



Sergiy KONDRATYUK¹, Sergiy ZELENKO¹,
Othmar BREUSS² & Olexandr KHODOSOVTSSEV³

¹ M.G. Kholodny Institute of Botany,
National Academy of Sciences of Ukraine
2, Tereshchenkivska str., 01601 Kiev, Ukraine
ksya_net@ukr.net

² Naturhistorisches Museum Wien
Botan. Abt., Burgring 7, Postf. 417, A-1014 Wien, Austria
obreuss@bg9.at

³ Kherson State University
27, 40 Let Oktyabrya str., 73000, Kherson, Ukraine
khodosovtsev@ksu.ks.ua

**POLYBLASTIA NEVOI
AND CALOPLACA WASSERI —
TWO NEW LICHENS FROM ISRAEL**

Key words: lichen-forming fungi, Polyblastia, Caloplaca, *sp. nov.*, Asia, Israel, Upper Galilee

Abstract

Polyblastia nevoi S. Zelenko, O. Breuss & S. Kondr. *sp. nov.*, differing from *Agonimia allobata* by smaller ascospores and lack of three-layered perithecium wall, from Upper Galilee (Israel) as well as *Caloplaca wasseri* Khodosovtsev et S. Kondr. *sp. nov.*, differing from *Caloplaca phlogina* by endolithic thallus with punctiform soralia and wider ascospores, from Negev desert (Israel) are described, compared with allied fungi and illustrated.

Introduction

During last decade three checklists of the lichen-forming, lichenicolous and allied fungi of Israel were published [2, 4, 10]. A number of new for Israel lichen species were recorded as in separate articles [3–7, 11] as well as in «The First Checklist of the Lichen-forming, Lichenicolous and Allied Fungi of Israel» [4] and in «Lichen-Forming, Lichenicolous and Allied Fungi of Israel» [11].

© S. KONDRATYUK,
S. ZELENKO, O. BREUSS,
O. KHODOSOVTSSEV, 2007



Fig. 1. *Polyblastia nevoi* (HOLO) habit. Scale 1 mm

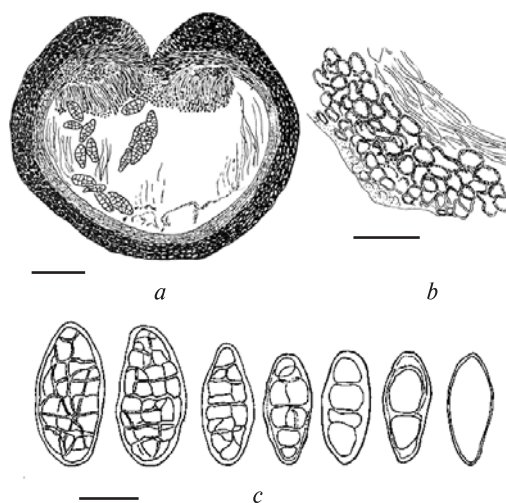


Fig. 2. *Polyblastia nevoi* (HOLO): a — perithecium in section (scale 20 μm); b — perithecium wall, c — ascospores (scale 10 μm)

A number of new for science taxa of lichen-forming and lichenicolous fungi were recently described from this country (*Lichenochora wasseri* S. Kondr. in [7]; *Adelococcus porocyphii* S. Zelenko & S. Kondr. and *Sclerococcum acarosporae* S. Kondr. as well as *Xanthoria hermonii* S. Kondr. all in [3]).

Descriptions of the further new for science lichen taxa, namely *Polyblastia nevoi* from Upper Galilee and *Caloplaca wasseri* from Negev desert are provided below.

Materials and methods

Material described was collected by the first co-author during two two-weeks expeditions to Israel in 2000 year. Some specimens of Israeli lichens kept in LD were analysed during this study as well.

Standard methods for the identifying lichen-forming and lichenicolous fungi were applied.

Descriptions of new taxa

Polyblastia nevoi S. Zelenko, O. Breuss & S. Kondratyuk sp. nova.

A ceteris speciebus *Polyblastia* differt unique habitatione. A simili *Agonimia allobata* differt ascosporis multo minoribus et absentia complexae texturae in perithecio.

Type: Israel: Upper Galilee. Nakhal Kheziv, Nakhal Kheziv reserve, «Kheziv Canyon» plot, north-faced slopes, point 7 (the highest point on the slope), on bark of *Quercus*, 14.I.2000 S. Kondratyuk 2014 (*KW* — holotype, *W* — isotype).

Thallus corticolous, greenish to brightly green (when wet), effuse, matt, uneven, rather thin, ecorticate, algal cells green, globose, 5–9 μm .

Perithecia semi-immersed, hemispherical prominent, dull blackish, subglobose in section, 0,15–0,3 mm in diameter. Involucrellum lacking. Exciple 30–35 μm thick near

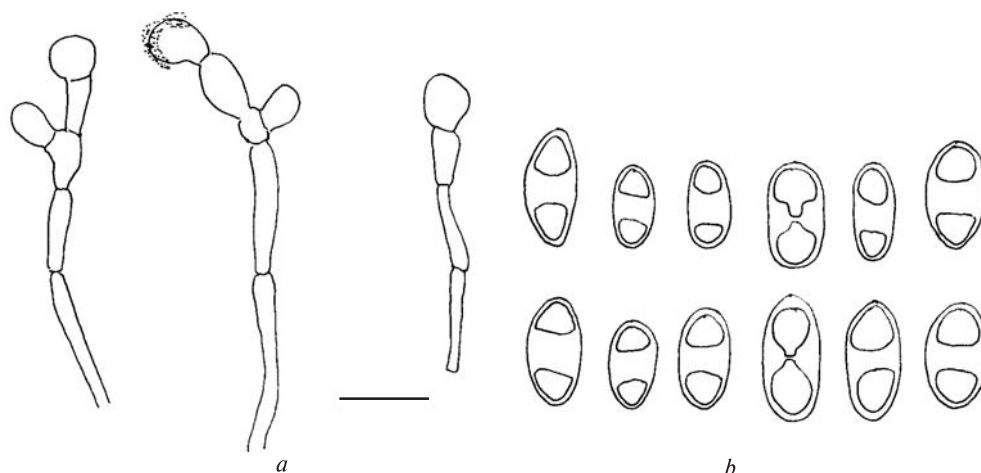


Fig. 3. *Caloplaca wasseri* (HOLO): a — paraphyses; b — ascospores. Scale 10 μ m

the apex, ca. 20–25 μ m basally and laterally, blackish brown in an external layer of more or less isodiametric cells, graduating into a thin internal layer more or less colourless and of more elongated cylindrical cells. Paraphyses well developed, up to 20–30 μ m long. Asci 8-spored, 80–120 \times 15–25 μ m. Ascospores muriform, hyaline, elongate ellipsoid to broadly ellipsoid, (18-)20-28(-31) \times (8-)9-13(-15) μ m.

Ecology: on bark of trees.

Distribution: so far it known only from type collection from Upper Galilee (Israel).

Etymology: *P. nevoi* is named after famous Israeli scientist evolutionist Prof. E. Nevo who has made important contribution in organizing special study of biodiversity of his country and owing to whom collection of material mentioned became possible.

Taxonomical notes: The species is unique in being corticolous. Externally, *Agonimia allobata* may be similar but differs in its 3-layered perithecial wall and larger spores.

Caloplaca wasseri Khodosovtsev & S. Kondr. sp. nov.

Saxicola. — Thallus *Caloplaca phlogina* — typus, differt endolithicus, albo-argillaceus cum punctiforma ad diffusa soralia flava et ascosporae 10–14 \times 5–7 μ m, septum 2.5–4.5 μ m.

Distinguishing characters of *Caloplaca citrina*, *C. phlogina* and *C. wasseri*

Characters	<i>C. citrina</i>	<i>C. phlogina</i>	<i>C. wasseri</i>
Thallus	squamulose	granular, areolate	endolithic to areolate
Colour	orange-yellow	yellow-orange	argillaceous to dusty-white
Size (mm)	0.3–1.0	0.1–0.2	0.1–0.3
Attached by	lower surfaces	lower surfaces	pseudo-medulla
Soralia	marginal	diffuse	punctiform to diffuse
Soredia (μ m diam.)	25–35	25–35	25–35
Apothecia (mm)	0.2–0.7	0.3–0.6	0.3–0.5
Asospores (μ m)	10–15 \times 7–8	12–15 \times 4–5	10–14 \times 5–7
Isthmus (μ m)	2–4	2–4	2.5–4.5
Apical cells of paraphyses (μ m)	3.5–5.5	to 5.5	to 5
Substrate	Various substrates	bark	limestone
Reference	[1, 9]	[1, 10]	present paper

Type: Israel, Central Negev, Nahal ha Ro`a, southern faced of slope, on limestone rocks of smaller size, 15.I.2000, S. Kondratyuk (Holotypus — *KW*, Isotypus — *KW*, *KHER*, *ISR?*).

Thallus endolithic, non visible, color of limestone or form dispersed irregular areoles. Areoles semi-endolithic, flat to pustule-like, dusty-white to citrine-yellow or greenish-yellow, 0.1–0.3 mm diam., burning of yellowish punctiform soralia, 0.15–0.25 mm diam., often areoles completely disintegrated to diffuse soralia. Soredia farinose, bright-yellowish to tan-yellow, 25–35 µm diam.

Apothecia formed from pustule-like whitish areoles, 0.3–0.5 mm diam., sessile, dispersed. Disk concave to flat, orange to dark-orange, sometimes pruinose or with remains/fragments of white epinecral layers of areoles. Proper margin thin, lighter of disk, surrounded by crenulate white parts of areoles. Epithecium bright-yellowish with numerous crystals of antraquinones. Hypothecium hyaline with oil droplets. True exiple prosoplectenchymatous with small clusters of algae, 25–35 µm in upper part to 10–15 in inner part. Asci 8 spored, ascospores 10–14 × 5–7 µm, septum 2.5–4.5 µm. Paraphyses to 2 µm thick, with swollen apical cells to 5 µm diam. The thick algae layer form under apothecia. Algae 20–25 µm diam. Thallus K⁻, apothecia and soredia K⁺ purplish.

Ecology: on limestone in desert regions, but often on overhanging side of small limestone pebbles. The new species often growing together with *Caloplaca alociza*, *Candelariella minuta* and *Caloplaca* cfr. *tavaresiana*.

Distribution: so far it known only from type collection from Central Negev (Israel).

Etymology: This species is named after a famous mycologist S.P. Wasser who has made important contribution in organizing special study of cryptogamic plants and fungi diversity of Israel and owing to whom collection of material mentioned became possible.

Taxonomical notes: *Caloplaca wasseri* is very similar to species of *C. citrina* group. Endolithic to semi-endolithic dusty-white thallus with punctiform to diffuse soralia are the main distinguishing characters of this species from *C. citrina* s. str. *C. phlogina* is more closely related with new species. However, *C. phlogina* has yellow dispersed granular areoles, narrower ascospores, and growing on bark only. After diffuse yellowish soralia in the non-visible thallus *C. wasseri* is morphologically similar to *C. chrysodeta*, but last species does not have apothecia and much larger (up to 100 µm diam.), powdery globose granules.

Authors are grateful to our colleagues of the Dept of Lichenology and Bryology, namely Dr. O.G. Roms, [N.G. Beznis], L.P. Popova, N.M. Fedorenko and T.O. Smerechynska (KW, Kiev, Ukraine) for support of all kinds as well as technical help during preparation of summarizing paper on lichen-forming and lichenicolous fungi of Israel and the Near East, as well as to Profs. E. Nevo and S.P. Wasser (Haifa, Israel) for initiating of this project, for support and help with the arrangement of expeditions and to Prof. E. Nevo and Dr. T. Pavlichek for their help during field trips.

1. Arup A. A new taxonomy of the *Caloplaca citrina* group in the Nordic countries, except Iceland // The Lichenologist. — 2006. — **38** (1). — P. 1–20.
2. Galun, M. & Mukhtar, A. Checklist of the lichens of Israel // *Bocconea*. — 1996. — **6**. — P. 149–171.

3. Kondratyuk, S.Y. & Zelenko, S.D. New lichens and lichenicolous fungi from Israel and the Near East // Ukr. Botan. Journ. — 2002. — **59**, N 5. — P. 598—607.
4. Kondratyuk, S.Y., Navrotskaya, I.L., Zelenko, S.D., Wasser, S.P., Nevo, E. The first checklist of lichen-forming and lichenicolous fungi of Israel / Eds. E. Nevo & S.P. Wasser. — Kiev, Haifa. 1996. — 136 p.
5. Kondratyuk S.Y., Nevo E., Wasser S. New and rare lichen-forming and lichenicolous fungi from the Carmel Mountains, Israel // Ukr. Botan. Journ. — 2005. — **62**, N 1. — P. 100—110.
6. Kondratyuk S.Y., Nevo E., Wasser S. New species of lichen-forming fungi from Golan Heights, Israel // Ukr. Botan. Journ. — 2005. — **62**, N 2. — P. 159—169.
7. Navrotskaya, I.L., Kondratyuk, S.Y., Wasser, S.P., Nevo, E & Zelenko, S.D. Lichens and lichenicolous fungi new for Israel and other countries // Israel Journal of Plant Sciences. — 1996. — **44**. — P. 181—196.
8. Poelt, J. & Hinteregger, E. Beiträge zur Kenntnis der Flechtenflora des Himalaya. VII. Die Gattungen Caloplaca, Fulgensia und Ioplaca (mit englischem Bestimmungsschlüssel) // Bibliotheca Lichenologica. — 1993. — **50**. — P. 1—247, J. Cramer, Berlin, Stuttgart.
9. Serusiaux, E., Diederich, P., Brand, AM., van den Boom, P. New or interesting lichens and lichenicolous fungi from Belgium and Luxembourg. VIII [Lichens et champignons nouveaux ou intéressants pour la flore de la Belgique et du G.-D. de Luxembourg. VIII] // Lejeunia. — 1999. — **162**. — P. 1—95.
10. Temina M., Kondratyuk S.Ya., Zelenko S.D., Nevo E. & Wasser S.P. Lichen-Forming, Lichenicolous and Allied Fungi of Israel / Eds. S.P. Wasser & E. Nevo. — A.R.G. Gantner Verlag K.G., 2005. — 384 p.
11. Wasser, S.P., Nevo, E., Vinogradova, O.N. et al. Diversity of cryptogamic plants and fungi in «Evolution Canyon», Nahal Oren, Mount Carmel Natural Preserve, Israel // Israel Journal of Plant Sciences. — 1995. — **43**. — P. 367—383.

Recommended for publication by
I.O. Dudka

Submitted 25.01.2007

С. Кондратьюк¹, С. Зеленко¹, О. Бреус², О. Ходосовцев³

¹ Інститут ботаніки ім. М.Г. Холодного НАН України, м. Київ, Україна

² Історико-краєзнавчий музей Відня, Австрія

³ Херсонський державний університет, Україна

POLYBLASTIA NEVOI ТА *CALOPLACA WASSERI* — ДВА НОВІ ЛИШАЙНИКИ З ІЗРАЇЛЮ

Наведено описи двох нових для науки видів — *Polyblastia nevoi* S. Zelenko, O. Breuss & S. Kondr. sp. nov. (відрізняється від *Agonimia allobata* меншими розмірами спор та відсутністю тришарової стінки перитецію) з Верхньої Галілеї та *Caloplaca wasseri* Khodosovtsev et S. Kondr. sp. nov. (відрізняється від *Caloplaca phlogina* ендолітною сланню з точкоподібними сораліями та ширшими спорами) з пустелі Негев. Обговорюються риси подібності цих видів з близькими таксонами та відмінності від них. Наведені ілюстрації характерних ознак.

Ключові слова: лишайники, *Polyblastia*, *Caloplaca*, sp. nov., Азія, Ізраїль, Верхня Галілея.

С. Кондратюк¹, С. Зеленко¹, О. Бреус², А. Ходосовцев³

¹ Институт ботаники им. Н.Г. Холодного НАН Украины, г. Киев, Украина

² Историко-краеведческий музей Вены, Австрия

³ Херсонский государственный университет, Украина

POLYBLASTIA NEVOI И *CALOPLACA WASSERI* —
ДВА НОВЫЕ ЛИШАЙНИКА ИЗ ИЗРАИЛЯ

Описаны два новые для науки вида: *Polyblastia nevoi* S. Zelenko, O. Breuss & S. Kondr. sp. nov. (отличается от *Agonimia allobata* меньшими размерами спор и отсутствием трехслойной стенки перитеция) из Верхней Галилеи и *Caloplaca wasseri* Khodosovtsev et S. Kondr. sp. nov. (отличается от *Caloplaca phlogina* эндолитным слоевищем с точковидными сораями и более широкими спорами) из пустыни Негев. Обсуждаются черты сходства с близкими видами лишайников и отличия от них. Приведены иллюстрации характерных признаков.

Ключевые слова: лишайники, *Polyblastia*, *Caloplaca*, sp. nov., Азия, Израиль, Верхняя Галилея.