. aegaea* (Šoun & Vondrák, unpublished data).

Reference samples studied: Greece: Sipman & Raus 42845, 46649 (B).

- **Caloplaca albolutescens* (Nyl.) H.Olivier: 10, on calcareous stone (CBFS JV4098).
- **Caloplaca albopruinosa* (Arnold) H.Olivier (syn. *C. agardhiana* auct.)
Nomós Chanion, Omalos, on SW-exposed limestone, 1030 m, 17.8.1976, H. Mayrhofer (GZU). – [Nomós Lassithiou], Insel Koufonisi, c. 1400 m S der Kapelle, Kalkstein, 34°55'43"N/26°08'32"E, 25.5.2001, E. Sterner (GZU).
- Caloplaca alnetorum* Giralt, Nimis & Poelt: 14, 16, on bark of *Acer sempervirens* (CBFS JV4004, 4012, 4014, 4205).
- Caloplaca alociza* (A.Massal.) Mig.: 16, on calcareous rock (CBFS JV3813).
- Caloplaca arenaria* (Pers.) Müll.Arg.: 25, on coastal siliceous rock (CBFS JV4030).
- Caloplaca aurantia* (Pers.) Hellb.: 1, 22, on limestone rocks (CBFS JV3825, 3850, 4104).
[Nomós Lassithiou], Insel Koufonisi, c. 1400 m S der Kapelle, Kalkstein, 34°55'43"N/26°08'32"E, 25.5.2001, E. Sterner (GZU).
- **Caloplaca australis* (Arnold) Zahlbr.: 23, on limestone (CBFS JV4162).
- Caloplaca biatorina* (A.Massal.) J.Steiner: 17, on sun-exposed calcareous rocks (CBFS JV4019, 4020, 4206).
- Caloplaca carphinea* (Fr.) Jatta
Nomós Chanion, southwest of Platanos, along the road to Sfinari, c. 200–235 m, 35°27'N/23°35'E, siliceous rocks, 14.5.1999, H. Mayrhofer 18047 & E. Baloch (GZU). – Nomós Rethimnis, c. 6 km SE of Nea Kria Vrisi, on the road to Agia Galini, c. 130–150 m, 35°08'N/24°40.5'E, 16.5.1997, H. Mayrhofer 16681 & R. Ertl (GZU).
New to R.
- Caloplaca cerina* (Hoffm.) Th.Fr. s.l.: 1, 4, 7, 15, 16, 17, 23, on bark of alpine shrubs, *Pistacia* sp., and *Pyrus amygdaliformis* (CBFS JV3768, 3776, 3862, 3926); 11, on dust-impregnated bark of *Cupressus sempervirens*, with *Rinodina oleae* and *Lecanora hagenii* (CBFS JV4061).
A molecular investigation of *Caloplaca cerina* group is undertaken by J. Šoun (České Budějovice, CZ) and the *C. cerina* populations from Crete are phylogenetically heterogeneous and do not belong to *C. cerina* s.str. (Šoun, pers. comm.). Some corticolous specimens with strongly yellow-pruinose apothecia resemble *C. stillicidiorum*, but belong elsewhere.
- **Caloplaca cerina* var. *muscorum* (A.Massal.) Jatta
Nomós Lassithiou, Lassithi, Psychron, over calciphilous mosses, c. 900 m, 13.8.1976, M. & H. Mayrhofer (GZU).
- Caloplaca cerinella* (Nyl.) Flagey: 21, on exposed roots of shrub (CBFS JV4221).
- Caloplaca chalybaea* (Fr.) Müll.Arg.: 16, 17, on calcareous rock (CBFS JV4059, 4193).
- **Caloplaca* aff. *chlorina* (Flot.) H.Olivier: 1, on bark of *Olea europaea* (CBFS JV3794, 3824).
Caloplaca chlorina s.str. is mainly a saxicolous species. Based on ITS molecular data, corticolous sorediate specimens from the Mediterranean region belong to a new species (Šoun, pers. comm.).
- Caloplaca chrysodeta* (Vain. ex Räsänen) Dombr.: 22, over the bryophytes *Neckera crispa* and *Leucodon sciuroides* growing on an overhanging limestone cliff with *Lepraria rigidula* (CBFS JV4177).
New to I.
- Caloplaca citrina* (Hoffm.) Th.Fr.: 22, underside of an overhanging lime-rich boulder (CBFS JV4174).
- **Caloplaca coccinea* (Müll.Arg.) Poelt: 17, on calcareous rock (CBFS JV4065).
- **Caloplaca conversa* (Kremp.) Jatta
Nomós Chanion, road to Omalos, c. 500 m of Lakki, on NE-exposed schist rock, 500 m, 17.8.1976, H. Mayrhofer (GZU).
- Caloplaca crenularia* auct.
Nomós Chanion, c. 1 km E of Argoules, between Chora Sfakion and Sellia, c. 100–120 m, 35°12'N/24°17'E, schist, 15.5.1997, H. Mayrhofer 16674 & R. Ertl (GZU).

Caloplaca crenulatella (Nyl.) H.Olivier: 16, on calcareous rock (CBFS JV4099); 20, on coastal siliceous rocks (CBFS JV4115, 4133).

New to I.

Caloplaca cretensis (Zahlbr.) Wunder

Nomós Rethimnis, c. 3 km NE of Agios Pavlos W Agia Galini, c. 215–240 m, 35°07'N/24°35'E, 16.5.1997, H. Mayrhofer 16686 & R. Ertl (GZU).

New to R.

Caloplaca erythrocarpa (Pers.) Zwackh: 1, 3, 7, 12, 19, 20, 22, on limestone rocks, coastal siliceous rocks, and lime-rich sandstones (CBFS JV3764, 3799, 3840, 4094, 4106, 4129, 4175, 4199).

Nomós Lassithiou, c. 1 km W of Dafni, N-exposed slopes of the mountain Pomati with scattered boulders, c. 550 m, 35°06.5'N/25°59'E, sandstone, 30.7.2007, H. Mayrhofer 18041 (GZU). – Nomós Rethimnis, c. 3 km NE of Agios Pavlos W Agia Galini, c. 215–240 m, 35°07'N/24°35'E, 16.5.1997, H. Mayrhofer 16686 & R. Ertl (GZU).

Caloplaca flavescens (Huds.) J.R.Laundon: 1, 2, 16, 22, on limestone (CBFS JV3841, 3863, 4076, 4078, 4086, 4105).

**Caloplaca flavocitrina* (Nyl.) H.Olivier: 2, on dead wood of *Pistacia* sp. (CBFS JV3830); 6, on concrete (CBFS JV4076).

This species was recently recorded from the Aegean islands Ikaria and Naxos as an epiphyte (SIPMAN et al. 2005).

Caloplaca flavorubescens var. *quercina* (Flagey) Giralt, Nimis & Poelt: 16, on bark of *Quercus cocci-fera* (CBFS JV3923).

New to I.

Caloplaca fuscoatroides J.Steiner: 1, 3, 7, 20, 25, on xerothermic, lime-rich, mainly coastal siliceous rocks and stones (CBFS JV3786, 3788, 3829, 3844, 4072, 4111, 4141).

Nomós Irakliou, SE of Agia Pelagia, above village Mate, below main road from Iraklion - Rhetimnon, on NE-exposed schist outcrop, 100 m, 35°24'N/25°02'E, 11.5.1997, H. Mayrhofer & R. Ertl (GZU). – Nomós Lassithiou, close to Karidi, siliceous rocks, 590 m, 9.8.1976, H. Mayrhofer (GZU). – Nomós Rethimnis, c. 6 km SE of Nea Kria Vrissi, on the road to Agia Galini, on NE-exposed siliceous outcrop, c. 130–150 m, 35°08'N/24°40.5'E, 16.5.1997, H. Mayrhofer & R. Ertl (GZU); c. 1 km W of Nea Kria Vrissi, schist, c. 410–430 m, 35°07'N/24°37'E, 15.5.1997, H. Mayrhofer 16677, 16678 & R. Ertl (GZU).

New to I and R.

Caloplaca grimmiae (Nyl.) H.Olivier: 19, on xerothermic lime-rich siliceous rock, lichenicolous on *Candelariella vitellina* (CBFS JV4138).

**Caloplaca gyalolechioides* (Müll.Arg.) ined.: 17, on sheltered vertical side of calcareous rock (CBFS JV4021, 4022).

Caloplaca haematites (St.-Amans) Zwackh: 1, 4, 7, 16, 17, 23, on bark of alpine shrubs, *Acer semper-virens*, *Ceratonia siliqua*, *Pistacia* sp. and *Pyrus amygdaliformis* (CBFS JV3772, 3811, 3848, 3858, 3865, 3876, 3917, 4015, 4035, 4068).

Nomós Chanion, Omalos, on bark of *Pyrus*, 1070 m, 17.8.1976, H. & M. Mayrhofer (GZU).

According to the ITS molecular data, this south European species is homogenous and not closely related to *C. cerina* (Šoun, pers. comm.).

Caloplaca holocarpa (Hoffm. ex Ach.) A.E.Wade s.l.: 1, on limestone rock (CBFS JV3843); 2, on dead wood of *Pistacia* sp. (CBFS JV3832).

Caloplaca inconnexa (Nyl.) Zahlbr. var. *inconnexa*: 16, 22, on limestone rocks (CBFS JV4080, 4168).

Nomós Irakliou, c. 2 km SE of Ano Viannos, c. 1 km W of the crossing to the village Valios, c. 650 m, 35°02.3'N/25°25'E, calcareous schist, 2.8.2007, H. Mayrhofer 18019, 18021 (GZU). – Nomós Lassithiou, c. 1 km W of Dafni, N-exposed slopes of the mountain Pomati with scattered boulders, sandstone, c. 550 m, 35°06.5'N/25°59'E, 30.7.2007, H. Mayrhofer 18010 (GZU).

New to I.

Caloplaca inconnexa var. *nesodes* Poelt & Nimis: 7, on lime-rich sandstone, lichenicolous on *Aspicilia* sp. (CBFS JV4051).

Nomós Chanion, above the village Temenia, c. 1.5 km S of Bambakados, cliffs along the road, c. 830 m, 35°18'N/23°45'E, siliceous rocks, 13.5.1999, H. Mayrhofer 18050 & E. Baloch (GZU).

Caloplaca necator Poelt & Clauzade may represent the same taxon. It was recorded from Crete by RONDON (1969).

**Caloplaca irrubescens* (Arnold) Zahlbr. [syn. *C. subsoluta* (Nyl.) Zahlbr.]: 19, on xerothermic lime-rich siliceous rock (CBFS JV4143, 4144).

Caloplaca lactea (A.Massal.) Zahlbr.: 1, 17, on calcareous rock (CBFS JV3880, 3924, 4216).

**Caloplaca lobulata* (Flörke) Hellb.: 7, on bark of *Pyrus amygdaliformis* (CBFS JV3918, 3920).

Caloplaca navasiana Nav.-Ros. & Cl.Roux: 1, on calcareous rocks (CBFS JV3852).

New to I.

Caloplaca ochracea (Schaer.) Flagey: 22, on limestone rock (CBFS JV4183).

Nomós Chanion, 1 km S of Imbros, at road to Hora Sfakion, on E-exposed limestone, c. 800 m, 35°15'N/24°10'E, 13.5.1997, H. Mayrhofer & R. Ertl (GZU).

New to C.

**Caloplaca ora* Poelt & Nimis: 25, on coastal siliceous rock (CBFS JV3809, 3836).

The samples are morphologically identical with the isotypes (VĚZDA: Lich. sel. exs. 849: GZU!, PRM!).

**Caloplaca oxfordensis* J.Steiner (syn. *C. subpallida* H.Magn.)

Nomós Irakliou, SE of Agia Pelagia, above village Mate, below main road from Iraklion–Rhetimnon, on NE-exposed schist outcrop, 100 m, 35°24'N/25°02'E, 11.5.1997, H. Mayrhofer & R. Ertl (GZU).

– Nomós Chanion, c. 1 km E of Argoules, between Chora Sfakion and Sellia, c. 100–120 m, 35°12'N/24°17'E, schist, 15.5.1997, H. Mayrhofer 16673 & R. Ertl (GZU).

**Caloplaca pelodella* (Nyl.) Hasse

Nomós Chanion, c. 1 km E of Argoules, between Chora Sfakion and Sellia, c. 100–120 m, 35°12'N/24°17'E, schist, 15.5.1997, H. Mayrhofer 16672 & R. Ertl (GZU).

Caloplaca polycarpa (A.Massal.) Zahlbr.: 1, 22, on limestone overgrowing *Verrucaria* sp. (CBFS JV3869, 3883, 4058).

New to I.

Caloplaca saxicola (Hoffm.) Nordin: 2, on calcareous rock (CBFS JV3846); 19, on xerothermic lime-rich siliceous rock (CBFS JV4112).

New to I.

**Caloplaca sororicida* M.Steiner & Poelt

Nomós Chanion, 1 km S of Omalos, on calcareous rock, lichenicolous on *Caloplaca* cf. *transcaspica*, 1030 m, 17.8.1976, H. Mayrhofer (GZU).

We consider this lichenicolous species on *Caloplaca transcaspica* different from *C. adelphoparasitica* Nimis & Poelt. The latter is lichenicolous on *C. cretensis* and *C. variabilis*. *C. adelphoparasitica* is superficially similar, but often shows *Rinodina*-like ascospores with irregularly thickened walls. It may be a synonym to *C. glomerata* (KHODOSOVTSSEV et al. 2004).

**Caloplaca stillicidiorum* (Vahl) Lynge: 16, over bryophytes on calcareous rock, with *Leptogium gelatinosum* (CBFS JV4054).

**Caloplaca subochracea* (Wedd.) Werner: 1, on calcareous rock (CBFS JV3882).

**Caloplaca tavaresiana* Nav.-Ros. & Cl.Roux: 1, on calcareous rocks (CBFS JV4974).

The species is characterized by its vermilion-red apothecia and whitish, thin or endolithic thallus. Although *Caloplaca navasiana* and *C. tavaresiana* were considered as maritime species (NAVARRO-ROSINÉS & ROUX 1993, 1995), both of them have been collected from non-maritime rocks c. 500 m off the coast.

**Caloplaca teicholyta* (Ach.) J.Steiner: 6, on lime-rich stones (CBFS JV4069).

**Caloplaca transcaspica* (Nyl.) Zahlbr. [syn. *C. paulsenii* (Vain.) Zahlbr.]

Nomós Lassithiou, Lassithi, Psychron, on limestone, c. 900 m, 13.8.1976, M. & H. Mayrhofer (GZU).

- **Caloplaca ulcerosa* Coppins & P.James: 1, on bark of *Olea europaea* (CBFS JV6059).
- Caloplaca variabilis* (Pers.) Müll.Arg.: 1, 19, 22, 23, on limestone (CBFS JV3884, 4070, 4219).
Nomós Irakliou, c. 2 km SE of Ano Viannos, c. 1 km W of the crossing to the village Valios, c. 650 m, 35°02.3'N/25°25'E, calcareous schist, 2.8.2007, H. Mayrhofer 18020 (GZU).
- Caloplaca velana* (A.Massal.) Du Rietz var. *velana*: 8, 17, 19, 23, on hard and soft calcareous rocks (CBFS JV3817, 3818, 3931, 4079, 4147, 4208).
Nomós Lassithiou, Lassithi, Pinakianon, on limestone, c. 800 m, 13.8.1976, H. Mayrhofer (GZU).
- Caloplaca velana* var. *schaeereri* (Arnold) Clauzade & Cl.Roux: 16, 23, on limestone rocks (CBFS JV4044, 4056).
Nomós Chanion, 1 km S of Imbros, at road to Hora Sfakion, on E-exposed limestone rock, c. 800 m, 35°15'N/24°10'E, 13.5.1997, H. Mayrhofer & R. Ertl (GZU).
New to C and I.
- Caloplaca viridirufa* (Ach.) Zahlbr. [syn. *Caloplaca aractina* (Fr.) Häyrén]: 25, on coastal siliceous rock with *Rinodina oleae* (CBFS JV3806).
Nomós Chanion, southwest of Platanos, along the road to Sfinari, SW-exposed cliffs above the road, c. 200–235 m, 35°27'N/23°35'E, siliceous rocks, 14.5.1999, H. Mayrhofer 18043 & E. Baloch (GZU). – Nomós Rethimnis, c. 6 km SE of Nea Kria Vrissi, on the road to Agia Galini, c. 130–150 m, 35°08'N/24°40.5'E, 16.5.1997, H. Mayrhofer 16681 & R. Ertl (GZU, under *Caloplaca carphinea*).
New to C and I.
- Caloplaca xantholyta* (Nyl.) Jatta: 16, 22, on overhanging calcareous rocks (CBFS JV4043, 4202).
New to I.
- **Caloplaca xanthostigmoidea* (Räsänen) Zahlbr.: 16, muscicolous on *Grimmia anodon* (CBFS JV3816).
Emodin, norcaloplocin, 7-chloroemodin, parietin and fragilin were detected by HPLC. The secondary chemistry fits well to *C. xanthostigmoidea* according to SØCHTING & TØNSBERG (1997). This is the southernmost known locality of the species. HAFELLNER et al. (2008) discuss this questionable taxon in the Eastern Alps.
- **Caloplaca xerica* Poelt & Vězda: 19, on xerothermic lime-rich siliceous rock with *Rinodina guzzinii* and *Lichinella stipatula* (CBFS JV4119).
Nomós Rethimnis, c. 6 km SE of Nea Kria Vrissi, on the road to Agia Galini, c. 130–150 m, 35°08'N/24°40.5'E, 16.5.1997, H. Mayrhofer 16683 & R. Ertl (GZU).
- **Candelariella antennaria* Räsänen (syn. *C. deflexa* auct.): 16, 17, on dead twigs of alpine shrubs and on bark of *Quercus coccifera*, det. M. Westberg (CBFS JV3768, 3777, 3796, 3798, 3922).
This species keys out as *C. deflexa* in POELT & VÉZDA (1977). However, this name is considered as a synonym of *C. aurella* by WESTBERG (2007). The specimens from Crete have a similar ecology and are morphologically identical with the North American *C. antennaria*.
- Candelariella faginea* Nimis, Poelt & Puntillo: 22, on bark of *Acer sempervirens*, with *Rinodina sopherdes* (CBFS JV4181).
- Candelariella medians* (Nyl.) A.L.Sm.: 7, on limestone boulder in wall (CBFS JV3916).
- Candelariella plumbea* Poelt & Vězda: 2, on calcareous rocks (CBFS JV3845, 3853); 3, on base-rich siliceous rock (CBFS JV3879); 25, on coastal siliceous rocks (CBFS JV3789, 3790).
This taxon is common on non-calcareous coastal rocks along the western Black Sea coast (VONDRÁK 2006; Vondrák, unpublished data), and it is likely to occur at similar sites elsewhere in the eastern Mediterranean. In Crete, it was only known from one site on siliceous rocks in 900 m altitude (SPRIBILLE et al. 2006).
- Candelariella plumbea* sensu Nimis: 17, on calcareous rocks (CBFS JV3782, 4192).
NIMIS (2003) considers *C. plumbea* as an arctic-alpine lichen usually occurring in small cracks in dolomite rocks. However, the species was described from lowlands in Romania. The thermophilous

specimens with large, somewhat lobate thallus as seen in the type specimens are different from those growing in alpine habitats with less conspicuous thallus resembling *C. aurella*.

Candelariella reflexa (Nyl.) Lettau: 4, 13, on bark of *Ceratonia siliqua* (CBFS JV3878, 4184).

Our specimens are sterile and only doubtfully distinguishable from *C. efflorescens*.

New to I.

****Candelariella unilocularis*** auct., non (Elenkin) Nimis: 16, on calcareous rock overgrowing *Grimmia* cushions, parasitized by *Intralichen lichenum* (CBFS JV4229).

Westberg (pers. comm.) considers this calciphilous muscicolous lichen with large spores from European mountains as different from the type of *C. unilocularis*.

****Candelariella viae-lacteeae*** G.Thor & V.Wirth: 2, on dead wood of *Pistacia* sp. with *Diplotomma alboatrum* (CBFS JV3833).

Candelariella vitellina (Hoffm.) Müll.Arg.: 19, 25, mainly on coastal siliceous rocks (CBFS JV3791, 4029, 4139, 4166).

Candelariella sp.: 17, on vertical face of calcareous rocks and overgrowing the bryophytes *Grimmia anodon* and *Orthotrichum cupulatum* (CBFS JV3765, 3784, 4180, 4224).

The species has a large, yolk-yellow, rosette-forming thallus (usually several cm in diam.) resembling *Xanthoria elegans* in shape. In Europe, four lobate *Candelariella* species are known: *C. arctica* (Körb.) R.Sant., *C. medians*, *C. rhodax* Poelt & Vězda, and *C. senior* Poelt (POELT & VÉZDA 1977). *C. rhodax* (type: Romania: Dobrogea, VÉZDA: Lich. sel. exs. 1184 – isotypes, H!, PRM!), and *C. senior* (holotype: Spain: Murcia, M 0099854!, and additional reference samples seen in GZU) are somewhat similar, but the Cretean specimens are clearly characterized by their long, tortuous and strongly convex lobes. More material of the species should be studied for its formal description.

****Catapyrenium cinereum*** (Pers.) Körb.: 22, on calcareous soil, with *Psora decipiens* (CBFS JV4187).

Catillaria chalybeia (Borrer) A.Massal.: 7, on lime-rich siliceous stone (CBFS JV4074).

Catillaria nigroclavata (Nyl.) Schuler: 15, on bark of various hardwood trees (CBFS JV4204).

New to I.

****Catillaria praedicta*** Tretiach & Hafellner: 4, on bark of *Ceratonia siliqua* (CBFS JV3866, sub *Catillaria nigroclavata*); 7, on bark of *Pyrus amygdaliformis* (CBFS JV3921).

This recently described species with 24–32-spored asci (TRETIACH & HAFELLNER 1998) has not been reported from Crete so far; however, a sample with transitional characters between *C. nigroclavata* and *C. praedicta* with 8–16-spored asci is known (SPRIBILLE et al. 2006).

****Cetraria aculeata*** (Schreb.) Fr.

Nomós Chanion, above the village Temenia, c. 1.5 km S of Bambakados, c. 830 m, 35°18'N/23°45'E, 13.5.1999, H. Mayrhofer 18071 & E. Baloch (GZU).

Collema nigrescens (Huds.) DC.: 16, on bark of *Quercus coccifera* (CBFS JV4045).

Collema occultatum Bagl.: 18, on bark of *Platanus* sp. (CBFS JV3934).

New to I.

Collema ryssoleum (Tuck.) A.Schneider

Nomós Rethimnis, c. 6 km SE of Nea Kria Vrasi on the road to Agia Galini, c. 130–150 m, 35°08'N/24°40.5'E, 16.5.1997, H. Mayrhofer 18003 & R. Ertl (GZU).

Collema tenax (Sw.) Ach.: 1, on calcareous soil (CBFS JV4542).

Dimelaena oreina (Ach.) Norman

Nomós Chanion, southwest of Platanos, along the road to Sfinari, c. 200–235 m, 35°27'N/23°35'E, siliceous rocks, 14.5.1999, H. Mayrhofer 18049 & E. Baloch (GZU). – Nomós Rethimnis, c. 1 km W of Nea Kria Vrasi, S-exposed rock outcrops, c. 410–430 m, 35°07'N/24°37'E, schist, 15.5.1997, H. Mayrhofer 16657 & R. Ertl (GZU).

The cited specimens refer to chemotype V (MAYRHOFFER et al. 1996) and Va (OBERMAYER et al. 2004), resp. like the previously recorded samples from the region of Rethimnis (OBERMAYER 1997).

New to C.

- Diploicia canescens*** (Dicks.) A.Massal.: 25, on coastal siliceous rock (CBFS JV3837).
Nomós Rethimnis, c. 3 km NE of Agios Pavlos W Agia Galini, steep slopes with boulders above the road, c. 215–240 m; 35°07'N/24°35'E, on siliceous rocks, 16.5.1997, H. Mayrhofer 16696 & R. Ertl (GZU).
New to I and R.
- Diploschistes actinostomus*** (Ach.) Zahlbr.
Nomós Chanion, Southwest of Platanos, along the road to Sfinari, SW-exposed cliffs above the road, c. 200–235 m, 35°27'N/23°35'E, siliceous rocks, 14.5.1999, H. Mayrhofer 18094 & E. Baloch (GZU).
New to C.
- ****Diploschistes euganeus*** (A.Massal.) J.Steiner
Nomós Rethimnis, c. 3 km NE of Agios Pavlos W Agia Galini, steep slopes with boulders above the road, c. 215–240 m; 35°07'N/24°35'E, siliceous rocks, 16.5.1997, H. Mayrhofer 16691 & R. Ertl (GZU).
- Diploschistes ocellatus*** (Vill.) Norman
Nomós Rethimnis, c. 3 km NE of Agios Pavlos W Agia Galini, steep slopes with boulders above the road, c. 215–240 m; 35°07'N/24°35'E, siliceous rocks, 16.5.1997, H. Mayrhofer 16692 & R. Ertl (GZU).
New to R.
- Diplotomma alboatrum*** (Hoffm.) Flot.: 1, 2, on bark and dead wood of *Pistacia* sp. (CBFS JV3828, 3834, 4037); 19, on xerothermic lime-rich siliceous rock (CBFS JV4140); 25, on coastal siliceous rock (CBFS JV4978).
Nomós Rethimnis, c. 3 km NE of Agios Pavlos W Agia Galini, steep slopes with boulders above the road, c. 215–240 m; 35°07'N/24°35'E, siliceous rocks, 16.5.1997, H. Mayrhofer 16694, 16697 & R. Ertl (GZU).
- Diplotomma chlorophaeum*** (Hepp ex Leight.) Szatala: 25, on coastal siliceous rock (CBFS JV4977).
The specimen (JV4977) grows together with *D. alboatrum*, from which it clearly differs by the presence of norstictic acid (K⁺ red crystals) in the thallus.
Nomós Chanion, Southwest of Platanos, along the road to Sfinari, SW-exposed cliffs above the road, c. 200–235 m, 35°27'N/23°35'E, siliceous rocks, 14.5.1999, H. Mayrhofer 18065 & E. Baloch (GZU).
– Nomós Lassithiou, c. 5 km S of Vai, c. 2 km E of Palekastron, c. 100 m, siliceous rock, 8.8.1976, H. Mayrhofer 82 (GZU). C. 1 km W of Dafni, N-exposed slopes of the mountain Pomati with scattered boulders, c. 550 m, 35°06.5'N/25°59'E, sandstone, 30.7.2007, H. Mayrhofer 18040 (GZU).
New to C and I.
- Diplotomma venustum*** Körb.: 1, 17, on calcareous rock (CBFS JV3815, 3925).
Nomós Irakliou, c. 2 km SE of Ano Viannos, c. 1 km W of the crossing to the village Valios, c. 650 m, 35°02.3'N/25°25'E, 2.8.2007, H. Mayrhofer 18023 (GZU).
The species was reported by NORDIN (2000) without any information about its locality.
New to I.
- Fulgensia fulgens*** (Sw.) Elenkin: 1, on calcareous soil (CBFS JV3774).
- Fulgensia fulgida*** (Nyl.) Szatala: 16, on calcareous rock and over calcicolous bryophytes (CBFS JV4048, 4052).
- Fulgensia schistidii*** (Anzi) Poelt: 16, muscicolous on *Grimmia anodon*, *Orthotrichum anomalum* and *Schistidium* sp. (CBFS JV3814, 4053, 4087).
New to I.
- Fulgensia subbracteata*** (Nyl.) Poelt: 19, on soft calcareous rock and on weathered xerothermic lime-rich siliceous rock (CBFS JV4095, 4176).
- Fuscopannaria olivacea*** (P.M.Jørg.) P.M.Jørg.: 16, on bark of *Quercus coccifera* (CBFS JV4047, 4223).
New to I.
- ****Haematomma ochroleucum*** (Neck.) J.R.Laundon: 22, on overhanging limestone cliff (CBFS JV4075).
- Hyperphyscia adglutinata*** (Flörke) H.Mayrhofer & Poelt: 21, on exposed roots of shrub (CBFS JV4222).

****Lasallia pustulata*** (L.) Mérat

Nomós Chanion, above the village Temenia, c. 1.5 km S of Bambakados, c. 830 m, 35°18'N/23°45'E, siliceous rocks, 13.5.1999, H. Mayrhofer 18072 & E. Baloch (GZU).

****Lecania sylvestris*** var. *umbratica* (Arnold) M.Mayrhofer: 1, on calcareous rock (CBFS JV4976).

Lecania turicensis (Hepp) Müll.Arg.: 6, on concrete (CBFS JV4077), 8, 16, on calcareous rocks (CBFS JV3932, 4161).

New to I.

****Lecanora aitema*** (Ach.) Hepp: 17, on dead twigs of alpine shrub (CBFS JV3769).

Lecanora albescens (Hoffm.) Branth & Rostr.: 25, on coastal siliceous rock (CBFS JV3804).

Lecanora bolcana (Pollini) Poelt: 19, on xerothermic lime-rich siliceous rock (CBFS JV4121, sub *L. laatokkaensis*).

New to I.

Lecanora chlarotera (Nyl.) Zahlbr.: 4, on bark of *Ceratonia siliqua* (CBFS JV3868); 23, on twigs of dead shrub (CBFS JV4066).

Lecanora dispersa (Pers.) Sommerf.: 17, on calcareous rock (CBFS JV3781).

Although *L. dispersa* is regarded as a lowland to upland species, which is replaced by other similar taxa in the alpine belt (POELT et al. 1995), our sample from c. 2000 m refers to *L. dispersa* s.str.

Lecanora gangaleoides Nyl.

Nomós Chanion, Southwest of Platanos, along the road to Sfinari, SW-exposed cliffs above the road, c. 200–235 m, 35°27'N/23°35'E, siliceous rocks, 14.5.1999, H. Mayrhofer 18097 & E. Baloch (GZU).

New to C.

Lecanora hagenii (Ach.) Ach.: 4, 11, on bark of *Ceratonia siliqua* and *Cupressus sempervirens* (CBFS JV3867, 3873, 3875, 4064).

Lecanora sulphurea (Hoffm.) Ach.

Nomós Chanion, above the village Temenia, c. 1.5 km S of Bambakados, c. 830 m, 35°18'N/23°45'E, siliceous rocks, 13.5.1999, H. Mayrhofer 18081 & E. Baloch (GZU).

New to C.

Lecidea fuscoatra var. *grisella* (Flörke) Nyl.

Nomós Lassithiou, c. 1 km W of Dafni, N-exposed slopes of the mountain Pomati with scattered boulders, c. 550 m, 35°06.5'N/25°59'E, sandstone, 30.7.2007, H. Mayrhofer 18037 (GZU).

Lecidella asema (Nyl.) Hertel & Leuckert: 25, on coastal siliceous rock (CBFS JV3835, sub *L. subin congrua*).

Arthothelin and granulysin were detected by TLC, which corresponds to chemotype 6 according to LEUCKERT et al. (1992).

New to I.

Lecidella elaeochroma (Ach.) M.Choisy: 16, on bark of *Acer sempervirens* (CBFS JV4005); 23, on twigs of dead shrub (CBFS JV4067).

Lecidella aff. *scabra* (Taylor) Hertel & Leuckert: 7, on lime-rich stone (CBFS JV4073). The sample fits well the morphology of *L. scabra*, but the reactions of its soralia are K⁺ yellowish, KC⁻, C⁻, P⁻.

New to I.

Lecidella stigmatea (Ach.) Hertel & Leuckert: 17, on calcareous rock (CBFS JV4212).

****Lepraria rigidula*** (de Lesd.) Tønberg: 22, over the bryophytes *Neckera crispa* and *Leucodon sciuroides* growing on an overhanging limestone cliff with *Caloplaca chrysodeta* (CBFS JV4177, sub *Caloplaca chrysodeta*).

Leptogium gelatinosum (With.) J.R.Laundon: 16, over *Leucodon* sp. on limestone outcrop (CBFS JV4226), with *Caloplaca stillicidiorum* (CBFS JV4615).

[Nomós Chanion], Hochebene von Omalos, Xiloskalo-Pass, bei 1070 m, 17.8.1976, H. Mayrhofer 1052 (GZU).

Leptogium lichenoides (L.) Zahlbr.: 16, muscicolous on *Grimmia anodon*, *Orthotrichum anomalum* and *Schistidium* sp. (CBFS JV4088).

New to I.

Leptogium teretiusculum (Wallr.) Arnold: 16, over bryophytes on calcareous rock (CBFS JV4055), with *Caloplaca stillicidiorum* and *Leptogium gelatinosum* (CBFS JV4054).

Lethariella intricata (Moris) Krog

Nomós Chanion, above the village Temenia, c. 1.5 km S of Bambakados, c. 830 m, 35°18'N/23°45'E, siliceous rocks, 13.5.1999, H. Mayrhofer 18073 & E. Baloch (GZU).

This fruticose species has only been known from higher altitudes in the vicinity of the mountain Gingilos above the Samaria Gorge (GRUBE et al. 2001, SPRIBILLE et al. 2006).

Lichina confinis (O.F.Müll.) C.Agardh: 20, 25, on coastal siliceous rocks (CBFS JV4126, 4132, 4165).

***Lichinella cribellifera** (Nyl.) P.Moreno & Etayo

Nomós Rethimnis, c. 6 km SE of Nea Kria Vrisi on the road to Agia Galini, c. 130–150 m, 35°08'N/24°40.5'E, 16.5.1997, H. Mayrhofer 18008 & R. Ertl (GZU).

***Lichinella nigritella** (Lettau) P.Moreno & Etayo: 20, on coastal siliceous rock (CBFS JV4122, 4131).

***Lichinella stipatula** Nyl.

Nomós Rethimnis, c. 6 km SE of Nea Kria Vrisi on the road to Agia Galini, c. 130–150 m, 35°08'N/24°40.5'E, 16.5.1997, H. Mayrhofer 18008 & R. Ertl (GZU, with *Lichinella cribellifera*).

Lobothallia radiosa (Hoffm.) Hafellner: 19, 20, on xerothermic, lime-rich siliceous rocks (CBFS JV4117, 4124); 22, on limestone rock (CBFS JV4081).

Nomós Rethimnis, c. 3 km NE of Agios Pavlos W Agia Galini, steep slopes with boulders above the road, c. 215–240 m; 35°07'N/24°35'E, siliceous rocks, 16.5.1997, H. Mayrhofer 16690, 16698 & R. Ertl (GZU).

Megaspora verrucosa var. *mutabilis* (Ach.) Nimis & Cl.Roux: 16, on bark of *Acer sempervirens* (CBFS JV3810); 17, on dead twigs of alpine shrub (CBFS JV3771).

***Melanelixia fuliginosa** (Fr. ex Duby) O.Blanco et al. subsp. *fuliginosa*

Nomós Chanion, above the village Temenia, c. 1.5 km S of Bambakados, c. 830 m, 35°18'N/23°45'E, siliceous rocks, 13.5.1999, H. Mayrhofer 18086 & E. Baloch (GZU).

Melanelixia glabra (Schaer.) O.Blanco et al.: 16, on bark of *Quercus coccifera* (CBFS JV4217).

***Melanohalea exasperatula** (Nyl.) O.Blanco et al.: 16, on bark of *Acer sempervirens* (CBFS JV4013).

***Miriquidica deusta** (Stenh.) Hertel & Rambold

Nomós Chanion, southwest of Platanos, along the road to Sfinari, c. 200–235 m, 35°27'N/23°35'E, siliceous rocks, 14.5.1999, H. Mayrhofer 18102 & E. Baloch (GZU).

Ochrolechia parella (L.) A.Massal.

[Nomós Lassithiou], entlang der Bergstraße ca. 100 m über dem Ort Karidi, c. 590 m, Silikat, 9.8.1976, H. Mayrhofer 1337 (GZU).

Parmelia saxatilis (L.) Ach.

Nomós Chanion, above the village Temenia, c. 1.5 km S of Bambakados, c. 830 m, 35°18'N/23°45'E, siliceous rocks, 13.5.1999, H. Mayrhofer 18057 & E. Baloch (GZU).

Parmelina pastillifera (Harm.) Hale: 22, on bark of *Acer sempervirens* (CBFS JV4024).

Parmelina tiliacea (Hoffm.) Hale: 22, on bark of *Acer sempervirens* (CBFS JV4023).

Nomós Chanion, southwest of Platanos, along the road to Sfinari, c. 200–235 m, 35°27'N/23°35'E, siliceous rocks, 14.5.1999, H. Mayrhofer 18095 & E. Baloch (GZU).

Peltigera rufescens (Weiss) Humb.: 23, on calcareous soil (CBFS JV4049).

***Peltula euploca** (Ach.) Poelt: 19, on xerothermic, lime-rich siliceous rock (CBFS JV4145).

Nomós Chanion, southwest of Platanos, along the road to Sfinari, c. 200–235 m, 35°27'N/23°35'E, siliceous rocks, 14.5.1999, H. Mayrhofer 18067 & E. Baloch (GZU).

****Pertusaria leucosora*** Nyl.

Nomós Chanion, above the village Temenia, c. 1.5 km S of Bambakados, c. 830 m, 35°18'N/23°45'E, siliceous rocks, 13.5.1999, H. Mayrhofer 18080 & E. Baloch (GZU).

Pertusaria pertusa (Weigel) Tuck.: 16, on bark of *Acer sempervirens* (CBFS JV4085).

Physcia leptalea (Ach.) DC.: 15, 16, on bark of *Acer sempervirens* and *Pyrus amygdaliformis* (CBFS JV3928, 4010).

Physcia scopulorum (Lambinon & Vězda) Poelt & Nimis

Nomós Chanion, Southwest of Platanos, along the road to Sfinari, SW-exposed cliffs above the road, c. 200–235 m, 35°27'N/23°35'E, siliceous rocks, 14.5.1999, H. Mayrhofer 18100 & E. Baloch (GZU).
– Nomós Irakliou, SE of Agia Pelagia, above the village Mate, below the main road from Iraklion to Rethimnon, NE-exposed rock outcrops, schist, c. 100 m, 35°24'N/25°02'E, 11.5.1997, H. Mayrhofer & R. Ertl (GZU).

New to C and I.

Physcia stellaris (L.) Nyl.: 5, on bark of *Olea europaea* (CBFS JV4214)

Physconia distorta (With.) J.R.Laundon: 16, on bark of *Acer sempervirens* (CBFS JV4011).

Physconia venusta (Ach.) Poelt: 16, on bark of *Quercus coccifera* (CBFS JV4215).

Placidium squamulosum (Ach.) Breuss: 1, on calcareous soil (CBFS JV4541).

Placopyrenium canellum (Nyl.) Gueidan & Cl.Roux (syn. *Verrucaria canella* Nyl.): 2, lichenicolous on the thallus of *Aspicilia calcarea* on a calcareous rock (CBFS JV3801).

New to I.

Pleurosticta acetabulum (Neck.) Elix & Lumbsch: 15, on bark of *Pyrus amygdaliformis* (CBFS JV3927).

****Porocyphus ocellatus*** (Th.Fr.) Henssen: 20, on coastal siliceous rock with *Lichinella nigrifella* and *Lichina confinis* (CBFS JV4130).

Striking characters are the emerald green to blue-green epihymenium and upper part of hymenium and the octosporous asci. A similar species with polysporic asci is *Psorotichia taurica* (Nyl.) Vain. described from the Crimean Peninsula (NYLANDER 1886).

Porpidia macrocarpa (DC.) Hertel & A.J.Schwab: 17, on schist (CBFS JV4211).

Protoblastenia incrustans (DC.) J.Steiner: 17, on calcareous rock (CBFS JV3766, 4196).

New to I.

Protoparmelia badia (Hoffm.) Hafellner

Nomós Chanion, above the village Temenia, c. 1.5 km S of Bambakados, c. 830 m, 35°18'N/23°45'E, siliceous rock, 13.5.1999, H. Mayrhofer 18055 & E. Baloch (GZU).

Protoparmelia montagnei (Fr.) Poelt & Nimis

Nomós Chanion, Southwest of Platanos, along the road to Sfinari, SW-exposed cliffs above the road, c. 200–235 m, 35°27'N/23°35'E, siliceous rocks, 14.5.1999, H. Mayrhofer 18092 & E. Baloch (GZU).

New to C.

Psora decipiens (Hedw.) Hoffm.: 1, 16, 22, on calcareous soil (CBFS JV4188, 4194, 4543).

Psora testacea Hoffm.: 16, with bryophytes on calcareous soil in rocky crevices (CBFS JV4009).

Ramalina breviscula Nyl.

Nomós Chanion, above the village Temenia, c. 1.5 km S of Bambakados, c. 830 m, 35°18'N/23°45'E, siliceous rocks, 13.5.1999, H. Mayrhofer 18058 & E. Baloch (GZU).

New to C.

Ramalina fraxinea (L.) Ach.: 16, on bark of *Acer sempervirens* (CBFS JV4018).

Ramalina polymorpha (Lilj.) Ach.: 25, on coastal siliceous rock (CBFS JV3839).

New to I.

**Rhizocarpon episilum* (Nyl.) Zahlbr.

Nomós Chanion, above the village Temenia, c. 1.5 km S of Bambakados, c. 830 m, 35°18'N/23°45'E, on *Pertusaria rupicola*, 13.5.1999, H. Mayrhofer 18056 & E. Baloch (GZU). – Nomós Lassithiou, c. 1 km W of Dafni, N-exposed slopes of the mountain Pomati with scattered boulders, c. 550 m, 35°06.5'N/25°59'E, on *Pertusaria* sp. above sandstone, 30.7.2007, H. Mayrhofer 18028 (GZU).

Rimularia insularis (Nyl.) Rambold & Hertel

Nomós Chanion, above the village Temenia, c. 1.5 km S of Bambakados, c. 830 m, 35°18'N/23°45'E, siliceous rocks, on *Lecanora rupicola*, 13.5.1999, H. Mayrhofer 18083 & E. Baloch (GZU).

New to C.

Rinodina alba Arnold

Nomós Chanion, c. 1 km E of Argoules, between Hora Sfakion and Sellia, SE-exposed rock outcrops, c. 100–120 m, 35°12'N/24°17'E, schist, 15.5.1997, H. Mayrhofer 16661 & R. Ertl (GZU). Southwest of Platanos, along the road to Sfinari, c. 200–235 m, 35°27'N/23°35'E, siliceous rocks, 14.5.1999, H. Mayrhofer 18048, 18076, 18089, 18099 & E. Baloch (GZU). – Nomós Irakliou, SE of Agia Pelagia, above the village Mate, below the main road from Iraklion to Rethimnon, NE-exposed rock outcrops, c. 100 m, 35°24'N/25°02'E, schist, 11.5.1997, H. Mayrhofer 16643 & R. Ertl (GZU). – Nomós Lassithiou, rocky ridge S of the palm beach of Vai, E-exposed rock outcrops above the sea, c. 40 m, 35°15'N/26°15.7'E, 31.7.2007, H. Mayrhofer 18042 (GZU).

This species was only known from the region of Lassithi (SZATALA 1943, as *Rinodina atrocinerea*; MAYRHOFFER 1984). It occurs on hard siliceous rocks in the coastal mountains of the Mediterranean region (MAYRHOFFER 1984). SIPMAN & RAUS (1999, 2002) recorded the species from the Aegean islands Paros, Antiparos, Kalimnos and Nisiros.

New to C and I.

**Rinodina beccariana* Bagl. var. *beccariana*

Nomós Chanion, c. 1 km E of Argoules, between Chora Sfakion and Sellia, SE-exposed rock outcrops, c. 100–120 m, 35°12'N/24°17'E, schist, 15.5.1997, H. Mayrhofer 16662 & R. Ertl (GZU).

This maritime species is widely distributed in the Mediterranean region (MAYRHOFFER et al. 1993). The nearest records are from the Aegean islands Paros and Antiparos (SIPMAN & RAUS 1999) and Kos (SIPMAN & RAUS 2002).

Rinodina bischoffii (Hepp) A.Massal.: 16, 22, on limestone rock (CBFS JV4083, 4565).

New to I.

Rinodina calcarea (Arnold) Arnold

Nomós Irakliou, c. 2 km SE of Ano Viannos, c. 1 km W of the crossing to the village Valios, c. 650 m, 35°02.3'N/25°25'E, 02.8.2007, H. Mayrhofer 18031, 18032 (GZU, associated with *R. lecanorina*). – Nomós Rethimnis, c. 1 km W of Nea Kria Vrissi, S-exposed rock outcrops, c. 410–430 m, 35°07'N/24°37'E, calcareous rocks, 15.5.1997, H. Mayrhofer 16659 & R. Ertl (GZU).

New to R.

**Rinodina colobina* (Ach.) Th.Fr.: 5, on bark of *Olea europaea* (CBFS JV4213); 18, on bark of *Platanus*, with *Collema occultatum* (CBFS JV3933).

This species is known from northern Greece (VEZDA 1994, ROPIN & MAYRHOFFER 1995, OBERMAYER 1996).

Rinodina confragosa (Ach.) Körb.

Nomós Chanion, above the village Temenia, c. 1.5 km S of Bambakados, c. 830 m, 35°18'N/23°45'E, siliceous rocks, 13.5.1999, H. Mayrhofer 18053 & E. Baloch (GZU, UPS). Ibid., H. Mayrhofer 18087 & E. Baloch (GZU). Southwest of Platanos, along the road to Sfinari, c. 200–235 m, 35°27'N/23°35'E, siliceous rocks, 14.5.1999, H. Mayrhofer 18077 & E. Baloch (GZU). – Nomós Irakliou, SE of Agia Pelagia, above the village Mate, below the main road from Iraklion to Rethimnon, NE-exposed rock outcrops, c. 100 m, 35°24'N/25°02'E, schist, 11.5.1997, H. Mayrhofer 16644 & R. Ertl (GZU, Hb. Kalb).

Rinodina exigua (Ach.) Gray: 1, on bark of *Olea europaea* (CBFS JV3795).

New to I.

****Rinodina guzzinii*** Jatta: 19, on xerothermic, lime-rich siliceous rock (CBFS JV4120).

Nomós Rethimnis: c. 1 km W of Nea Kria Vrissi, S-exposed rock outcrops, c. 410–430 m, 35°07'N/24°37'E, calcareous rocks, 15.5.1997, H. Mayrhofer 16660 & R. Ertl (GZU). C. 6 km SE of Nea Kria Vrissi on the road to Agia Galini, NE-exposed slopes with scattered boulders above the road, c. 130–150 m, 35°08'N/24°40.5'E, 16.5.1997, H. Mayrhofer 18002 & R. Ertl (GZU).

The nearest record comes from the Peloponnesos (MAYRHOFER 1984).

Rinodina immersa (Körb.) Zahlbr.: 16, on calcareous rock (CBFS JV4060, 4566).

Rinodina lecanorina (A.Massal.) A.Massal.: 16, 22, on calcareous rocks (CBFS JV4050, 4082, 4169).

Nomós Irakliou, c. 2 km SE of Ano Viannos, c. 1 km W of the crossing to the village Valios, c. 650 m, 35°02.3'N/25°25'E, 2.8.2007, H. Mayrhofer 18027 (GZU). – Nomós Rethimnis, c. 1 km W of Nea Kria Vrissi, S-exposed rock outcrops, c. 410–430 m, 35°07'N/24°37'E, calcareous rocks, 15.5.1997, H. Mayrhofer 16658 & R. Ertl (GZU).

New to R.

****Rinodina luridescens*** (Anzi) Arnold

Nomós Chanion, southwest of Platanos, along the road to Sfinari, c. 200–235 m, 35°27'N/23°35'E, siliceous rocks, 14.5.1999, H. Mayrhofer 18070 & E. Baloch (GZU). – Nomós Irakliou, SE of Agia Pelagia, above the village Mate, below the main road from Iraklion to Rethimnon, NE-exposed rock outcrops, c. 100 m, 35°24'N/25°02'E, schist, 11.5.1997, H. Mayrhofer 16645 & R. Ertl (GZU).

This species is recorded from the Aegean island Lemnos by SERVÍT (1937) as *Buellia steineri* Servít, which is a synonym of *Rinodina luridescens* according to MAYRHOFER & MOBERG (2002). Other records are known from the islands Paros and Antiparos (SIPMAN & RAUS 1999) and Kos (SIPMAN & RAUS 2002).

Rinodina obnascens (Nyl.) H.Olivier

Nomós Chanion, southwest of Platanos, along the road to Sfinari, c. 200–235 m, 35°27'N/23°35'E, siliceous rocks, 14.5.1999, H. Mayrhofer 18068, 18069, 18099 & E. Baloch (GZU). – Nomós Irakliou, SE of Agia Pelagia, above the village Mate, below the main road from Iraklion to Rethimnon, NE-exposed rock outcrops, c. 100 m, 35°24'N/25°02'E, 11.5.1997, schist, H. Mayrhofer 16648 & R. Ertl (GZU).

This species is also known from the Cyclades (SIPMAN & RAUS 1999).

New to C.

Rinodina oleae Bagl. (syn. *R. gennarii* Bagl.): 1, on bark of *Ceratonia siliqua* (CBFS JV3859); 12, on lime-rich sandstone boulder (CBFS JV4201); 25, on coastal siliceous rocks (CBFS JV3792, 3805, 3807, 3881).

Nomós Chanion, c. 1 km E of Argoules, between Chora Sfakion and Sellia, SE-exposed rock outcrops, c. 100–120 m, 35°12'N/24°17'E, schist, 15.5.1997, H. Mayrhofer 16663 & R. Ertl (GZU). – Nomós Irakliou, SE of Agia Pelagia, above the village Mate, below the main road from Iraklion to Rethimnon, NE-exposed rock outcrops, c. 100 m, 35°24'N/25°02'E, schist, 11.5.1997, H. Mayrhofer 16646 & R. Ertl (GZU). – Nomós Rethimnis, c. 1 km W of Nea Kria Vrissi, S-exposed rock outcrops, c. 410–430 m, 35°07'N/24°37'E, schist, 15.5.1997, H. Mayrhofer 16656 & R. Ertl (GZU).

Saxicolous specimens have already been recorded by ZAHLBRUCKNER (1906) and SZATALA (1943) as *Rinodina demissa* auct. and by MAYRHOFER (1984) as *R. gennarii*. KASCHIK (2006) treated *R. gennarii* as a synonym of *R. oleae* based on anatomical and molecular characters.

Rinodina pyrina (Ach.) Arnold: 2, on dead wood of *Pistacia* sp. (CBFS JV3826, 3831, 3855); 7, on bark of *Pyrus amygdaliformis* (CBFS JV4185); 11, on dust-impregnated bark of *Cupressus sempervirens* (CBFS JV4063).

Rinodina sophodes (Ach.) A.Massal.: 16, 22, on bark of *Acer sempervirens* and *Quercus coccifera* (CBFS JV4007, 4182, 4186).

**Rinodina teichophila* (Nyl.) Arnold

Nomós Lassithiou, c. 1 km W of Dafni, N-exposed slopes of the mountain Pomati with scattered boulders, c. 550 m, 35°06.5'N/25°59'E, sandstone, 30.7.2007, H. Mayrhofer 18018 (GZU).

This species was recorded from Greece by MATZER & MAYRHOFER (1994) and from the island of Cyprus by LITTERSKI & MAYRHOFER (1998, 2000).

Rinodina trachytica (A.Massal.) Bagl. & Carestia: 19, on xerothermic lime-rich siliceous rock (CBFS JV4136).

Nomós Chanion, c. 1 km E of Argoules, between Chora Sfakion and Sellia, SE-exposed rock outcrops, c. 100–120 m, 35°12'N/24°17'E, schist, 15.5.1997, H. Mayrhofer 16664 & R. Ertl (GZU).

TLC: The specimen (16664) contains only atranorin. Confluentinic and 2-O-methylperlatolic acids are the other known compounds in this species (MAYRHOFER & LEUCKERT 1985, MAYRHOFER et al. 1992).
New to C.

Roccella phycopsis Ach.

Nomós Chanion, southwest of Platanos, along the road to Sfinari, c. 200–235 m, 35°27'N/23°35'E, siliceous rocks, 14.5.1999, H. Mayrhofer 18104 & E. Baloch (GZU).

**Schaereria fuscocinerea* (Nyl.) Clauzade & Cl.Roux

Nomós Chanion, above the village Temenia, c. 1.5 km S of Bambakados, c. 830 m, 35°18'N/23°45'E, siliceous rocks, 13.5.1999, H. Mayrhofer 18084 & E. Baloch (GZU).

Scoliosporum umbrinum (Ach.) Arnold

Nomós Chanion, above the village Temenia, c. 1.5 km S of Bambakados, c. 830 m, 35°18'N/23°45'E, siliceous rocks, 13.5.1999, H. Mayrhofer 18059 & E. Baloch (GZU).

This species has only been known from one locality in the region of Chania growing on wood (SPRIBILLE et al. 2006).

**Seiophora contortuplicata* (Ach.) Frödén [syn. *Xanthoria contortuplicata* (Ach.) Boistel]: 17, on calcareous rock (CBFS JV3775).

Solenopsora vulturienensis Bagl.

Nomós Rethimnis, c. 3 km NE of Agios Pavlos W Agia Galini, steep slopes with boulders above the road, c. 215–240 m; 35°07'N/24°35'E, siliceous rocks, 16.5.1997, H. Mayrhofer 16700 & R. Ertl (GZU).

New to R.

Squamarina concrescens (Müll.Arg.) Poelt: 19, on calcareous soil (CBFS JV4097).

Tephromela atra (Huds.) Hafellner: 7, on lime-rich stone (CBFS JV4103); 25, on coastal siliceous rock (CBFS JV3838).

Nomós Rethimnis, c. 3 km NE of Agios Pavlos W Agia Galini, steep slopes with boulders above the road, c. 215–240 m; 35°07'N/24°35'E, siliceous rocks, 16.5.1997, H. Mayrhofer 16699 & R. Ertl (GZU).

**Thelenella muscorum* (Fr.) Vain. var. *muscorum* [syn. *Chromatochlamys muscorum* (Fr.) H.Mayrhofer & Poelt]: 22, over the moss *Homalothecium sericeum* (CBFS JV4203, sub *Agonimia vouauxii*).

Toninia aromatica (Sm.) A.Massal.: 22, on limestone rock, overgrowing *Verrucaria* cf. *nigrescens* (CBFS JV4148).

Toninia cinereovirens (Schaer.) A.Massal.: 19, on xerothermic, lime-rich siliceous rock (CBFS JV4142).

Toninia cf. *lutosa* (Ach.) Timdal: 2, on calcareous rock (CBFS JV3854).

New to I.

Toninia sedifolia (Scop.) Timdal: 16, on limestone rock, parasitized by *Stigmidium glebarum* (CBFS JV4100).

**Umbilicaria crustulosa* (Ach.) Frey

Nomós Chanion, above the village Temenia, c. 1.5 km S of Bambakados, c. 830 m, 35°18'N/23°45'E, siliceous rocks, 13.5.1999, H. Mayrhofer 18074 & E. Baloch (GZU).

**Umbilicaria subglabra* (Nyl.) Harm.

Nomós Chanion, above the village Temenia, c. 1.5 km S of Bambakados, c. 830 m, 35°18'N/23°45'E, siliceous rocks, 13.5.1999, H. Mayrhofer 18075 & E. Baloch (GZU).

Verrucaria cyanea A.Massal.: 1, on limestone, conf. J. Halda (CBFS JV3842).

Verrucaria macrostoma Dufour ex DC.: 1, on calcareous soil (CBFS JV4540).

Verrucaria marmorea (Scop.) Arnold: 16, on calcareous rock, conf. J. Halda (CBFS JV3812).

Verrucaria viridula (Schrad.) Ach.: 17, on calcareous rock, conf. J. Halda (CBFS JV3779).

New to I.

**Verrucula maritima* Nav.-Ros. & Cl.Roux: 25, on coastal siliceous cliff, lichenicolous on *Caloplaca* aff. *maritima* (CBFS JV5290).

Xanthoparmelia attica (Leuckert et al.) O.Blanco et al.

Nomós Chanion, above the village Temenia, c. 1.5 km S of Bambakados, c. 830 m, 35°18'N/23°45'E, siliceous rocks, 13.5.1999, H. Mayrhofer 18078 & E. Baloch (GZU).

TLC: gyrophoric and norstictic acids.

Xanthoparmelia loxodes (Nyl.) O.Blanco et al.

Nomós Lassithiou, c. 1 km W of Dafni, N-exposed slopes of the mountain Pomati with scattered boulders, c. 550 m, 35°06.5'N/25°59'E, sandstone, 30.7.2007, H. Mayrhofer 18035 (GZU). – Nomós Irakliou, SE of Agia Pelagia, above the village Mate, below the main road from Iraklion to Rethimnon, NE-exposed rock outcrops, c. 100 m, 35°24'N/25°02'E, schist, 11.5.1997, H. Mayrhofer 16654 & R. Ertl (GZU).

New to I.

Xanthoria calcicola Oxner: 1, 7, on limestone rocks (CBFS JV3823, 4102); 3, 19, 25, on xerothermic lime-rich siliceous rocks (CBFS JV3856, 4025, 4108).

Nomós Irakliou, c. 2 km SE of Ano Viannos, c. 1 km W of the crossing to the village Valios, c. 650 m, 35°02.3'N/25°25'E, on calcareous schist, 2.8.2007, H. Mayrhofer 18030 (GZU).

**Xanthoria elegans* (Link) Th.Fr.: 17, on calcareous rock, in part overgrowing the bryophytes *Grimmia anodon* and *Orthotrichum cupulatum* (CBFS JV4225).

Xanthoria parietina (L.) Th.Fr.: 7, on bark of *Pyrus amygdaliformis* (CBFS JV3919).

**Xanthoria sorediata* (Vain.) Poelt: 17, on calcareous rock (CBFS JV4210).

2. Lichenicolous fungi

**Arthonia molendoi* (Heufl. ex Frauenf.) R.Sant.

Nomós Lassithiou, Lassithi, Psychron, on limestone, on *Caloplaca aurantia*, c. 900 m, 13.8.1976, M. & H. Mayrhofer (GZU).

Arthonia varians (Davies) Nyl.

Nomós Chanion, southwest of Platanos, along the road to Sfinari, c. 200–235 m, 35°27'N/23°35'E, siliceous rocks, apothecia of *Lecanora rupicola*, 14.5.1999, H. Mayrhofer 18096 & E. Baloch (GZU). – Nomós Chanion, above the village Temenia, c. 1.5 km S of Bambakados, c. 830 m, 35°18'N/23°45'E, siliceous rocks, thallus of sterile crust, 13.5.1999, H. Mayrhofer 18085 & E. Baloch (GZU).

**Endococcus* aff. *propinquus* (Körb.) D.Hawksw.: 2, thallus of *Aspicilia calcarea* (CBFS JV4033).

Our specimen has the characteristic small and smooth ascospores (HAFELLNER 1994, TRIEBEL 1989), which separate it from the other *Endococcus* species (*E. rugulosus* and *E. verrucosus*) known from *Aspicilia*. However, all three species prefer hosts growing on siliceous rocks in temperate regions. The conditions are quite different from our record. Thus, the Cretean specimen may represent a different species.

**Endococcus verrucosus* Hafellner: 25, on *Aspicilia intermutans* (CBFS JV4027).

Endococcus sp.: 16, thallus of *Candelariella antennaria* (CBFS JV4017).

This fungus is characterized by the immersed perithecia, 160–190 µm in diam., with dark brown walls, 20–30 µm thick, the absence of paraphysoidal filaments, 4-spored asci, and brown ascospores, 12.5–17 × 5–7 µm.

**Intralichen christiansenii* (D.Hawksw.) D.Hawksw. & M.S.Cole: 17, apothecia of *Candelariella antennaria* (CBFS JV3797).

**Intralichen lichenicola* (M.S.Christ. & D.Hawksw.) D.Hawksw. & M.S.Cole: 17, apothecia of an undescribed, rosette-forming *Candelariella* sp. (CBFS JV4564).

This species is characterized by multiseptate conidia (HAWKSWORTH & COLE 2002).

**Intralichen lichenum* (Diederich) D.Hawksw. & M.S.Cole: 16, apothecia of *Candelariella unilocularis* auct. (CBFS JV4230).

This species is distinguishable from *I. christiansenii* by the non-septate globose conidia (HAWKSWORTH & COLE 2002).

Lichenostigma elongata Nav.-Ros. & Hafellner: 19, 20, thallus and apothecia of *Lobothallia radiosa* (CBFS JV4118, 4123); 24, thallus of *Aspicilia* sp. (CBFS JV4093).

New to I.

Muellerella pygmaea (Körb.) D.Hawksw. var. *pygmaea*: 17, apothecia of *Lecanora dispersa* (CBFS JV3783).

**Stigmidium* aff. *hageniae* (Rehm) Hafellner: 25, thallus of *Anaptychia ciliaris* growing on maritime rock (CBFS JV4032).

Our specimen has larger spores (13–16 × 5 µm) than reported in CLAUZADE et al. (1989: 8–12 × 2–4 µm).

Stigmidium tabacinae (Arnold) Triebel: 16, thallus of *Toninia sedifolia* (CBFS JV4101, as *Stigmidium glebarum*).

Toninia episema (Nyl.) Timdal: 2, thallus of *Aspicilia calcarea* (CBFS JV3851).

New to I.

**Zwackhiomyces coepulonus* (Norman) Grube & R.Sant.: 17, apothecia of *Caloplaca haematites* (CBFS JV6058); 22, thallus of *Caloplaca variabilis* (CBFS JV4071).

The sample CBFS JV4071 with slightly larger ascospores (17–20 × 7–10 µm) belongs to *Z. coepulonus* with some doubts. The species has been known from anthraquinone-containing *Caloplaca* and *Xanthoria* species (SANTESSON et al. 2004). *Caloplaca haematites* and *C. variabilis* are new hosts.

3. Non-lichenized fungus

(traditionally included in lichenological surveys)

**Melaspilea proximella* (Nyl.) Nyl.: 1, on bark of *Ceratonia siliqua* (CBFS JV3860).

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References

- CHRISTENSEN, S. N. 2007. Lichens of *Cupressus sempervirens* on the Aegean islands of Kriti and Kos, Greece. – *Willdenowia* 37: 577–585.
- CHRISTENSEN, S. N. & SVANE, S. 2007. Contribution to the knowledge of the lichen flora of Crete (Kriti), Greece. – *Willdenowia* 37: 587–593.
- CLAUZADE, G., DIEDERICH, P. & ROUX, C. 1989. Nelikeniĝintaj fungoj likenloĝaj. Ilustrita determinlibro. – *Bull. Soc. Linn. Provence, Numéro Spécial* 1: 1–142.

- DEGELIUS, G. 1974. The lichen genus *Collema* with special reference to the extra-European species. – Symb. Bot. Upsal. **20**(2): 1–215.
- GRUBE, M., LINDBLOM, L. & MAYRHOFER, H. 2001. Contributions to the lichen flora of Crete: A compilation of references and some new records. – Stud. Geobot. **20**: 41–59.
- GÜVENÇ, Ş. & ÖZTÜRK, Ş. 1999. Lichens in the north-east regions of Cyprus. – Feddes Repert. **110**: 455–463.
- HAFELLNER, J. 1994. Beiträge zu einem Prodomus der lichenicolen Pilze Österreichs und angrenzender Gebiete. I. Einige neue oder seltene Arten. – Herzogia **10**: 1–28.
- HAFELLNER, J., HERZOG, G. & MAYRHOFER, H. 2008. Zur Diversität von lichenisierten und lichenicolen Pilzen in den Ennstaler Alpen (Österreich: Steiermark, Oberösterreich). – Mitt. Naturwiss. Vereins Steiermark **147**: 131–204.
- HAWKSWORTH, D. L. & COLE, M. S. 2002. *Intralichen* a new genus for lichenicolous ‘*Bispora*’ and ‘*Trimmatostroma*’ species. – Fungal Diversity **11**: 87–97.
- KAINZ, C. & RAMBOLD, G. 2004. A phylogenetic study of the lichen genus *Protoblastenia* (Lecanorales, Psoraceae) in Central Europe. – Biblioth. Lichenol. **88**: 267–299.
- KASCHIK, M. 2006. Taxonomic studies on saxicolous species of the genus *Rinodina* (lichenized Ascomycetes, Physciaceae) in the southern hemisphere with emphasis in Australia and New Zealand. – Biblioth. Lichenol. **93**: 1–162.
- KHODOSOVTSSEV, A. Y., KONDRATYUK, S. Y., MAKAROVA, I. I. & OXNER, A. N. 2004. Handbook of the lichens of Russia. 9. Fuscideaceae, Teloschistaceae. – St. Petersburg: Russian Academy of Sciences.
- KHODOSOVTSSEV, O. Y. 2002. A new for Ukraine and rare species of the genus *Caloplaca* Th.Fr. (Teloschistaceae) from southern Ukraine. – Ukr. Bot. Zhurn. **59**: 321–329.
- KLEINIG, H. 1966. Beitrag zur Kenntnis der Flechtenflora von Kreta. – Nova Hedwigia **11**: 513–526.
- LEUCKERT, C., KNOPH, J.-G. & HERTEL, H. 1992. Chemotaxonomische Studien in der Gattung *Lecidella* (Lecanorales, Lecanoraceae) II. Europäische Arten der *Lecidella asema*-Gruppe. – Herzogia **9**: 1–17.
- LITTERSKI, B. & MAYRHOFER, H. 1998. Catalogue of lichenized and lichenicolous fungi of Cyprus. – Stud. Geobot. **16**: 57–70.
- LITTERSKI, B. & MAYRHOFER, H. 2000. Additional records to the lichen flora of Cyprus. – Herzogia **14**: 145–150.
- LLOP, E., EKMAN, S. & HLDUN, N. L. 2007. *Bacidia thyrrhenica* (Ramalinaceae, lichenized Ascomycota), a new species from the Mediterranean region, and a comparison of European members of the *Bacidia rubella* group. – Nova Hedwigia **85**: 445–455.
- MATZER, M. & MAYRHOFER, H. 1994. The saxicolous *Rinodina teichophila* and three closely related species from the Southern Hemisphere (Physciaceae, lichenized Ascomycetes). – Acta Bot. Fenn. **150**: 109–120.
- MAYRHOFER, H. 1984. Die Flechtengattungen *Rinodina* und *Rinodinella* in der alten Welt. – J. Hattori Bot. Lab. **55**: 327–493.
- MAYRHOFER, H. & LEUCKERT, C. 1985. Beiträge zur Chemie der Flechtengattung *Rinodina* (Ach.) Gray III. – Herzogia **7**: 117–129.
- MAYRHOFER, H. & MOBERG, R. 2002. *Rinodina*. – Nordic Lichen Flora 2: 41–69, 72–73, 82–87, 100–115.
- MAYRHOFER, H., SCHEIDEGGER, C. & SHEARD, J. W. 1992. On the taxonomy of five saxicolous species of the genus *Rinodina* (lichenized Ascomycetes). – Nord. J. Bot. **12**: 451–459.
- MAYRHOFER, H., MATZER, M., SATTLER, J. & EGEE, J. M. 1993. A revision of the Atlantic-Mediterranean *Rinodina beccariana* and related taxa (lichenized Ascomycetes, Physciaceae). – Nova Hedwigia **57**: 281–304.
- MAYRHOFER, H., MATZER, M., WIPPEL, A. & ELIX, J. A. 1996. The genus *Dimelaena* (lichenized Ascomycetes, Physciaceae) in the southern hemisphere. – Mycotaxon **58**: 293–311.
- MORENO, P. P. & EGEE, J. M. 1992. Estudios sobre el complejo *Anema-Thyrea-Peccania* en el sureste de la península Iberica y norte de Africa. – Acta Bot. Barcinon. **41**: 1–66.
- NAVARRO-ROSINÉS, P. & ROUX, C. 1993. *Caloplaca tavaresiana* Nav.-Ros. et Roux sp. nov., espèce nouvelle de lichen du littoral de la région Méditerranéenne. – Nova Hedwigia **57**: 169–177.
- NAVARRO-ROSINÉS, P. & ROUX, C. 1995. *Caloplaca navasiana* Nav.-Ros. et Roux sp. nov., espèce nouvelle de lichen du littoral Méditerranéen. – Cryptog. Bryol. Lichénol. **16**: 89–97.
- NORDIN, A. 2000. Taxonomy and phylogeny of *Buellia* species with pluriseptate spores (Lecanorales, Ascomycotina). – Acta Univ. Upsal., Symb. Bot. Upsal. **33**(1): 1–117.
- NYLANDER, W. 1886. Addenda nova ad lichenographiam Europaeam. – Flora **64**: 97–101.
- NIMIS, P. L. 2003. Checklist of the Lichens of Italy 3.0. – Trieste: University of Trieste, Dept. of Biology, IN3.0/2 (<http://dbiodbs.univ.trieste.it/>). [last visit Oct. 2006].
- NIMIS, P. L. & MARTELOS, S. 2003. A second checklist of the lichens of Italy with a thesaurus of synonyms. – Monografie Mus. Reg. Sci. Nat. Saint-Pierre (Valle d’Aosta) **4**: 1–192.
- OBERMAYER, W. 1996. Lichenotheca Graecensis, Fasc. 3 (Nos 41–60). – Fritschiana (Graz) **6**: 1–8.
- OBERMAYER, W. 1997. Lichenotheca Graecensis, Fasc. 5 (Nos 81–100). – Fritschiana (Graz) **11**: 1–6.
- OBERMAYER, W., BLAHA, J. & MAYRHOFER, H. 2004. *Buellia centralis* and chemotypes of *Dimelaena oreina* in Tibet and other Central-Asian regions. – Acta Univ. Upsal., Symb. Bot. Upsal. **34**(1): 327–342.
- PIŠÚT, I. 2003. Kleiner Beitrag zur Flechtenflora Griechischer Inseln. – Acta Rer. Natur. Mus. Nat. Slovaci **69**: 33–35.
- POELT, J. & VÉZDA, A. 1977. Bestimmungsschlüssel europäischer Flechten. Ergänzungsheft I. – Biblioth. Lichenol. **9**: 1–258.

- POELT, J., LEUCKERT, C. & ROUX, C. 1995. Die Arten der *Lecanora dispersa*-Gruppe (Lichenes, Lecanoraceae) auf kalkreichen Gesteinen im Bereich der Ostalpen – Eine Vorstudie. – *Biblioth. Lichenol.* **58**: 289–333.
- RONDON, Y. 1969. Contribution à l'étude des lichens de l'île de Crète. – *Rev. Fac. Ciências Lisboa 2, Ser. C*, **16**: 105–117.
- ROPIN, K. & MAYRHOFFER, H. 1995. Über corticole Arten der Gattung *Rinodina* (Physciaceae) mit grauem Epihymenium. – *Biblioth. Lichenol.* **58**: 361–382.
- ROUX, C. & SÉRUSIAUX, E. 2004. Le genre *Strigula* (Lichens) en Europe et en Macaronésie. – *Biblioth. Lichenol.* **90**: 1–96.
- SANTESSON, R., MOBERG, R., NORDIN, A., TØNSBERG T. & VITIKAINEN, O. 2004. Lichen-forming and lichenicolous fungi of Fennoscandia. – Uppsala: Museum of Evolution, Uppsala University.
- SÉRUSIAUX, E., DIEDERICH, P., BRAND, A. M. & VAN DEN BOOM, P. 1999. New or interesting lichens and lichenicolous fungi from Belgium and Luxembourg. VIII. – *Lejeunia*, N. S. **162**: 1–95.
- SERVÍT, M. 1937 (1936). Seltene und neue Flechten. – *Věstn. Král. České Spol. Nauk, Třída II, Roč.* 1936: 1–16.
- SIPMAN, H. J. M. 2007. New lecanoroid lichens from Greece. – *Biblioth. Lichenol.* **96**: 267–277.
- SIPMAN, H. & RAUS, T. 1999. A lichenological comparison of the Paros and Santorini island groups (Aegean, Greece), with annotated checklist. – *Willdenowia* **29**: 239–297.
- SIPMAN, H. & RAUS, T. 2002. An inventory of the lichen flora of Kalimnos and parts of Kos (Dodecanisos, Greece). – *Willdenowia* **32**: 351–392.
- SIPMAN, H. J. M., RAUS, T. & SCHARLAU, A. 2005. Some lichens have incomplete distribution ranges in the Aegean (Greece). – *Folia Cryptog. Estonica* **41**: 97–104.
- SÖCHTING, U. & TØNSBERG, T. 1997. *Caloplaca xanthostigmoidea* (Räs.) Zahlbr., a common lichen in cool regions of the northern hemisphere. – *Acta Univ. Upsal., Symb. Bot. Upsal.* **32**(1): 247–253.
- SPRIBILLE, T., SCHULTZ, M., BREUSS, O. & BERGMEIER, E. 2006. Notes on the lichens and lichenicolous fungi of western Crete (Greece). – *Herzogia* **19**: 125–148.
- SZATALA, Ö. 1943. Lichenes. – In: RECHINGER, K. H. (ed.). *Neue Beiträge zur Flora von Kreta*. – *Denkschr. Akad. Wiss. Wien, Math.-Naturwiss. Kl.* **105**(2): 27–47.
- TEMINA, M., KONDRATYUK, S. Y., ZELENKO, S. D., NEVO, E. & WASSER, S. P. 2005. Lichen-forming, lichenicolous and allied fungi of Israel. – In: WASSER, S. P. & NEVO, E. (eds). *Biodiversity of Cyanoprocarvites, Algae and Fungi of Israel*. – Ruggell: A. R. A. Gantner Verlag.
- TRETIACH, M. & HAFELLNER, J. 1998. A new species of *Catillaria* from coastal Mediterranean regions. – *Lichenologist* **30**: 221–229.
- TRIEBEL, D. 1989. Lecideicole Ascomyceten. Eine Revision der obligat lichenicolen Ascomyceten auf lecideoiden Flechten. – *Biblioth. Lichenol.* **35**: 1–278.
- VÉZDA, A. 1994. Lichenes rariores exsiccati. Fas. 15 (ns. 141–150). – Brno.
- VONDRÁK, J. 2006. Contribution to the lichenized and lichenicolous fungi in Bulgaria. I. – *Mycologia Balcanica* **3**: 7–11.
- VONDRÁK, J. & SLAVÍKOVÁ-BAYEROVÁ, Š. 2006. Contribution to the lichenized and lichenicolous fungi in Bulgaria. II, the genus *Caloplaca*. – *Mycologia Balcanica* **3**: 61–69.
- WESTBERG, M. 2007. *Candelariella* (Candelariaceae) in western United States and northern Mexico: the 8-spored, lecanorine species. – *Bryologist* **110**: 391–419.
- WUNDER, H. 1974. Schwarzfrüchtige, saxicole Sippen der Gattung *Caloplaca* (Lichenes, Teloschistaceae) in Mitteleuropa, dem Mittelmeergebiet und Vorderasien. – *Biblioth. Lichenol.* **3**: 1–186 + Tafeln.
- YAZICI, K. 1999. Trabzon ili likenleri [Lichen flora of Trabzon]. – *Turk. J. Bot.* **23**: 97–112 (in Turkish).
- ZAHLBRUCKNER, A. 1904. Schedae ad “Kryptogamas exsiccatas”, Centuria X–XI. Lichenes (Decades 25–28). – *Ann. K. K. Naturhist. Hofmus.* **19**: 410–421.
- ZAHLBRUCKNER, A. 1906. Beitrag zur Flechtenflora Kretas. – *Sitzungsber. Kaiserl. Akad. Wiss. Wien, Math.-Naturwiss. Cl., Abt. 1*, **115**: 503–523.

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