The types of fungal names published by Ch. G. Ehrenberg from A. von Chamisso's collection, and kept in the Mycological and Lichenological herbaria of the Komarov Botanical Institute (St. Petersburg, LE)

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Abstract. Lectotypes of twelve names of Fungi published by Christian Gottfried Ehrenberg from Adelbert von Chamisso's collection (*Auricularia cornea*, *Agaricus copulatus*, *Boletus katui*, *B. sector*, *Hypochnus nigrocinctus*, *Hysterium gracile*, *H. orbiculare*, *Naemaspora tularostoma*, *Sphaeria eschscholtzii*, *S. fur*, *S. profuga*, *Triblidium arcticum*) are designated. It was thought that fungal collection made by Chamisso during the voyage around the world on board the Russian brig «Rurik» (1815–1818) had been lost, but many of his samples of fungi were re-discovered in 2013 in the Mycological Herbarium of the Komarov Botanical Institute (St. Petersburg, LE) including original material of ten Ehrenberg's taxa. For *Hypochnus rubrocinctus* which was lectotypified earlier by Aptroot *et al.* (2009) the additional type material kept in the Lichenological Herbarium of the Komarov Botanical Institute (LE) is cited. It is supposed that original collections of *Campsotrichum unicolor* and *Thamnomyces chamissonis* may be kept in Fries herbarium (UPS).

Keywords: lectotypification, fungi, Christian Gottfried Ehrenberg, Adelbert von Chamisso, Brazil, Chili, Marshall Islands, Hawaiian Islands, Philippines, Aleutian Islands.

Типы названий грибов (*Fungi*), обнародованных Х. Г. Эренбергом по сборам А. Шамиссо, хранящиеся в микологическом и лихенологическом гербариях Ботанического института им. В. Л. Комарова (Санкт-Петербург, LE)

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Резюме. Обозначены лектотипы двенадцати названий видов грибов (*Auricularia cornea*, *Agaricus copulatus*, *Boletus katui*, *B. sector*, *Hypochnus nigrocinctus*, *Hysterium gracile*, *H. orbiculare*, *Naemaspora tularostoma*, *Sphaeria eschscholtzii*, *S. fur*, *S. profuga*, *Triblidium arcticum*), описанных Х. Эренбергом по сборам А. Шамиссо. Считалось, что грибная коллекция Шамиссо, собранная во время кругосветной экспедиции на борту русского брига «Рюрик» в 1815–1818 гг. утрачена, однако значительная ее часть была обнаружена в 2013 г. в микологическом гербарии Ботанического института им. В. Л. Комарова РАН (LE), включая оригинальный материал десяти видов, описанных Эренбергом. Для *Hypochnus ru-*

brocinctus, лектотип которого был выбран ранее (Aptroot *et al*., 2009), процитирован типовой материал, обнаруженный в лихенологическом гербарии БИН РАН (LE). Высказано предположение о вероятном нахождении типовых материалов *Campsotrichum unicolor* и *Thamnomyces chamissonis* в гербарии Фриза в Упсале (UPS).

Ключевые слова: лектотипификация, грибы, Христиан Готфрид Эренберг, Адельберт Шамиссо, Бразилия, Чили, Маршалловы о-ва, Гавайские о-ва, Филиппины, Алеутские о-ва.

Christian Gottfried Ehrenberg (1795–1876) was one of the most illustrious and prolific scientists of his day. He is best known as one of the founders of micropaleontology and microbiology, and as a keen and accurate microscopist, who described and named a multitude of living and fossil unicellular protists (Lazarus, 1998). Ehrenberg began his scientific career in the University of Berlin with the study of fungi. In November 1818 he took his degree, having presented a thesis describing 250 species of fungi and myxomycetes from the environs of Berlin (Ehrenberg, 1818; Stafleu, Cowan, 1976). The same month (Laue, 1895: 31) Ehrenberg became acquainted with Adelbert von Chamisso (1781–1838), a prominent Romantic-era literary man and naturalist, afterwards the curator in the Herbarium of the Royal Botanical Museum Berlin-Dahlem (Urban, 1917; Hiepko, 1987), who had just returned from voyage around the world onboard Otto von Kotzebue's brig «Rurik» (July 1815–August 1818). Chamisso brought back rich collections of plants, among them also fungi studied later by Ehrenberg and described by him in «Horae physicae Berolinenses» under the editorship of C. G. Nees von Esenbeck (Ehrenberg, 1820).

After Chamisso's death his large private herbarium with more than 10000 plant species was purchased by Botanical Museum of the St. Petersburg Academy of Sciences in 1840 and is kept now in the Komarov Botanical Institute in St. Petersburg (Ruprecht, 1864; Imkhamitskaya, 1996). N. N. Imkhamitskaya (1996: 5) asserted with reference to personal communication by P. Hiepko that fungal collection made by Chamisso during the Rurik voyage had been destroyed in Berlin by fire in a bombing raid in 1943. Thorough search in Mycological and Lichenological Herbaria of the Komarov Botanical Institute (LE) has revealed that is not the case, and brought to light the original material of ten species, collected by Chamisso and described by Ehrenberg.

The re-discovered specimens are in original envelops, and are often accompanied with original labels bearing the name of the species with addition of «n. sp.», and brief locality data, usually reduced to the name of country or an island. Comparison of samples of Ehrenberg's handwrit-

ing provided by Suzuki *et al*. (2009), with such of Chamisso available via «Letters and Texts: Intellectual Berlin around 1800» digital edition (Baillot, Seifert, 2013) confirmed that the labels and envelops had been handwritten by Ehrenberg. The original labels are separate or more often glued to the printed labels bearing the heading «Museum botanicum Academiae scientiarum Petropolitanae» and handwritten note by an unknown author: «Herb[arium] Chamisso» accompanied by Roman numerals corresponding to the numbers under which the name of the species was published (Ehrenberg, 1820).

The types of the published fungal names were not designated by Ehrenberg, and only few of them were typified later. The lectotypes of twelve names published by Ehrenberg (1820) are designated here to facilitate the clarification of the taxonomy of these species by subsequent authors. For three of these names no original material is evidently extant and the original illustrations by Ehrenberg are selected as lectotypes.

The names are listed below in alphabetical order and the following information is provided: name of the taxon (basionym) with reference to the protologue and sanctioning work; accepted homotypic name in accordance with current use if differs from basionym; lectotypification with citation of original label and accession number of type collection in LE; «locus classicus» (the modern name of states and islands are given) and substrate according to protologue; notes when necessary. The herbaria acronyms conform to the Interbational Database «Index Herbariorum».

Agaricus copulatus Ehrenb., 1820, in Nees von Esenbeck, Horae Phys. Berol.: 86, tab. 18, fig. 5. ≡ *Lentinus copulatus* (Ehrenb.) Henn., 1898, in Engler et Prantl, Nat. Pflanzenfam. 1 (1): 224.

L e c t o t y p e (designated here): «*Agaricus (Apus) copulatus* n. sp., Brasilia [scr. Ehrenberg]. Herb. Chamisso, n. X [scr. ?]», LE 5788! Locus classicus: Brazil, St. Catharina Island, «in truncis arborum mortuis».

Auricularia cornea Ehrenb., 1820, in Nees von Esenbeck, Horae Phys. Berol.: 91, tab. 19, fig. 9 : Fr., 1822, Syst. Mycol. 2(1): 222.

L e c t o t y p e (designated here): [icon] «*Auricularia cornea*», in Nees von Esenbeck, Horae Phys. Berol.: tab. 19, fig. 9 (1820), specimen not extant. Locus classicus: Hawaiian Islands, Oahu («ad insulas Sandwich… In insula O-Wahu legebatur»), latitude 22° N fide Ehrenberg, «in trunco putrido, terra obruto».

The original envelope (LE 38980) with Ehrenberg's handwriting «*Auricularia cornea* n. sp. O-Wahu», which obviously contained a type specimen collected by Chamisso in Oahu Island, now is empty (Plate I, *a*). On the label of Botanical Museum of St. Petersburg Academy of Scienc-

es bearing the glued Ehrenberg's label there is a note in Russian in old-fashioned handwriting by an unknown author «envelope is empty», so the original material probably was lost as far back as XIX century. So long as no other original material is known to be in existence, the illustration of *A. cornea* by Ehrenberg (Plate I, *b*) must serve as lectotype in accordance with Art. 9.12 of the Code (McNeill *et al.*, 2012).

Boletus katui Ehrenb., 1820, in Nees von Esenbeck, Horae Phys. Berol.: 93, tab. 19, fig. 12 : Fr., 1821, Syst. Mycol. 1: 505.

Lectotype (designated here): «*Boletus Katui* n. sp., Radack [scr. Ehrenberg]. Herb. Chamisso, n. XX [scr. ?]», LE 30661! Locus classicus: Marshall Islands, Ratak Chain, «in arborum truncis».

Boletus sector Ehrenb., 1820, in Nees von Esenbeck, Horae Phys. Berol.: 86, tab. 18, fig. 6 : Fr., 1821, Syst. Mycol. 1: 505. ≡ *Trichaptum sector* (Ehrenb. : Fr.) Kreisel, 1971, Ciencias (Havana), Ser. 4. 16: 84.

Lectotype (designated here): «*Boletus sector* n. sp., Brasilia [scr. Ehrenberg]. Herb. Chamisso, n. XI [scr. ?]», LE 22375! Locus classicus: Brazil, St. Catharina Island, «in cortice truncorum mortuorum».

Hypochnus nigrocinctus Ehrenb., 1820, in Nees von Esenbeck, Horae Phys. Berol.: 85, tab. 17, fig. 4 : Fr., 1832, Syst. Mycol. 3: 290. ≡ *Dichosporidium nigrocinctum* (Ehrenb. : Fr.) G. Thor, 1991, Opera Bot. 103: 71.

Lectotype (designated here): «*Hypochnus nigrocinctus* n. sp., Brasilia [scr. Ehrenberg]. Herb. Chamisso, n. VI [scr. ?]», LE 22458! Locus classicus: Brazil, St. Catharina Island, «in truncis et lignis muscosis».

Hypochnus rubrocinctus Ehrenb., 1820, in Nees von Esenbeck, Horae Phys. Berol.: 84. tab. 17, fig. 3 : Fr., 1832, Syst. Mycol. 3: 289. ≡ *Herpothallon rubrocinctum* (Ehrenb. : Fr.) Aptroot, Lücking et G. Thor, 2009, Biblioth. Lichenol. 99: 61.

The lectotype of this name, a specimen in the National Herbarium of The Netherlands (L) which is believed to be a part of the original collection, was selected by Aptroot *et al.* (2009: 61). In the Lichenological Herbarium of the Komarov Botanical Institute (LE) an additional original specimen of this species is kept and cited here:

«*Hypochnus rubrocinctus* n. sp., Brasilia [scr. Ehrenberg]. Herb. Chamisso, n. V [scr. ?]», sine numero (LE!).

Hysterium gracile Ehrenb., 1820, in Nees von Esenbeck, Horae Phys. Berol.: 99, tab. 20, fig. 16 : Fr., 1823, Syst. Mycol. 2(2): 588. ≡ *Lophodermium gracile* (Ehrenb. : Fr.) Sacc., 1883, Syll. Fung. 2: 799.

Lectotype (designated here): «*Hysterium gracile* n. sp., Vnalaschka [scr. Ehrenberg]. Herb. Chamisso, n. XXXI [scr. ?]», LE 170007! Locus classicus: Aleutian Islands, Unalaska, «in foliis Andromedae lycopodioidis».

Hysterium orbiculare Ehrenb., 1820, in Nees von Esenbeck, Horae Phys. Berol.: 98, tab. 20, fig. 15 : Fr., 1823, Syst. Mycol. 2(2): 588. ≡ *Lophodermium orbiculare* (Ehrenb. : Fr.) Sacc., 1883, Syll. Fung. 2: 799.

L e c t o t y p e (designated here): «*Hysterium orbiculare* n. sp., Vnalaschka [scr. Ehrenberg]. Herb. Chamisso, n. XXX [scr. ?]», LE 170153! Locus classicus: Aleutian Islands, Unalaska, «in foliis Andromedae lycopodioidis aridis».

Naemaspora tularostoma Ehrenb., 1820, in Nees von Esenbeck, Horae Phys. Berol.: 87, tab. 18, fig. 7 : Fr., 1823, Syst. Mycol. 2(2): 548. ≡ *Phoma tularostoma* (Ehrenb. : Fr.) Fr., 1823, Syst. Mycol. 2(2): 548.

L e c t o t y p e (designated here): «*Naemaspora tularostoma* n. sp., Chili [scr. Ehrenberg]. Herb. Chamisso, n. XIV [scr. ?]», LE 136860! Locus classicus: Chili, Talcahuano, latitude 37° S fide Ehrenberg, «in Myrtorum vivis foliis, nec non Lardizabalarum».

There are two specimens of *N. tularostoma* in LE. One of them (LE 136861) bears on envelope only species name handwritten by Ehrenberg. Another one selected here as lectotype is accompanied by an original label cited above, and has a poorly discernible inscription «Lardizabala […] Chili» on a piece of paper in which four leaves of host plant are wrapped.

Sphaeria eschscholtzii Ehrenb. (as "*eschscholzii*"), 1820, in Nees von Esenbeck, Horae Phys. Berol.: 89, tab. 18, fig. 8 : Fr., 1823, Syst. Mycol. 2(2): 331. ≡ *Daldinia eschscholtzii* (Ehrenb. : Fr.) Rehm (as "*eschscholzii*"), 1904, Ann. Mycol. 2(2): 175.

L e c t o t y p e (designated here): «*Sphaeria Eschscholzii* n. sp., Ins[ula] Lusonia [scr. Ehrenberg]. Herb. Chamisso, n. XVI [scr. ?]», LE 119320! Locus classicus: Philippines, Luzon, latitude 14.5° N fide Ehrenberg, «certo in truncis terrae proxima, qua in infera superficie inquinata erat».

M. Stadler *et al*. (2014: 45) have selected the Ehrenberg's illustration of *S. eschscholtzii* (tab. XVIII, fig. VIII in Nees von Esenbeck, Horae Phys. Berol., 1820) as lectotype supposing that the corresponding specimen was no longer extant. The illustration depicts a stroma of a *Daldinia* with conspicuous depression on the top, which is obviously a defect of development. Exactly the same depression is still visible on the dissected stroma in LE 119320 (Plate II). This specimen matches the protologue in all respects and undoubtedly presents the original material of *S. eschscholtzii*, which should take precedence of illustration (Art. 9.19). The designation of lectotype by Stadler *et al.* (2014) is thus not in conformity with Art. 9.12 and must be rejected.

Sphaeria fur Ehrenb., 1820, in Nees von Esenbeck, Horae Phys. Berol.: 92, tab. 19, fig. 11 : Fr., 1823, Syst. Mycol. 2(2): 488. ≡ *Metasphaeria fur* (Ehrenb. : Fr.) Sacc., 1883, Syll. Fung. 2: 182.

L e c t o t y p e (designated here): «*Sphaeria fur* n. sp., Radack [scr. Ehrenberg]. Herb. Chamisso, n. XIX [scr. ?]», LE 34880! Locus classicus: Marshall Islands, Ratak Chain, «in cortice Pandani».

Sphaeria profuga Ehrenb., 1820, in Nees von Esenbeck, Horae Phys. Berol.: 92, tab. 19, fig. 10 : Fr., 1823, Syst. Mycol. 2(2): 431. ≡ *Metasphaeria profuga* (Ehrenb. : Fr.) Sacc., 1883, Syll. fung. 2: 182.

L e c t o t y p e (designated here): [icon] «*Sphaeria profuga*», in Nees von Esenbeck, Horae Phys. Berol.: tab. 19, fig. 10 (1820), specimen not extant. Locus classicus: Marshall Islands, Ratak Chain, «in cortice Pandani».

The type material of this name is most probably lost.

Triblidium arcticum Ehrenb. (as "*Tryblidium*"), 1820, in Nees von Esenbeck, Horae Phys. Berol.: 100, tab. 20, fig. 17 : Fr., 1822, Syst. Mycol. 2(1): 186. ≡ *Discocainia arctica* (Ehrenb. : Fr.) L. Holm, 1975, Svensk Bot. Tidskr. 69: 144.

L e c t o t y p e (designated here): [icon] «*Tryblidium arcticum*», in Nees von Esenbeck, Horae Phys. Berol.: tab. 20, fig. 17 (1820), specimen not extant. Locus classicus: St. Lawrence Island, «in caulibus Andromedae tetragonae».

The type material of this name is most probably lost.

For the following two names of fungi described by Ehrenberg from Chamisso's collection no type material was found in LE. For one of them there is a mentioning of the type deposited in Fries herbarium in UPS (see below); the type of another one name is probably also kept in UPS.

Campsotrichum unicolor Ehrenb., 1820, in Nees von Esenbeck, Horae Phys. Berol.: 84, tab. 17, fig. 2 : Fr., 1832, Syst. Mycol. 3: 351. ≡ *Myxotrichum unicolor* (Ehrenb. : Fr.) Fr., 1832, Syst. Mycol. 3: 351.

Neither G. F. Orr *et al*. (1963) nor S. J. Hughes (1968) in their treatments of *Myxotrichum* cited any original material of *Campsotrichum unicolor*. However, Fries (1832: 351) stated that he had seen some specimens of this species collected by Chamisso. It is possible that original material of this species still exists in Fries herbarium in UPS and should be searched there.

Thamnomyces chamissonis Ehrenb., 1820, in Nees von Esenbeck, Horae Phys. Berol.: 79, tab. 17, fig. 1 : Fr., 1832, Syst. Mycol. 3, index: 184.

According to R. W. G. Dennis (1958) part of the type collection from St. Catharina Island, Brazil, is deposited in Fries herbarium in UPS.

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Plate I. *Auricularia cornea* Ehrenb.

a — original envelope and label of LE 38980 (original material of *Auricularia cornea* from Oahu Isl. now not extant); *b* — reproduction of original drawing by Ehrenberg (1820) of the type of *A. cornea.*

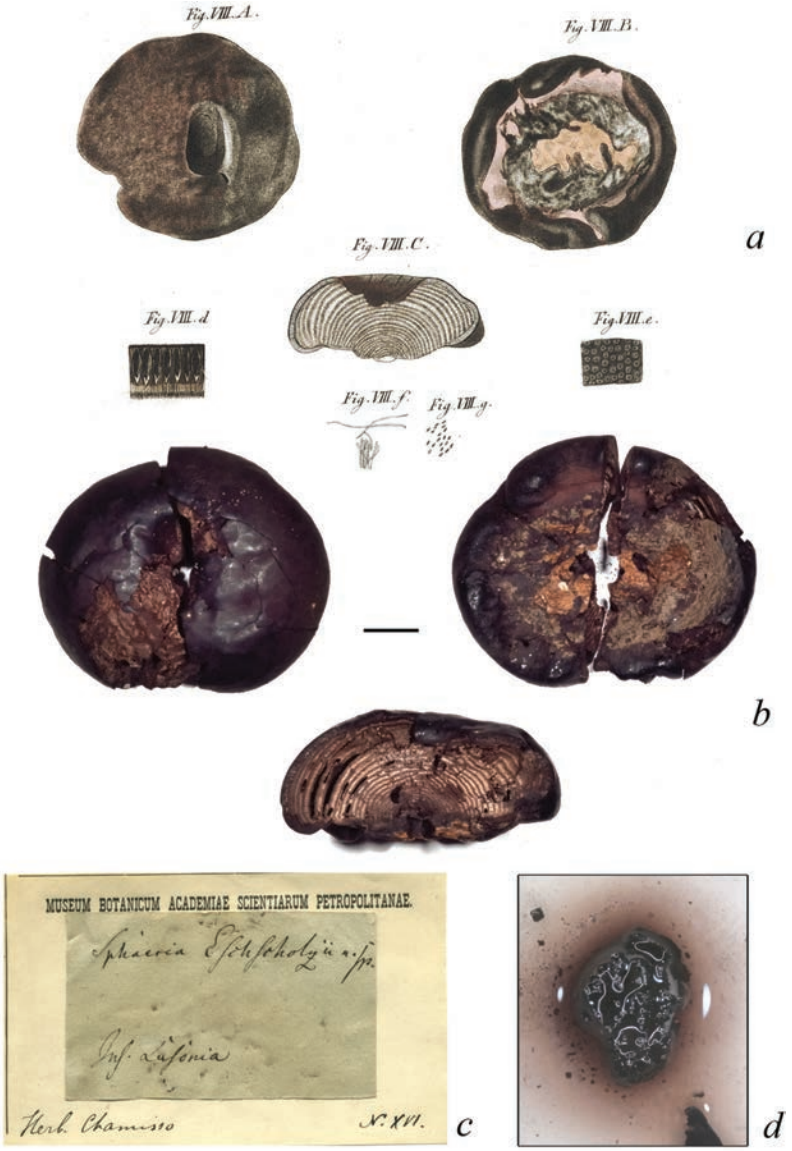

Plate II. *Sphaeria eschscholtzii* Ehrenb.

a — reproduction of original drawing by Ehrenberg (1820) of the type of *Sphaeria eschscholtzii*; *b* — lectotype of *S. eschscholtzii,* LE 119320 (scale bar: 1 cm); *c* — original label of LE 119320; *d* — purplish pigment typical of *Daldinia eschscholtzii* extracting from fragment of stroma in KOH.