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An updated checklist of lichenized and lichenicolous fungi for Egypt

Abstract

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A revised lichen checklist for Egypt, the first to be published since 1901, is presented. It is based on a detailed literature survey supported by a limited study of herbarium material. The list includes 163 taxa of lichenized and lichenicolous fungi, six of which are newly recorded for the country. Synonymic interpretation, a short historical background and a comprehensive bibliography are also provided. The total lichen flora of Egypt is estimated to comprise no more than 250 species with a remarkably poor representation of many common groups, such as *Parmeliaceae.*

Key words: lichen biodiversity, archaeology, ethnobotany, Mediterranean flora.

Introduction

Egypt has the distinction of providing the world's oldest lichen records, since they were used in mummification more than three millennia ago. However, the species used, *Pseudevernia furfuracea,* may well have been imported, probably from Greece. In the Mediterranean region its optimal habitat would be mountain forest, and it is doubtful if it would be found locally, certainly in sufficient quantities; however, it must be acknowledged that there have been dramatic changes in the N African environment over the past three millennia and there are recent reports of *P. furfuracea* from the Middle East (John & al. 2004). The function of lichens in mummification is often given as 'aromatic'; although lichens are indeed used as a fixative in order to enhance aromas from other plants, which may have been one of its purposes in such cases, they are also noted for their antibiotic properties (Richardson 1988). Samples of *P. furfuracea* taken from mummies are to be found in collections throughout the world. Material extracted from a XXI dynasty tomb (see Germer 1988), housed in the Botanical Museum Berlin-Dahlem (B), is illustrated in Figs. 1 and 2.

For centuries lichens have been used not only for pharmaceutical purposes but have also provided food for humans (e.g. Schweinfurth 1918), used not for their culinary value but rather as a bulking ingredient; this can still be seen in Middle Eastern markets, where sacks of imported material, usually *Parmotrema* spp., are often for sale. The Biblical reference to manna is often inter-

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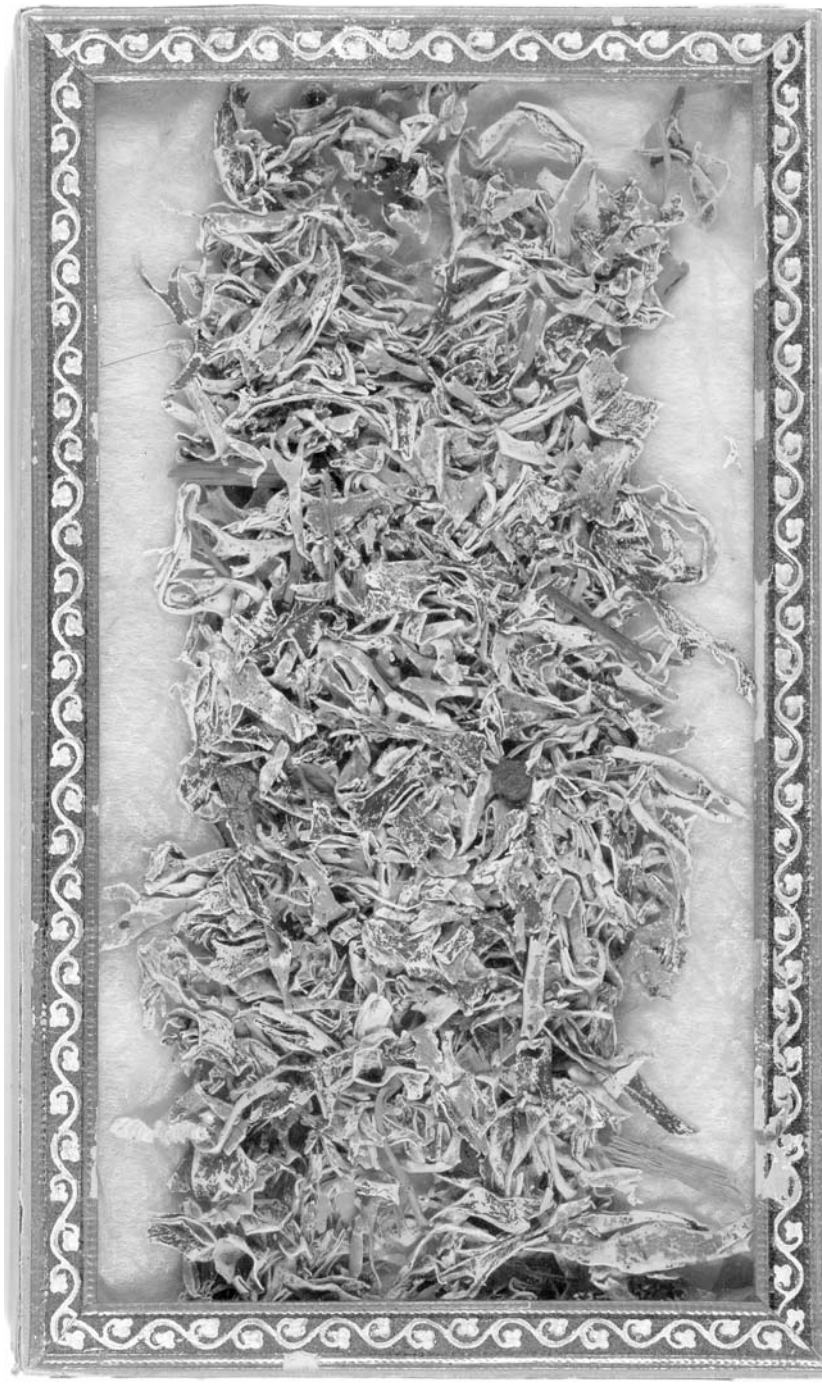


Fig. 1. *Pseudevernia furfuracea* fragments: offering from an ancient Egyptian grave, in decorative early 20th century box. – Collection of Georg Schweinfurth at the Botanical Museum Berlin-Dahlem.

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Fig. 2. Label (handwritten by G. Schweinfurth) for the sample of Fig. 1. Translation: "50. *Parmelia furfuracea* Ach. from hidden grave of XXI dynasty in Dez el bahari, Thebe. Laid down as offering. Large grave discovery of 1881. Found by E. Brugsch". – Collection of Georg Schweinfurth at the Botanical Museum Berlin-Dahlem.

preted as referring to the lichen *Aspicilia esculenta* (Pall.) Flagey, whose thick wrinkled crusts when detached from rocks in significant quantities can be exploited as food or as fodder for the livestock (Richardson 1988). However, although this lichen is widespread in the Middle East, we have not found any published record from Egypt. It should be noted that there are several other interpretations of "manna from heaven".

The earliest known herbarium specimen of a lichen from Egypt, namely *Cladonia convoluta,* was collected in about 1750 by Fredric Hasselquist (1722-52) and is currently housed in the Uppsala Herbarium (UPS) – see database http://www-hotel.uu.se/evolmuseum/fytotek/. The first published records appear in two major works by Alire Raffeneau Delile (1778-1850): Flore d'Egypte and Florae Aegyptiacae Illustratio. Both were published in 1813, and contain references, the former with descriptions and figures of 11 species, to lichens seen by Delile during his investigations on behalf of Napoleon in 1798-1801. The second work lists 12 species from Egypt, some from the summit of the second Gizeh pyramid, together with 4 species on sale by Egyptian pharmacists, but imported from Greece. The Delile herbarium in Montpellier (MPU) requires a detailed examination as it may include type material for possibly nine species.

An historical resumé by Müller (1880a) provides details of the collections made by numerous botanists over the next three-quarters of a century, including Guiseppe Raddi (1770-1829), Christian Gottfried Ehrenberg (1795-1876), Charles du Bois Larbalastier (1838-1911), Paul Friedrich August Ascherson (1834-1913) and George August Schweinfurth (1836-1925). Other 19th and early 20th century botanists known to have collected lichens from Egypt include Karl Georg Theodor Kotschy (1813-66), Ernst Sickenberger (1831-95), Fritz Kerner von Marilaun (1866-1944), William Barbey (1842-1914), Ludwig Rütimeyer (1825-95, see Müller 1891), Johann Andreas Kneucker (1862-1946) and Joseph Friedrich Nicolaus Bornmüller (1862-1948). The major published works itemising many of these collections are provided by Nylander (1864, 1876), Müller (1880a-c, 1884), Stizenberger (1890, 1891), Sickenberger (1901) and Steiner (1893, 1916), but it should be noted that some of these works repeat earlier records, with some ambiguity resulting from synonymic interpretation (and erratic use of forma and variety), and, in the case of Sickenberger, considerable misspelling of Latin nomenclature.

Since those days, only a few botanists have recorded, or indeed studied, Egyptian lichens. For this period, the following are known to have made collections: M. Steiner, V. Täckholm, E. Albertshofer, K. H. Batanouny, I. Helmy, R. Moberg, M. Galun, J. Garty, L. Boulos, J.-P. Frahm and M. R. D. Seaward, and the following publications, usually monographs, include Egyptian records: Magnusson (1929), Motyka (1936-38), Degelius (1954), Werner (1966), Galun & Marton (1970), Galun & Garty (1972, 2001), Wunder (1974), Tehler (1983), Mayrhofer (1984), Lumbsch (1989), Egea (1989), Moreno & Egea (1990, 1992), Timdal (1991), Alonso & Egea (1994), Breuss (1994), Nordin (2000) and Frödén & Lassen (2004).

The purpose of this study is to present an up-to-date survey of all published information, which is now scattered over the literature, and thus to facilitate further study of the Egyptan lichen flora. Consequently the checklist, which follows, is by no means exhaustive, since only lim-

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ited material from the herbaria of Berlin (B), Farlow (FH), Uppsala (UPS) and M. R. D. Seaward has been examined as yet. A more precise evaluation can be made, particularly in respect of synonymic revision, once a more detailed examination of Egyptian material known, or thought, to be in the herbaria of BM, BRSL, C, COLO, FH, G, H, K, L, LE, LZ, M, MPU, P, S and UPS (abbreviations according to Holmgren & Holmgren 1998-ongoing) has been undertaken. In the meantime it is hoped that our listing will contribute to the objectives of OPTIMA in seeking a better understanding of the biodiversity and biogeographical status of the Mediterranean flora (Nimis 1996).

Results

Altogether 157 lichenized fungi (149 species and 8 infraspecific taxa) and 6 lichenicolous fungi are now reported for Egypt. Since only a few new collections were available for study, it is not surprising that few additional species were found, namely *Caloplaca flavescens, Fulgensia subbracteata, Lecania spadicea, Lecanora agardhiana, L. dispersa* and *Opegrapha celtidicola*.

As expected for a country largely consisting of desert, in which at least five millennia of human settlement have probably had a devastating influence on natural habitats, the number of reported species is modest. In comparison, for Syria, with a similar desert-like environment but with some high mountain ranges, 399 taxa were reported recently (John & al. 2004) and for the nearby Santorin archipelago, measuring only 76 km^2, almost treeless and completely destroyed in a volcanic explosion some 3500 years ago, 170 species are known (Sipman & Raus 1999).

It is tempting to estimate the total number of lichen species that occur in Egypt. There has been no recent intensive fieldwork by any trained lichenologist, which normally means that many additional species can be expected. However, many common and conspicuous lichen groups likely to be found by unexperienced observers are absent from the checklist below, such as species of *Pertusaria,* the *Lecanora subfusca* group and foliose *Parmeliaceae* and *Physciaceae*. This suggests that the lichen flora is really very limited and probably does not exceed 250 species.

In spite of its small size, the lichen flora is of considerable interest because it shows some remarkable features. Significantly, foliose lichens are very scarce, only being represented by the genera *Xanthoria* (7 species reported) and *Physcia* (1 species), while foliose *Parmeliaceae,* which are among the first lichens to be collected in any part of the world, are apparently absent. Remarkably the fruticose growth form is better represented, with members of the genera *Ramalina, Roccella, Seirophora* and *Tornabea*. At taxonomic level, the dominance of *Teloschistaceae* is conspicuous (39 taxa), which cannot only be explained by their conspicuous colours, since black-fruited species are also involved. The next largest families represented are *Roccellaceae* (16 taxa) and *Physciaceae* (12 taxa).

Annotated checklist

For each accepted species the pertinent literature references are presented. Occasional notes are provided on selected specimens, when seen by the authors, and on the interpretation of the references. The synonyms used in published Egyptian records are also listed. Lichenicolous fungi are indicated by "LF"; names preceded by an asterisk (*) are newly reported for Egypt, and names followed by an asterisk (*) have their nomenclatural types from Egypt.

Nomenclature, including synonymic interpretation, is based on a wide variety of sources, more particularly Nimis & Martellos (2003). Infraspecific taxa without modern taxonomic treatment have been included in the main species. Misspellings of Sickenberger are listed as separate entries when particularly confusing. No references are presented to evidently mere literature citations as in, e.g., Zahlbruckner's Catalogus and Stizenberger's Lichenaea Africana.

Acarospora areolata Reichert & Galun – Galun & Garty 1972: 246; Temina & al. 2005a: 437; Temina & al. 2005b: 44.

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A. atrata Hue – Nylander 1864: 67 as *Lecanora fuscata,* reidentification according to Galun & Garty 1972: 243.

A. bornmuelleri Stein – Galun & Garty 1972: 246; Temina & al. 2005a: 439; Temina & al. 2005b: 45.

A. cervina A. Massal. – Müller 1880b: 43 as *Placodium cervinum;* Sickenberger 1901: 327 as *Lecanora cervina*.

A. interrupta Vain. = *A. strigata*

A. nodulosa var. ***reagens*** (Zahlbr.) Clauzade & Cl. Roux – Nylander 1864: 67 as *Lecanora schleicheri* f. *radicans;* Müller 1880b: 43 as *Placodium schleicheri* f. *radicans;* Sickenberger 1901: 327 as *Lecanora dealbata* var. *radicans;* Magnusson 1929: 272 as *A. reagens* f. *radicans;* Galun 1970: 47, Galun & Garty 2001: 100 as *A. reagens* f. *radicans;* Temina & al. 2005a: 444; Temina & al. 2005b: 51.

A. placenta (Ehrenb.) Hue* – Nylander 1864: 68 as *Lecanora placenta;* Magnusson 1929: 359.

A. reagens f. *radicans* (Nyl.) H. Magn. = *A. nodulosa* var. *reagens*

A. rufescens Bausch – Nylander 1876: 284 as *Lecanora rufescens;* Müller 1880b: 43 as *Placodium rufescens;* Sickenberger 1901: 327 as *Lecanora rufescens.*

A. schleicheri f. *radicans* = *A. nodulosa* var. *reagens*

A. strigata (Nyl.) Jatta – Nylander 1864: 67 as *Lecanora interrupta;* Müller 1880b: 43 as *Placodium interruptum*; Sickenberger 1901: 327 as *Lecanora interrupta;* Magnusson 1929: 208; Galun & Garty 1972: 243 as *Acarospora interrupta*.

Amphiloma callopisma Müll. Arg. = *Caloplaca aurantia*

A. callopisma var. *centroleucum* (A. Massal.) Müll. Arg. = *Caloplaca aurantia*

A. callopisma var. *exalbatum* Müll. Arg.* = *Caloplaca aurantia*

A. ehrenbergii Müll. Arg.* = *Caloplaca ehrenbergii*

A. erythrinum Müll. Arg.* = *Caloplaca erythrina*

A. erythrinum var. *cryptocarpum* Müll. Arg.* = *Caloplaca erythrina*

A. erythrinum var. *pulvinatum* Müll. Arg.* = *Caloplaca erythrina* var. *pulvinatum*

A. murorum (Hoffm.) Körb. = *Caloplaca saxicola*

Anapyrenium* aegyptiacum Müll. Arg.* – Müller 1880c: 81; Sickenberger 1901: 330 as *Endocarpon aegyptiacum;* Galun & Garty 1972: 251.

Arthonia adhaerens Müll. Arg.* – Müller 1880c: 80; Sickenberger 1901: 329.

A. albopulverea Nyl. – Müller 1884: 18 as *Arthothelium xylographoides;* Sickenberger 1901: 330 as *Arthonia xylographoidis* [= *xylographoides*]; Galun & Garty 1972: 243 as *Arthothelium xylographoides*.

A. alexandrina Nyl.* – Nylander 1876: 285; Müller 1880c: 80; Sickenberger 1901: 329.

A. confinis Stizenb.* – Sickenberger 1901: 330.

A. dispersula Nyl.* – Nylander 1876: 285; Müller 1880c: 80; Sickenberger 1901: 329.

A. palmicola Ach.* – Acharius 1814: 5; Nylander 1876: 284; Müller 1880c: 80, 1884: 18; Sickenberger 1901: 329.

A. punctiformis var. ***subeminula*** Nyl.* – Nylander 1876: 284; Müller 1880c: 80; Sickenberger 1901: 330.

A. varians (Davies) Nyl. – Müller 1880c: 81 as *Celidium varium*; LF.

A. xylographoides (Müll. Arg.) Willey = *A. albopulverea*

Arthopyrenia epicymatica Müll. Arg. = *Stigmidium congestum*

Arthothelium xylographoides Müll. Arg.* = *Arthonia albopulverea*

Aspicilia calcarea (L.) Körb. – Steiner 1916: 32 as *Lecanora calcarea*.

A. cheresina (Müll. Arg.) Hue* – Müller 1880c: 75, 1884: 16 as *Lecanora cheresina;* Sickenberger 1901: 326 as *L. cheresina*.

A. contorta subsp. ***hoffmanniana*** Ekman & Froberg – Müller 1880c: 76 as *Lecanora calcarea* var. *hoffmanni* [sic]; Sickenberger 1901: 326 as *L. calcarea* var. *hoffmanni* [sic].

A. farinosa (Flörke) Arnold – Nylander 1864: 67 as *Lecanora calcarea* f. *farinosa;* Müller 1880c: 76 as *L. calcarea* f. *farinosa;* Sickenberger 1901: 326 as *L. farinosa;* Galun & Garty 1972 as *L. farinosa.*

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A. muelleri (J. Steiner) Hue – Steiner 1893: 170 as *Lecanora mülleri*.
A. rhizophora (Delile) Hue* – Delile 1813a: 155, 1813b: 33 as *Urceolaria rhizophora;* Müller 1880c: 76 as *Lecanora rhizophora;* Sickenberger 1901: 326 as *L. rhizophora*.
A. subcoerulea (Delile) Hue* – Delile 1813a: 154, 1813b: 33 as *Urceolaria subcoerulea;* Müller 1880c: 75 as *Lecanora subcoerulea;* Sickenberger 1901: 327 as *L. subcoerulea*.
A. subcalcarea (Müll. Arg.) Szatala* – Müller 1880c: 75 as *Lecanora subcalcarea;* Sickenberger 1901: 327 as *L. subcalcaea* [= *subcalcarea*].
Asterotrema parasiticum Müll. Arg.* – Müller 1884: 19; LF. – Probably an *Arthonia* (Eriksson & Hawksworth 1993: 25).
Biatorella simplex var. *strepsodina* (Ach.) H. Olivier = *Polysporina simplex*
Blastenia circumalbata (Delile) Müll. Arg.* = *Caloplaca circumalbata*
B. ferruginella (Nyl.) Müll. Arg.* = *Lecanora ferruginella*
B. melanocarpa Müll. Arg.* = *Caloplaca circumalbata*
B. melanocarpa var. *bicolor* Müll. Arg.* = *Caloplaca circumalbata* var. *bicolor*
B. melanocarpa var. *leucoloma* Müll. Arg.* = *Caloplaca circumalbata*
B. melanocarpa var. *versicolor* Müll. Arg.* = *Caloplaca circumalbata*
Buellia alboatra (Hoffm.) Th. Fr. = *Diplotomma alboatrum*
B. alboatra var. *epipolia* Th. Fr. = *Diplotomma alboatrum*
B. canescens (Dicks.) De Not. = *Diploicia canescens*
B. dispersa A. Massal. – Sickenberger 1901: 328 as *Lecidea dispersa*.
B. epipolia (Ach.) Mong. = *Diplotomma alboatrum*
B. sorediosa Reichert & Galun – Galun & Garty 1972: 248; Temina & al. 2005b: 80.
B. subalbula (Nyl.) Müll. Arg. – Nylander 1864: 69 as *Lecidea disciformis* var. *albula;* Nylander 1876: 284 as *Lecidea subalbula;* Müller 1880c: 79 incl. var. *depauperata,* 1884: 18; Sickenberger 1901: 328 as *L. subalbula*.
B. subalbula var. *depauperata* Müll. Arg.* = *B. subalbula*
B. subalbula var. ***fuscocapitellata*** M. Lamb – Galun & Garty 1972: 248; Temina & al. 2005b: 80.
B. venusta (Körb.) Lettau = *Diplotomma venustum*
B. zoharyi Galun – Galun & Garty 1972: 248, 2001: 100; Barreno 1991: 202 map; Trinkaus & Mayrhofer 2000: 308 map; Temina & al. 2005b: 81.
Callopisma aegyptiacum Müll. Arg.* = *Caloplaca circumalbata*
C. aegyptiacum var. *depauperatum* Müll. Arg.* = *Caloplaca circumalbata*
C. aegyptiacum var. *lecideinum* Müll. Arg.* = *Caloplaca lecideina*
C. aurantiacum var. *erythrellum* Stein = *Caloplaca flavovirescens*
C. cerinum var. *obscuratum* Müll. Arg. = *Caloplaca obscurata*
C. citrinum (Hoffm.) A. Massal. = *Caloplaca citrina*
C. citrinum var. *microcarpum* Müll. Arg.* = *Caloplaca citrina*
C. gilvellum (Nyl.) Müll. Arg.* = *Caloplaca gilvella*
C. gilvellum var. *albidum* (Stizenb.) Müll. Arg.* = *Caloplaca gilvella*
C. interveniens Müll. Arg.* = *Caloplaca circumalbata*
C. minusculum Müll. Arg.* = *Caloplaca minuscula*
C. pyraceum (Ach.) Stein = *Caloplaca holocarpa*
C. pyraceum var. *holocarpum* Stein = *Caloplaca holocarpa*
C. pyraceum var. *lactea* [= *lacteum*] Müll. Arg. = *Caloplaca lactea*
C. pyraceum var. *lactea* [= *lacteum*] f. *athallinum* Müll. Arg. = *Caloplaca lactea*
C. pyraceum var. *pyrithroma* (Ach.) Müll. Arg. = *Caloplaca holocarpa*
C. subcerinum (Nyl.) Müll. Arg.* = *Caloplaca subcerina*
C. teicholytum (Ach.) Müll. Arg. = *Caloplaca teicholyta*
Caloplaca aegyptiaca (Müll. Arg.) J. Steiner* = *C. circumalbata*
C. aegyptiaca var. *circinans* J. Steiner = *C. circumalbata*
C. aegyptiaca var. *lecideina* Müll. Arg.* = *C. lecideina*
C. agardhiana Flagey – Galun & Garty 1972: 251 as *C. agardhiana* f. *albopruinosa.*
C. agardhiana f. *albopruinosa* J. Steiner = *C. agardhiana*

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C. alociza (A. Massal.) Mig. – Wunder 1974: 50; Temina & al. 2005b: 87.

C. arenaria (Pers.) Müll. Arg. – Werner 1966: 76.

C. arnoldii (Wedd.) Ginzb. – Delile 1813a: 154, 1813b: 33 as *Parmelia miniata* Ach. – This is an unlikely record for Egypt and the material may concern another reddish coloured *Caloplaca* species with radial lobes, perhaps *C. biatorina* (A. Massal.) J. Steiner.

C. aurantia (Pers.) Hellb. Nylander 1864: 65 as *Placodium callopismum,* 1876: 284 as *Lecanora callopisma;* Müller 1880b: 42 as *Amphiloma callopisma* incl. var. *centroleucum* and *exalbatum,* 1884: 15 as *A. callopisma* var. *centroleucum;* Steiner 1893: 169 as *Caloplaca callopisma* and var. *exalbata;* Sickenberger 1901: 322 as *Lecanora collopisma [= callopisma], Lecanora sympagea* var. *exalbata* and *L. sympagea* var. *exteroleuca [centroleucum];* Steiner 1916: 37 as *C. callopisma* f. *orientalis;* Galun & Garty 1972: 249 as var. *aurantia.* – Alexandria, 1988, *Seaward* (herb. Seaward 105793). – This species has been confused with *C. flavescens* (Huds.) J. R. Laundon, and some of the records may belong to this species.

C. callopisma (Ach.) Th. Fr. = *C. aurantia*

C. callopisma var. *exalbata* Müll. Arg. = *C. aurantia*

C. callopisma f. *orientalis* J. Steiner = *C. aurantia*

C. circumalbata (Delile) Wunder* – Delile 1813a: 157, 1813b: 33 as *Lecidea circumalbata;* Müller 1880c: 73 as *Callopisma aegyptiacum,* 74 as var. *depauperatum,* 78 as *Blastenia circumalbata* and *B. melanocarpa* incl. var. *versicolor,* 79 as var. *leucoloma,* 1884: 17 as *Callopisma aegyptiacum* and *C. interveniens;* Steiner 1893: 169 as *Caloplaca aegyptiaca;* Sickenberger 1901: 323 as *Lecanora circumalbata,* 324 as *L. aegyptiaca* incl. var. *depauperata, L. interveniens* and *L. melanocarpa* incl. var. *leucoloma* and *versicolor;* Galun 1970: 87 as *Caloplaca interveniens;* Galun & Garty 1972: 249 as *Caloplaca aegyptiaca* var. *circinans* J. Steiner; Wunder 1974: 53, 54, 61 as *Caloplaca circumalbata* var. *circumalbata.* – Heluan near Cairo, 800 ft, 1890, *Schweinfurth* (B 600069025); Temina & al. 2005b: 80 as *Caloplaca circumalbata* var. *circumalbata*.

C. circumalbata var. ***bicolor*** (Müll. Arg.) Wunder* – Müller 1880c: 78 as *Blastenia melanocarpa* var. *bicolor;* Sickenberger 1901: 324 as *Lecanora melanocarpa* var. *bicolor;* Galun & Garty 1972: 250 as *Caloplaca rejecta* var. *bicolor;* Wunder 1974: 70; Temina & al. 2005b: 92.

C. cirrochroa (Ach.) Th. Fr. – Sickenberger 1901: 323 as *Lecanora cirrhochroa* [= *cirrochroa*].

C. citrina (Hoffm.) Th. Fr. – Nylander 1864: 65 as *Placodium citrinum;* Müller 1880b: 43 as *Callopisma citrinum,* 1884: 17 as *C. citrinum* incl. var. *microcarpum;* Sickenberger 1901: 322 as *Lecanora citrina* incl. var. *microcarpa;* Galun & Garty 1972: 250. – Giza, 1988, *Seaward* (herb. Seaward 105651); Alexandria, 1988, *Seaward* (herb. Seaward 105792).

C. delilei J. Steiner* = *Caloplaca minima*

C. ehrenbergii (Müll. Arg.) Zahlbr.* – Müller 1880b: 41 as *Amphiloma ehrenbergii;* Sickenberger 1901: 321 as *Lecanora ehrenbergii;* Galun & Garty 1972: 249; Temina & al. 2005b: 97. – *Schweinfurth* (FH).

C. erythrina (Müll. Arg.) Zahlbr.* – Müller 1880b: 42 as *Amphiloma erythrinum,* 1880b: 43 as *Amphiloma erythrinum* var. *cryptocarpum;* Sickenberger 1901: 322 as *Lecanora erythrina,* var. *cryptocarpum*.

C. erythrina var. ***pulvinata*** (Müll. Arg.) Zahlbr.* – Müller 1880b: 42 as *Amphiloma erythrinum* var. *pulvinatum;* Sickenberger 1901: 322 as *Lecanora erythrina* var. *pulvinata;* Galun 1970: 90, Galun & Garty 1972: 250; Temina & al. 2005b: 97.

C. erythrocarpa (Pers.) Zwackh – Werner 1966: 76 as *C. lallavei;* Galun & Garty 1972: 251; Temina & al. 2005b: 98.

****C. flavescens*** (Huds.) J. R. Laundon – Alexandria, 1988, *Seaward* (herb. Seaward 108906).

C. flavovirescens (Wulfen) Dalla Torre & Sarnth. – Nylander 1864: 66 as *Lecanora aurantiaca* var. *erythrella;* Müller 1880b: 44 as *Callopisma aurantiaca* var. *erythrellum;* Sickenberger 1901: 322 as *Lecanora erythrella*.

C. gilvella (Nyl.) Zahlbr.* – Nylander 1876: 282 as *Lecanora gilvella;* Müller 1880b: 44 as *Callopisma gilvellum* incl. var. *albidum,* 1884: 18 as *C. gilvellum* var. *albidum;* Steiner 1893: 169; Sickenberger 1901: 323 as *Lecanora giloella* [= *gilvella*] incl. var. *albida*.

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C. holocarpa (Ach.) A. E. Wade – Nylander 1864: 66, 1876: 282 as *L. pyracea* f. *pyrithroma;* Müller 1880b: 44 as *Callopisma pyraceum* var. *pyrithroma,* 1884: 17 as *C. pyraceum* incl. vars. *holocarpum* and *pyrithroma;* Sickenberger 1901: 322 as *Lecanora pyracea*, 323 as *L. holocarpa* and *L. pyracea* var. *atroalba, pyrithroma;* Galun & Garty 1972: 249. – W of Rosetta, 1988, *Seaward* (herb. Seaward 105650); W of Alexandria, 1988, *Seaward* (herb. Seaward 106464). – This species is used here in a wide sense and some Egyptian records may turn out to belong to different taxa.

C. interveniens (Müll. Arg.) Zahlbr. = *C. circumalbata*

C. lactea (A. Massal.) Zahlbr. – Müller 1884: 17 as *Callopisma pyraceum* var. *lactea* incl. f. *athallinum;* Sickenberger 1901: 323 as *Lecanora pyracea* var. *lactea;* Galun & Garty 1972: 251; Temina & al. 2005b: 103.

C. lallavei (Ach.) Flagey = *C. erythrocarpa*

C. lecideina (Müll. Arg.) Clauzade & Rondon* – Müller 1880c: 74 as *Callopisma aegyptiacum* var. *lecideinum;* Sickenberger 1901: 324 as *Lecanora aegyptiaca* var. *lecideina;* Steiner 1893: 169 as *Caloplaca aegyptiaca* var. *lecideina*.

C. minima (Delile) Zahlbr.* – Delile 1813a: 156, 1813b: 33 as *Lecidea minima;* Steiner 1893: 169 as *Caloplaca delilei* (nom. nov.).

C. minuscula (Müll. Arg.) Zahlbr.* – Müller 1884: 17 as *Callopisma minusculum;* Sickenberger 1901: 324 as *Lecanora minuscula;* Wunder 1974: 144. – Belongs to *Lecania* according to Wunder (1974).

C. obscurata Choisy – Müller 1884: 17 as *Callopisma cerinum* var. *obscuratum;* Sickenberger 1901: 323 as *Lecanora cerina* var. *obscurata.*

C. rejecta var. *bicolor* (Müll. Arg.) Alon & Galun = *C. circumalbata* var. *bicolor*

C. saxicola (Hoffm.) Nordin – Nylander 1864: 65 as *Placodium murorum;* Müller 1880b: 41 as *Amphiloma murorum;* Sickenberger 1901: 322 as *Lecanora murorum*.

C. subcerina (Nyl.) Zahlbr.* – Nylander 1876: 282 as *Lecanora subcerina;* Müller 1880b: 44 as *Callopisma subcerinum;* Sickenberger 1901: 323 as *Lecanora subcerata*.

C. teicholyta (Ach.) J. Steiner – Müller 1880b: 44 as *Callopisma teicholytum;* Sickenberger 1901: 322 as *Lecanora tricholyta* [sic]; Galun & Garty 1972: 249; Temina & al. 2005b: 109.

Candelariella aurella (Hoffm.) Zahlbr. – Nylander 1864: 66, 1876: 282 as *Lecauora epixantha;* Müller 1880c: 74 as *L. epixantha,* 1884: 16 as *L. subsimilis* var. *decolorans;* Sickenberger 1901: 324 as *L. epixantha;* Galun & Garty 1972: 247.

C. minuta Reichert & Galun – Galun & Garty 1972: 247; Temina & al. 2005b: 117.

Catapyrenium lacinulatum (Ach.) Breuss = *Placidium lacinulatum*

C. squamulosum (Ach.) Breuss = *Placidium squamulosum*

Catillaria reichertiana Galun – Galun & Garty 1972: 245.

C. sodalis (Stizenb.) Zahlbr. – Sickenberger 1901: 328 as *Lecidea sodalis*.

Celidium varium Körb. = *Arthonia varians*

Chiodecton candidum Müll. Arg.* = *Dirina immersa*

Cladonia alcicornis (Lightf.) Fr. = *C. foliacea*

C. convoluta (Lam.) Anders – Sickenberger 1901: 320 as *C. endiviaefolia.*

C. endiviaefolia auct. = *C. convoluta*

C. foliacea (Huds.) Willd. – Sickenberger 1901: 320 as *C. alcicornis*.

Collema coccophorum Tuck. – Degelius 1954: 189.

C. crispum (Huds.) F. H. Wigg. – Müller 1884: 15 as *C. pulposum* var. *crustaceum* [cf. Degelius 1954: 172] and as f. *conchilobum;* Sickenberger 1901: 319 as *C. pulposum* var. *crustaceum* [cf. Degelius 1954: 172]; Degelius 1954: 297.

C. furvum f. *conchilobum* (Flot.) Müll. Arg. = *C. crispum* (see Degelius 1954: 282)

C. fuscovirens (With.) J. R. Laundon – Sickenberger 1901: 319 as *C. fulvum* [= *furvum*].

C. pulposulum Nyl.* = *C. tenax*

C. pulposulum f./var. *pulvinatulum* Nyl.* = *C. tenax*

C. pulposum (Bernh.) Ach. = *C. tenax*

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C. pulposum var. *crustaceum* (Schaer.) Rabenh. = *C. tenax* var. *crustaceum*

C. tenax (Sw.) Ach. var. ***tenax*** – Nylander 1864: 63 as *C. pulposulum* incl. f. *pulvinatulum;* Müller 1880b: 40 as *C. pulposulum* incl. var. *pulvinatulum,* 1884: 15 as *C. pulposum;* Sickenberger 1901: 319 as *C. pulposum* and *C. pulposulum* incl. var. *pulvinatulum;* Degelius 1954: 183; Galun & Garty 1972: 243.

C. tenax var. ***crustaceum*** (Kremp.) Degel. – Müller 1884: 15 as *C. pulposum* var. *crustaceum;* Sickenberger 1901: 319 as *C. pulposum* var. *crustaceum* [cf. Degelius 1954: 172].

C. tenax var. ***vulgare*** (Schaer.) Degel. – Galun & Garty 1972: 245, 2001: 100.

Collemopsis quinquetubera (Delile) Müll. Arg. = *Omphalaria quinquetubera*

Cyrtidula minor J. Steiner – Steiner 1893: 172; LF.

Dermatocarpon aegyptiacum (Müll. Arg.) Zahlbr.* – Müller 1880c: 82 as *Verrucaria aegyptiaca,* 1884: 20 as *Endopyrenium aegyptiacum*.

D. hepaticum (Ach.) Th. Fr. = *Placidium squamulosum*

D. rufescens (Ach.) Th. Fr. = *Placidium rufescens*

Diploicia canescens (Dicks.) A. Massal. – Delile 1813a: 158, 1813b: 33 as *Lecidea canescens;* Nylander 1864: 68 as *Lecidea canescens;* Müller 1880b: 43, 1884: 16; Sickenberger 1901: 329 as *L. canescens;* Galun & Garty 1972: 248; Temina & al. 2005b: 141. – Barage, 1968, *Moberg 925* (UPS 60562); Alexandria, 1988, *Seaward* (herb. Seaward 105791); *Schweinfurth* (FH).

Diploschistes actinostomus (Ach.) Zahlbr. – Müller 1884: 18 as *Urceolaria actinostoma*.

D. calcareus J. Steiner = *D. candidissimus*

D. candidissimus (Kremp.) Zahlbr. – Sickenberger 1901: 327 as *Urceolaria actinostoma* var. *calcaria* [= *calcarea*]; Galun & Garty 1972: 246 as *Diploschistes calcareus;* Lumbsch 1989: 165, 167; Temina & al. 2005b: 142.

D. diacapsis (Ach.) Lumbsch – Galun & Garty 1972: 246 as *D. steppicus,* 2001: 100.

D. gypsaceus (Ach.) Zahlbr. – Nylander 1864: 68 as *Urceolaria scruposa* var. *gypsacea;* Müller 1880c: 77 as *U. scruposa* var. *gypsacea;* Sickenberger 1901: 327 as *U. gypsacea*.

D. steppicus Reichert = *D. diacapsis*

Diplotomma alboatrum (Hoffm.) Flot. – Nylander 1864: 69 as *Lecidea alboatra* var. *epipolia,* 1876: 284 as *L. alboatra* f. *epipolia;* Müller 1880c: 79-80, 1884: 18 as *D. alboatrum* vars. *areolatum, epipolium* and *intermedium;* Steiner 1893: 169 as *Buellia alboatra* var. *epipolia;* Sickenberger 1901: 329 as *Lecidea alboatra* var. *areolata, epipolia* and *intermedia;* Werner 1966: 76 as *Buellia epipolia;* Galun & Garty 1972: 248 as *B. epipolia;* Nordin 2000: 55 as *Buellia alboatra;* Temina & al. 2005b: 147 as *D. epipolium*. – E of Alexandria, 1988, *Seaward* (herb. Seaward 106487, 105783 sub *Xanthoria stiligera*). – The revision of *Buellia* species with pluriseptate spores by Nordin (e.g. 2000) resulted in a shift in the interpretation of some common species. Consequently *D. epipolia* has become a synonym of *D. alboatrum,* while most specimens named as such belong to *D. venustum*. Only a reexamination of the underlaying vouchers can clear the status of the Egyptian records, which are here included in *D. alboatrum* on formal grounds only.

D. alboatrum var. *areolatum* Müll. Arg.* = *D. alboatrum*

D. alboatrum var. *epipolium* A. Massal. = *D. alboatrum*

D. alboatrum var. *intermedium* Müll. Arg.* = *D. alboatrum*

D. alboatrum var. *murorum* A. Massal. = *D. murorum*

D. epipolium (Ach.) Arnold = *D. alboatrum*

D. pharcidium (Ach.) Choisy – Sickenberger 1901: 328 as *Lecidea alboatra* var. *arthroa* [= *athroa*].

D. murorum (A. Massal.) Coppins – Müller 1880c: 80, 1884: 18 as *D. alboatrum* var. *murorum*.

D. venustum (Körb.) Körb. – Galun & Garty 1972: 248 as *Buellia venusta;* Nordin 2000: 101 as *B. venusta;* Temina & al. 2005b: 148.

Dirina cretacea (Zahlbr.) Tehler – Roux 1991: 167 map. – This record may be based on a misinterpretation, because Roux (1991) cites as source Tehler (1983), where this species is indicated from Libya, not Egypt.

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D. immersa Müll. Arg. – Müller 1884: 19 as *Chiodecton candidum;* Sickenberger 1901: 330 as *C. candidum;* Tehler 1983: 43; Egea 1989: 86; Alonso & Egea 1994: 229.

D. massiliensis f. ***sorediata*** (Müll. Arg.) Tehler – Roux 1991: 167 map. – E of Alexandria, 1988, *Seaward* (herb. Seaward 105789). – The map record may be based on a misinterpretation, because Roux (1991) cites as source Tehler (1983), where this species is indicated from Libya, not Egypt.

Endocarpon aegyptorum Auct. = *Anapyrenium aegyptiacum*

E. hepaticum Ach. = *Placidium squamulosum*

E. rufescens Ach. = *Placidium rufescens*

Endopyrenium aegyptiacum (Müll. Arg.) Müll. Arg.* = *Dermatocarpon aegyptiacum*

E. hepaticum Körb. = *Placidium squamulosum*

Fulgensia desertorum (Tomin) Poelt – Galun & Garty 1972: 249, 2001: 100; Temina & al. 2005b: 153.

F. fulgens (Sw.) Elenkin – Nylander 1854: 65 as *Placodium fulgens;* Müller 1880b: 43 as *Placodium fulgens;* Sickenberger 1901: 321 as *Lecanora fulgens;* Galun & Garty 2001: 100.

****F. subbracteata*** (Nyl.) Poelt – E of Alexandria, 1988, *Seaward* (herb. Seaward 113269).

Gonohymenia sinaica Galun & Marton = *Lichinella sinaica*

Laestadia* (*Carlia*) *cahirensis J. Steiner – Steiner 1893: 171; LF.

Lecania albariella (Nyl.) Müll. Arg. = *L. turicensis*

L. albariella var. *ecrustacea* (Nyl.) Müll. Arg.* = *L. turicensis*

L. albariella var. *subcaesia* (Nyl.) Müll. Arg.* = *L. turicensis*

L. athroodes (Nyl.) Müll. Arg.* – Nylander 1876: 283 as *Lecanora athroodes* incl. var. *extrita;* Müller 1880c: 77 incl. var. *extrita;* Sickenberger 1901: 326 as *L. arthroades* [sic] incl. var. *extrita*. – 32 km SW of Alexandria, 1968, *Moberg 923b* (UPS 60940).

L. brachyspora Müll Arg.* – Müller 1880c: 77; Sickenberger 1901: 326 as *Lecanora brachyspora*.

L. erysibe (Ach.) Mudd var. ***erysibe*** – Nylander 1864: 66 as *Lecanora erysibe;* Müller 1880c: 76, 1884: 16; Sickenberger 1901: 325 as *Lecania erysibe*.

L. erysibe var. ***incusa*** (Körb.) Müll. Arg. – Müller 1880c: 76, 1884: 16; Sickenberger 1901: 325 as *Lecanora erysibe* var. *incusa*.

L. erysibe var. ***pinguiscula*** (Delile) Müll. Arg.* – Delile 1813a: 159, 1813b: 33 as *Parmelia pinguiscula;* Nylander 1864: 67, 1876: 283 as *Lecanora pinguiscula;* Müller 1880c: 76, 1884: 16; Sickenberger 1901: 325 as *L. pinguiscula;* Galun & Garty 1972: 247.

****L. spadicea*** (Flot.) Zahlbr. – E of Alexandria, 1988, *Seaward* (herb. Seaward 105794).

L. subcaesia (Nyl.) de Lesd. – Sickenberger 1901: 326 as *Lecanora rabenhorstii* var. *subcaesia.* – Sinai, Gebel el Heitan, 600 m, 1982, *Frahm* (B 60 0123661).

L. turicensis (Hepp) Müll. Arg. – Nylander 1864: 67 as *Lecanora albariella* var. *ecrustacea* and *subcaesia;* Nylander 1876: 283 as *Lecanora albariella* f. *subcaesia;* Müller 1880c: 76, 1884: 16 as *L. albariella* var. *subcaesia,* var. *ecrustacea* and *Thalloidima barbeyanum;* Steiner 1893: 169 as *Lecania albariella* var. *subcaesia;* Sickenberger 1901: 325 as *Lecanora albariella,* 326 as *Lecanora albariella* var. *acrustacea* [= *ecrustacea*], 328 as *Lecidea barbeyana;* Werner 1966: 76 as *Lecania albariella;* Mayrhofer 1988: 116; Timdal 1991: 120. – E of Alexandria, 1988, *Seaward* (herb. Seaward 105795).

Lecanora aegyptiaca Müll. Arg. = *Caloplaca circumalbata*

L. aegyptiaca var. *depauperata* Müll. Arg. = *Caloplaca circumalbata*

L. aegyptiaca var. *lecideina* Müll. Arg. = *Caloplaca lecideina*

****L. agardhiana*** Ach. – Sinai, Gebel el Heitan, 600 m, 1982, *Frahm* (B 60 0123341).

L. albariella Nyl. = *Lecania turicensis*

L. albariella var. *ecrustacea* Nyl.* = *L. turicensis*

L. albariella f. *subcaesia* Nyl.* = *L. turicensis*

L. albescens (Hoffm.) Branth & Rostr. – Sickenberger 1901: 323 as *L. galactina*.

L. albula (Nyl.) Hue – Sickenberger 1901: 328 as *Lecidea albula*.

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L. athroodes [*"arthroades"*] Nyl.* = *Lecania athroodes*
L. athroodes [*"arthroades"*] var. *extrita* Nyl.* = *Lecania athroodes*
L. atra Ach. = *Tephromela atra*
L. aurantiaca var. *erythrella* Nyl. = *Caloplaca flavovirescens*
L. bischoffii var. *aegyptiaca* (Müll. Arg.) Stizenb. = *Rinodina dubyana*
L. bischoffii var. *melanops* Müll. Arg. = *Rinodina dubyana*
L. brachyspora (Müll. Arg.) Stizenb.* = *Lecania brachyspora*
L. calcarea (L.) Sommerf. = *Aspicilia calcarea*
L. calcarea f. *farinosa* Flörke = *Aspicilia farinosa*
L. calcarea var. *hoffmanni* [= *hoffmannii*] (Ach.) Sommerf. = *Aspicilia contorta* subsp. *hoffmanniana*
L. callopisma Ach. = *Caloplaca aurantia*
L. cerina var. *obscurata* Nyl. = *Caloplaca obscurata*
L. cervina Ach. = *Acarospora cervina*
L. cheresina Müll. Arg.* = *Aspicilia cheresina*
L. circinata (Pers.) Ach. = *Lobothallia radiosa*
L. circumalbata (Del.) Stizenb. = *Caloplaca circumalbata*
L. cirrochroa Ach. = *Caloplaca cirrochroa*
L. citrina (Hoffm.) Ach. = *Caloplaca citrina*
L. citrina var. *microcarpa* Stizenb. = *Caloplaca citrina*
L. crassa (Huds.) Ach. = *Squamarina cartilaginea*
L. crenulata Hook. – Müller 1880c: 74; Sickenberger 1901: 325; Galun & Garty 1972: 246. – Alexandria, 1988, *Seaward* (herb. Seaward 108905).
L. dealbata var. *radicans* Nyl. = *Acarospora nodulosa* var. *reagens*
L. detrita Ach. – Müller 1880c: 74; Sickenberger 1901: 325.
L. dispersa (L.) Sommerf. – E of Alexandria, 1988, *Seaward* (herb. Seaward 105783 sub *Xanthoria stiligera*).
L. ehrenbergii Müll. Arg. = *Caloplaca ehrenbergii*
L. epixantha (Ach.) Nyl. = *Candelariella aurella*
L. erysibe (Ach.) Nyl. = *Lecania erysibe*
L. erysibe var. *incusa* (Körb.) Stizenb. = *Lecania erysibe* var. *incusa*
L. erythrella Ach. = *Caloplaca flavovirescens*
L. erythrina Müll. Arg. = *Caloplaca erythrina*
L. erythrina var. *cryptocarpa* Müll. Arg. = *Caloplaca erythrina* var. *cryptocarpa*
L. erythrina var. *pulvinata* Müll. Arg. = *Caloplaca erythrina* var. *pulvinata*
L. exigua (Ach.) Nyl. = *Rinodina exigua*
L. farinosa (Flörke) Nyl. = *Aspicilia farinosa*
L. ferruginella Nyl.* – Nylander 1864: 66; Müller 1880c: 77 as *Blastenia ferruginella;* Sickenberger 1901: 322. – This species most probably belongs in the genus *Caloplaca* as currently understood. No formal recombination is proposed here before a re-examination of the type specimen, as it might concern a synonym.
L. fulgens (Sw.) Ach. = *Fulgensia fulgens*
L. fuscata Auct. = *Acarospora atrata*
L. galactina Ach. = *L. albescens*
L. gilvella Nyl.* = *Caloplaca gilvella*
L. gilvella var. *albida* Stizenb.* = *Caloplaca gilvella*
L. holocarpa (Ach.) Nyl. = *Caloplaca holocarpa*
L. interrupta (Ehrenb.) Nyl.* = *Acarospora strigata*
L. interveniens Stizenb. = *Caloplaca circumalbata*
L. lentigera (Weber) Ach. = *Squamarina lentigera*
L. melanocarpa Müll. Arg. = *Caloplaca circumalbata*
L. melanocarpa var. *bicolor* (Müll. Arg.) Stizenb. = *Caloplaca circumalbata* var. *bicolor*

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L. melanocarpa var. *leucoloma* Müll. Arg. = *Caloplaca circumalbata*
L. melanocarpa var. *versicolor* Müll. Arg. = *Caloplaca circumalbata*
L. minuscula Müll. Arg. = *Caloplaca minuscula*
L. muelleri J. Steiner = *Aspicilia muelleri*
L. murorum (Hoffm.) Ach. = *Caloplaca saxicola*
L. pinguiscula (Delile) Nyl.* = *Lecania erysibe* var. *pinguiscula*
L. placenta Ehrenb.* = *Acarospora placenta*
L. pruinosa (Sm.) Nyl. = *Sarcogyne regularis*
L. pyracea (Ach.) Th. Fr. = *Caloplaca holocarpa*
L. pyracea var. *atroalba* Müll. Arg. = *Caloplaca holocarpa*
L. pyracea var. *lactea* Stizenb. = *Caloplaca lactea*
L. pyracea var. *pyrithroma* (Ach.) Nyl. = *Caloplaca holocarpa*
L. rabenhorstii var. *subcaesia* Nyl. = *Lecania subcaesia*
L. rhizophora (Delile) Müll. Arg.* = *Aspicilia rhizophora*
L. rufescens Ach. = *Acarospora rufescens*
L. schleicheri f. *radicans* Nyl.* = *Acarospora nodulosa* var. *reagens*
L. simplex Nyl. = *Polysporina simplex*
L. simplex var. *calcifraga* (Müll. Arg.) Stizenb.* = *Sarcogyne calcifraga*
L. simplex f. *strepsodina* Ach. = *Polysporina simplex*
L. sophodes var. *exigua* Ach. = *Rinodina exigua*
L. subcalcarea Müll. Arg.* = *Aspicilia subcalcarea*
L. subcerata Stizenb. = *Caloplaca subcerina*
L. subcerina Nyl.* = *Caloplaca subcerina*
L. subcoerulea (Delile) Müll. Arg.* = *Aspicilia subcoerulea*
L. subsimilis Vain. var. *decolorans* Müll. Arg.* = *Candelariella aurella*
L. sympagea var. *exalbata* Stizenb. = *Caloplaca aurantia*
L. sympagea var. *exteroleuca* A. Massal. = *Caloplaca aurantia*
L. teicholytum Ach. = *Caloplaca teicholyta*
L. tricholyta = misspelling for *Caloplaca teicholyta*
L. umbrina (Ach.) A. Massal. – Nylander 1876: 283, Müller 1880c: 75, Sickenberger 1901: 325 as *L. umbrina* var. *cyanescens*.
L. umbrina var. *cyanescens* Pers. = *L. umbrina*
Lecidea albilabra (Dufour) Dufour = *Psora vallesiaca*
L. alboatra var. *areolata* Stizenb. = *Diplotomma alboatrum*
L. alboatra var. *arthroa* [= *athroa*] Ach. = *Diplotomma pharcidium*
L. alboatra var. *epipolia* (Ach.) Schaer. = *Diplotomma alboatrum*
L. alboatra var. *intermedia* Stizenb. = *Diplotomma alboatrum*
L. albula Nyl. = *Lecanora albula*
L. barbeyana Müll. Arg. = *Lecania turicensis*
L. canescens (Dicks.) Ach. = *Diploicia canescens*
L. circumalbata Delile* = *Caloplaca circumalbata*
L. decipiens (Hedw.) Ach. = *Psora decipiens*
L. disciformis var. *albula* Nyl. = *Buellia subalbula*
L. dispersa (A. Massal.) Nyl. = *Buellia dispersa*
L. geoleuca Nyl.* = *Toninia aromatica*
L. minima Delile* = *Caloplaca minima*
L. pruinosa Nyl. = *Sarcogyne regularis*
L. simplex Nyl. = *Polysporina simplex*
L. simplex var. *calcifraga* Müll. Arg.* = *Sarcogyne calcifraga*
L. quinquetubera Delile* = *Omphalaria quinquetubera*
L. sodalis Stizenb. = *Catillaria sodalis*
L. subalbula Nyl. = *Buellia subalbula*

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L. vetusta Delile* – Delile 1813a: 158, 1813b: 33. – According to Müller (1980b: 83) perhaps *Buellia* sp. or *Blastenia melanocarpa*.

Lichinella sinaica (Galun & Marton) Moreno & Egea – Galun & Marton 1970 as *Gonohymenia sinaica;* Galun & Garty 1972: 245, 2001: 100 as *G. sinaica;* Moreno & Egea 1992: 248; Temina & al. 2005b: 204.

Lobothallia radiosa (Hoffm.) Hafellner – Steiner 1893: 169 as *Lecanora circinata;* Sickenberger 1901: 325 as *L. circinata.*

Lynalyssa arabica = misspelling for *Synalissa arabica*

Melanographa hypoleuca Müll. Arg.* = *Melaspilea hypoleuca*

Melaspilea hypoleuca (Müll. Arg.) Müll. Arg.* – Müller 1884: 18 as *Melanographa hypoleuca;* Sickenberger 1901: 330.

Microthelia pharaonis Müll. Arg.* – Müller 1880c: 81; Sickenberger 1901: 331 as *Verrucaria pharaonis.* – According to Hawksworth (1985: 160) probably a synonym of *Endoccus* propinquus (Körb.) D. Hawksw; LF.

Omphalaria arabica Müll. Arg. = *Peccania arabica*

O. pulvinata Nyl. = *Thyrea confusa*

O. quinquetubera Müll. Arg.* – Delile 1813a: 157, 1813b: 33 as *Lecidea quiquetubera;* Müller 1880b: 40, 1884: 15; Sickenberger 1901: 320 as *Collemopsis quinquetubera*. – Schultz (pers. comm.) informed us that the genus name is not valid and the species is perhaps attributable to *Psorotichia*.

Opegrapha aegyptiaca Müll. Arg.* – Müller 1880c: 80; Sickenberger 1901: 329.

****O. celtidicola*** (Jatta) Jatta – Alexandria, 1988, *Seaward* (herb. Seaward 105937).

O. gyrocarpoides Müll. Arg.* – Müller 1884: 19; Sickenberger 1901: 329.

Parmelia maciformis Delile = *Ramalina maciformis*

P. miniata Ach. = *Caloplaca arnoldii*

P. parietina Ach. = *Xanthoria parietina*

P. pinguiscula Delile* = *Lecania erysibe* var. *pinguiscula*

Peccania arabica (Müll. Arg.) Henssen – Müller 1891: 371 as *Omphalaria arabica;* Galun & Garty 1972: 243 as *Thyrea arabica*.

Physcia astroidea Nyl. = *P. clementei*

P. clementei (Turner) Maas Geest. – Müller 1880b: 41 as *P. astroidea;* Sickenberger 1901: 321.

P. magara Kremp. = *Seirophora villosa*

P. parietina (L.) De Not. = *Xanthoria parietina*

P. parietina var. *aureola* (Ach.) Nyl. = *Xanthoria calcicola*

P. parietina var. *ectanea* (Ach.) Nyl. = *Xanthoria ectaneoides*

P. parietina var. *imbricata* A. Massal. = *Xanthoria parietina*

P. parietina var. *subgranulosa* Nyl.* = *Xanthoria parietina* var. *subgranulosa*

P. parietina f. *virescens* Nyl. = *Xanthoria parietina*

P. polycarpa Nyl. = *Xanthoria polycarpa*

P. villosa (Ach.) Duby = *Seirophora villosa*

P. villosa f./var. *brevis* [= *brevior*] Nyl. = *Seirophora villosa*

Placidium lacinulatum (Ach.) Breuss – Breuss 1994: 232 as *Catapyrenium lacinulatum.* – E of Alexandria 1988, *Seaward* (herb. Seaward 105784).

P. rufescens (Ach.) A. Massal. – Nylander 1864: 69 as *Endocarpon rufescens;* Galun & Garty 1972: 243 as *Dermatocarpon rufescens.* – This species is not indicated for Egypt by Breuss (1994) and the records may be misidentifications.

P. squamulosum (Ach.) Breuss – Nylander 1864: 69 as *Endocarpon hepaticum;* Müller 1880c: 81, 1884: 19 as *Endopyrenium hepaticum;* Sickenberger 1901: 330 as *Endocarpon hepaticum;* Galun & Garty 1972: 251 as *Dermatocarpon hepaticum,* 2001: 100; Breuss 1994: 235 as *Catapyrenium squamulosum*.

Placodium callopismum (Ach.) Mérat = *Caloplaca aurantia*

P. cervinum (Ach.) Müll. Arg. = *Acarospora cervina*

P. citrinum (Hoffm.) Hepp = *Caloplaca citrina*

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P. crassum var. *deserti* (Nyl.) Müll. Arg. = *Squamarina cartilaginea*
P. fulgens (Sw.) DC. = *Fulgensia fulgens*
P. interruptum Müll. Arg. = *Acarospora strigata*
P. lentigerum f. *deserti* (Nyl.) Müll. Arg. = *Squamarina cartilaginea*
P. murorum (Hoffm.) DC. = *Caloplaca saxicola*
P. rufescens (Nyl.) Müll. Arg. = *Acarospora rufescens*
P. schleicheri f. *radicans* (Nyl.) Müll. Arg.* = *Acarospora nodulosa* var. *reagens*

Polysporina simplex (Davies) Vězda – Nylander 1864: 67 as *Lecanora simplex* f. *strepsodina;* Müller 1880c: 79 as *Lecidea simplex;* Sickenberger 1901: 327 as *Lecanora simplex;* Galun & Garty 1972: 243 as *Biatorella simplex* var. *strepsodina*.

Porina aschersoni Müll. Arg.* – Müller 1884: 20; Sickenberger 1901: 330 as *Verrucaria aschersonii*.

P. taposirica (Stizenb.) Zahlbr.* – Stizenberger 1895: 259 as *Verrucaria taposirica*.

Psora decipiens (Hedw.) Hoffm. – Nylander 1864: 68 as *Lecidea decipiens;* Müller 1880b: 43; Sickenberger 1901: 328 as *L. decipiens;* Galun & Garty 1972: 245 as *L. decipiens,* 2001: 100.

P. vallesiaca (Schaerer) Timdal – Galun & Garty 1972: 245 as *Lecidea albilabra*. – See Timdal (1991: 33) for the confusion around *Toninia albilabra*.

Psorotichia schaereri (A. Massal.) Arnold – Werner 1966: 76.

P. schaereri var. ***arenaria*** Forss. – Werner 1966: 76.

P. sinaiensis Vain. – Kneucker 1926: 43; Galun & Garty 1972: 243.

Psorotichiella davidis Wern. – Moreno & Egea 1990: 23. – The lectotype belongs in *Placynthium* sp. (M. Schultz, in litt.).

R. crispatula Nyl. – Müller 1884: 15; Sickenberger 1901: 320. – *Schweinfurth* (FH).

R. duriaei (De Not.) Jatta = *R. lacera*
R. evernioides Nyl. = *R. lacera*

R. lacera (With.) J. R. Laundon – Müller 1880b: 40, 1884: 15, 1891: 373 as *R. evernioides;* Sickenberger 1901: 320 as *R. evernioides;* Galun & Garty 1972: 243, 248 as *R. duriaei;* Temina & al. 2005b: 266.

R. maciformis (Delile) Bory – Delile 1813a: 144, 1813b: 33 as *Parmelia maciformis;* Nylander 1864: 64; Müller 1880b: 40, 1891: 373; Sickenberger 1901: 320; Galun & Garty 1972: 247; Temina & al. 2005b: 267. – Sinai, Gebel el Heitan, 600 m, 1982, *Frahm* (B 60 0044733); Mt Mokattam near Kairo, 1891, *Sickenberger in Arnold Exs. 1539* (B); Wadi Angabia, 1964, *Steiner & Boulos, Crypt. Exs. Vindob. 4832* (B).

R. pollinaria (Westr.) Ach. – Nylander 1864: 64; Sickenberger 1901: 320.

Rinodina bischoffii var. *aegyptiaca* Müll. Arg.* = *R. dubyana*
Rinodina bischoffii var. *melanops* Müll. Arg.* = *R. dubyana*

R. dubyana (Hepp) J. Steiner – Müller 1880c: 77 as var. *aegyptiaca* and *melanops;* Sickenberger 1901: 325 as *Lecanora bischoffii* var. *aegyptiaca* and *melanops;* Galun & Garty 1972: 248 as *Rinodina bischoffii* var. *aegyptiaca;* Mayrhofer & Poelt 1979: 94; Mayrhofer 1984: 407. – *Schweinfurth* (FH).

R. exigua (Ach.) Gray – Nylander 1864: 66 as *Lecanora sophodes* var. *exigua;* Müller 1880c: 77; Sickenberger 1901: 324 as *L. exigua*.

Roccella phycopsis Ach.– Müller 1880c: 83, 1884: 15; Sickenberger 1901: 320; Galun & Garty 1972: 251; Temina & al. 2005b: 277. – *Schweinfurth* (FH).

R. tinctoria DC. – Sickenberger 1901: 320. – This species is often erroneously reported and unlikely to occur in Egypt; therefore it can be assumed that the report most likely refers to *R. phycopsis*.

Sarcogyne calcifraga (Müll. Arg.) H. Magn.* – Müller 1880c: 79 as *Lecidea simplex* var. *calcifraga;* Sickenberger 1901: 327 as *Lecanora simplex* var. *calcifraga*.

S. regularis Körb. – Müller 1880c: 79 as *Lecidea pruinosa;* Sickenberger 1901: 327 as *Lecanora pruinosa*.

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Seirophora lacunosa (Rupr.) Frödén – Hillmann 1930: 321 as *Teloschistes brevior;* Galin & Garty 1972: 243, 248 as *Teloschistes lacunosus;* Temina & al. 2005b: 292 as *Teloschistes lacunosus*. – 57 km S of Alexandria, 1984, *S. Gamal* (herb. Seaward 110977).

S. villosa (Ach.) Frödén – Nylander 1864: 65 as *Physcia villosa* f. *brevior;* Krempelhuber 1868: 323 as *Physcia magara;* Müller 1880b: 41 as *Theloschistes villosus,* 1884: 15 as *T. villosus* f. *brevior;* Sickenberger 1901: 320 as *Physcia villosa* incl. var. *brevis* [= *brevior*], 1901: 321 as *Physcia magara;* Poelt 1983: 440 as *Seirophora magara;* Frödén & Lassen 2004: 297. – *Schweinfurth* (FH). – Specimens identified as var. *brevior* may belong to *S. lacunosa,* since these taxa have been confused.

Squamaria lentigera f. *deserti* (Ehrenb.) Nyl.* = *Squamarina lentigera*

Squamarina cartilaginea (With.) P. James – Müller 1880b: 43 as *Placodium lentigerum* f. *deserti,* 1884: 16 as *P. crassum* var. *deserti;* Sickenberger 1901: 321 as *Lecanora crassa;* Galun & Garty 1972: 247, 2001: 100 as *Squamarina crassa* var. *crassa* incl. f. *pseudocrassa;* Temina & al. 2005b: 286 as var. *pseudocrassa*.

S. cartilaginea var. *pseudocrassa* (Mattick) D. Hawksw. = *S. cartilaginea*

S. crassa (Huds.) Poelt var. *crassa* = *S. cartilaginea*

S. crassa var. *crassa* f. *pseudocrassa* (Matt.) Poelt = *S. cartilaginea*

S. lentigera (Weber) Poelt – Nylander 1864: 64 as *Squamaria lentigera* f. *deserti;* Sickenberger 1901: 321 as *Lecanora lentigera;* Galun & Garty 1972: 247, 2001: 100; Temina & al. 2005b: 288.

Stigmidium congestum (Körb.) Triebel – Müller 1884: 20 as *Arthopyrenia epicymatica*; LF.

Synalissa arabica Müll. Arg. – Sickenberger 1901: 319 as *Lynalyssa* [sic] *arabica.*

Teloschistes brevior (Nyl.) Vain. = *Seirophora lacunosa*

T. lacunosus (Rupr.) Savicz = *Seirophora lacunosa*

T. [*as Theloschistes*] *parietinus* var. *aureolus* Müll. Arg. = *Xanthoria calcicola*

T. [*as Theloschistes*] *parietinus* var. *ectaneus* Müll. Arg. = *Xanthoria ectaneoides*

T. [*as Theloschistes*] *parietinus* var. *imbricatus* Müll. Arg. = *Xanthoria parietina*

T. [*as Theloschistes*] *parietinus* var. *polycarpus* Müll. Arg. = *Xanthoria polycarpa*

T. [*as Theloschistes*] *parietinus* var. *subgranulosus* Müll. Arg. = *Xanthoria parietina* var. *subgranulosa*

T. [*as Theloschistes*] *villosus* (Ach.) Norman = *Seirophora villosa*

T. [*as Theloschistes*] *villosus* f. *brevior* Müll. Arg. = *Seirophora villosa*

Tephromela atra (Huds.) Hafellner – Galun & Garty 1972: 246 as *Lecanora atra*.

Thalloidima barbeyanum Müll. Arg.* = *Lecania turicensis*

T. geoleucum (Nyl.) Müll. Arg.* = *T. aromatica*

Thelidium pauperculum Müll. Arg.* – Müller 1880c: 82; Sickenberger 1901 as *Verrucaria paupercula*.

Thelopsis isiaca Stizenb. – Sickenberger 1901: 327; Egea 1989: 101. – 1893, *Sickenberger in Arnold Exsic. 1635* (herb. Seaward 112311).

Thyrea arabica (Müll. Arg.) Zahlbr. = *Peccania arabica*

Thyrea confusa Henssen – Nylander 1864: 64 as *Omphalaria pulvinata;* Galun & Garty 1972: 243 as *Thyrea pulvinata*. – The synonymy follows the observation of Henssen & Jørgensen (1990) that the type specimen of *Thyrea pulvinata* belongs to a different species as most material names so, for which they proposed a new name. The actual identity of the Egyptian records needs verification.

T. pulvinata auct. = *T. confusa*

Toninia albilabra (Dufour) H. Olivier – Galun & Garty 1972: 246 as *T. albomarginata,* 2001: 100; Barreno 1991: 1991 map; Temina & al. 2005b: 298.

T. albomarginata de Lesd. = *T. albilabra*

T. aromatica (Sm.) A. Massal. – Nylander 1864: 69 as *Lecidea geoleuca;* Müller 1880b: 43 as *Thalloidima geoleucum;* Sickenberger 1901: 328 as *Lecidea geoleuca;* Galun & Garty 1972: 246, 2001: 100; Timdal 1991: 39.

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T. coeruleonigricans (Lightf.) Th. Fr. = *T. sedifolia*

T. sedifolia (Scop.) Timdal – Galun & Garty 1972: 246 as *T. coeruleonigricans,* 2001: 100.

Tornabea scutellifera (With.) J. R. Laundon – Galun & Garty 1972: 248 as *Tornabenia intricata*.

Tornabenia intricata Trevis. = *Tornabea scutellifera*

Urceolaria actinostoma (Ach.) Ach. = *Diploschistes actinostomus*

U. actinostoma var. *calcarea* Müll. Arg. = *Diploschistes candidissimus*

U. conferta Delile* – Delile 1813a: 155, 1813b: 33. – The identity of this species is not clear; it may be *Buellia* sp. according to Müller 1880c.

U. gypsacea Ach. = *Diploschistes gypsaceus*

U. rhizophora Delile* = *Aspicilia rhizophora*

U. scruposa var. *gypsacea* (Ach.) Flot. = *Diploschistes gypsaceus*

U. subcoerulea Delile* = *Aspicilia subcoerulea*

Usnea pinkertonii (Stirt.) Motyka* – Pinkerton 1881 (BM); Motyka 1936: 135. – The record is doubtful, because the genus is unlikely to occur in an inland desert.

Verrucaria aegyptiaca Müll. Arg.* = *Dermatocarpon aegyptiacum*

V. attica J. Steiner – Steiner 1916: 24.

V. aschersonii (Müll. Arg.) Stizenb.* = *Porina aschersonii*

V. hochstetteri Fr. – Müller 1884: 20 as *V. obtecta;* Sickenberger 1901: 330 as *V. obtecta*.

V. integra Nyl. = *V. pinguicula*

V. integra f. *limitans* Nyl.* = *V. pinguicula*

V. obtecta Müll. Arg.* = *V. hochstetteri*

V. paupercula Stizenb.* = *Thelidium pauperculum*

V. pharaonis (Müll. Arg.) Stizenb.* = *Microthelia pharaonis*

V. pinguicula A. Massal. – Nylander 1864: 69 as *V. integra* f. *limitans;* Müller 1880c: 82 as *V. integra* f. *limitans,* 1884: 20 as *V. integra;* Sickenberger 1901: 330 as *V. integra,* f. *limitans*.

V. taposirica Stizenb.* = *Porina taposirica*

Xanthoria aureola var. *isidioidea* Beltr. = *X. stiligera*

X. calcicola Oxner – Müller 1884: 15 as *Theloschistes parietinus* var. *aureolus;* Sickenberger 1901: 321 as *Physcia parietina* var. *aureola;* Galun & Garty 1972: 249 as *X. aureola*.

X. ectaneoides (Nyl.) Zahlbr. – Nylander 1864: 65 as *Physcia parietina* var. *ectanea;* Müller 1880b: 41 as *Theloschistes parietina* var. *ectaneus;* Sickenberger 1901: 321 as *P. parietina* var. *ectanea*.

X. mediterranea Giralt & al. – Temina & al. 2005b: 315. – See note under *X. stiligera*.

X. microspora de Lesd. – Lamb 1963: 804.

X. parietina (L.) Th. Fr. – Delile 1813b: 33 as *Parmelia parietina;* Nylander 1864: 65 as *Physcia parietina;* Müller 1880b: 41 as *Theloschistes parietina* incl. *imbricatus;* Sickenberger 1901: 320 as *P. parietina* incl. var. *imbricata*, 321 as *P. parietina* f. [var.] *virescens;* Galun & Garty 1972: 249. – 60 km from Alexandria towards Cairo, 1968, *Moberg 921, 923a* (UPS).

X. parietina var. ***subgranulosa*** (Nyl.) Zahlbr.* – Nylander 1876: 281 as *Physcia parietina* var. *subgranulosa; Barbey 1880* (FH); Müller 1880b: 41, 1884: 4 as *Theloschistes parietinus* var. *subgranulosus;* Sickenberger 1901: 321.

X. polycarpa (Hoffm.) Rieber – Müller 1884: 15 as *Theloschistes parietinus* var. *polycarpus;* Sickenberger 1901: 321 as *Physcia polycarpa;* Galun & Garty 1972: 243.

X. steineri I. M. Lamb – Galun & Garty 1972: 249; Temina & al. 2005b: 317.

X. stiligera Giralt & al. – Galun & Garty 1972: 249 as *X. aureola* var. *isidioidea;* Giralt & al. 1993: 283. – E of Alexandria, 1988, *Seaward* (herb. Seaward 105783). – Note: Giralt & al. (1993) conclude that the identity of *X. aureola* var. *isidioidea* is unclear. Their treatment suggests that material named as such by Galun & Garty belongs to *X. stiligera*. However, Temina & al. (2005b) report the related *X. mediterranea* from Egypt.

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Species reported as available for sale *("venalis")* in markets in Egypt

Evernia prunastri (L.) Ach. – Nylander 1864: 64.
Pseudevernia furfuracea (L.) Zopf – Nylander 1864: 64 as *Evernia furfuracea*.
Ramalina calicaris (L.) Fr. – Nylander 1864: 64.

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