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Hymenochaete carpatica Pilát collected in Switzerland

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Summary. *Hymenochaete carpatica* Pilát, originally described from Czechoslovakia and, until the present, collected only four times in that country, is redescribed on the basis of numerous and recent collections from Switzerland. Distinctive features are the inconspicuous, resupinate basidiomes, the long setae, the broadly elliptical spores and the habitat on bark of *Acer pseudoplatanus* L.

Zusammenfassung. *Hymenochaete carpatica* Pilát, ein bisher aus vier tschechoslowakischen Funden bekannter Basidiomycet, wird anhand zahlreicher Schweizer Funde neu beschrieben. Typische Merkmale dieser Art sind die resupinaten, sehr wenig auffallenden Basidiome, die langen Setae, die breit ellipsoidischen Sporen und das Vorkommen auf der Rinde von *Acer pseudoplatanus* L.

Résumé. *Hymenochaete carpatica* Pilát, originellement décrit de Tchécoslovaquie et récolté seulement à quatre reprises dans ce pays, est décrit à nouveau à partir de nombreuses récoltes récentes de Suisse. Les traits marquants de cette espèce sont un développement sous forme de petits basidiomes résupinés et peu apparents, les longues soies, les spores largement elliptiques et le fait qu'elle n'a été trouvée jusqu'ici que sur l'écorce d' *Acer pseudoplatanus* L.

Riassunto. *Hymenochaete carpatica* Pilát, un basidiomicete di cui si conoscevano finora quattro ritrovamenti in Cecoslovacchia, viene nuovamente descritto sulla base di numerosi esemplari raccolti recentemente in Svizzera. Questa specie si distingue per i basidiomi resupinati e poco appariscenti, le lunghe sete, le spore largamente ellittiche e per il fatto che finora sia stata raccolta esclusivamente sulla corteccia di *Acer pseudoplatanus* L.

DESCRIPTION

Basidiome resupinate and firmly adherent to the substratum, at first 1-2 mm broad and more or less rounded, then confluent and forming small patches of irregular form, usually 0.5-3 cm when growing on the external side of bark. On the internal side of bark the dimensions may be larger and can reach 3 x 10 cm. The colour varies much with the age and growing conditions from brown (7.5 YR 5/4 of the Munsell (1954) colour code = *brunneus* Fries) to reddish-brown (5 YR 4/4 = *spadiceus* Fries), dark reddish-grey (5 YR 4/2) or light yellowish-brown (10 YR 6/4). Young specimens have a continuous surface, but this splits with age and in dry conditions forming characteristically ramified cracks (Fig. 1A). Margin distinct and concolorous. The thickness of the basidiomes varies from 30-50 µm, i.e. a hymenial layer plus few tramal hyphae, to more typically 200-800 µm and rarely reaching 1000 µm (Fig. 2).

Hyphal system monomitic. Trama consisting of thin-walled, simple septate, yellowish-brown and vertically arranged hyphae, 1-3 µm in

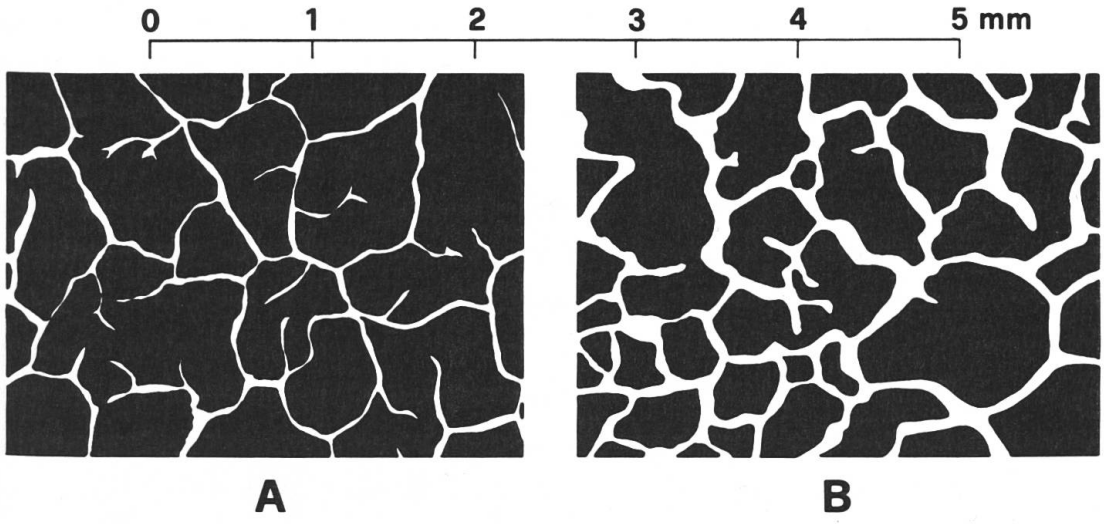

Fig. 1. Cracks of the hymenial surface of *Hymenochaete carpatica* [A, Baici No. 1952] compared with those of *Hymenochaete corrugata* [B, Baici No. 1376, U.S.A., New Hampshire, Plymouth, 23. VI. 1980, on angiosperm's wood, leg. et det. A. Baici, (ZT)].

diameter. Subhymenial hyphae interwoven. Numerous crystals are present in the trama and make the observation of the hyphae very difficult (Figs. 2, 3).

Setae present throughout the thickness of the basidiome (50)-60-90-(140) x 6-9 µm, straight, smooth, acutely pointed, rarely broken. The colour is reddish-brown (observed in lactophenol), with more yellowish-brown tips and discolouring dark brown in 5% KOH. The setae arise from thin-walled generative hyphae from which they are separated by a simple septum and are rarely bi-radicate (Fig. 3). Those generating in the vicinity of the hymenial layer project by (40)-50-60-(70) µm and are sometimes ensheathed by thin-walled, hyaline paraphysoid hyphae about 1 µm in diameter. The projecting part of some setae is covered by a gelatinous substance to which spores are glued. Small setae, e.g. 20 x 6 µm, are occasionally found (Fig. 3).

Basidia cylindrical-clavate or subclavate, 15-25 x 3-5 µm, bearing four sterigmata which are 4-5-(6) µm long (Fig. 4).

Spores broadly elliptical, thin-walled, hyaline, acyanophilous, neither amyloid nor dextrinoid, (5)-5.5-6.5-(7) x 3.0-3.5-(4) µm, with small apiculus (measured on spore print in 5% KOH, Fig. 4). Spore print white.

Cortex (= cuticle *sensu* Reeves & Welden, 1967) absent in the majority of specimens. However, in some sections a thin (15 µm) cortex is observed at the abhymenial surface of the basidiome, i.e. in direct contact with the substratum, which consists of a discontinuous layer of a few dark red-brown, thick-walled and very densely interwoven hyphae, 3-4 µm in diameter. The inconstancy of a cortex within a specimen and its absence in most of them suggest that this character does not possess taxonomic value for *Hymenochaete carpatica*.

Growth characteristics. Only one hymenial layer is present, even in the thicker specimens. This suggests that growth occurs by elongation of the tramal hyphae in the subhymenial layer and that the thickness of the basidiomes is proportional to their age. In the Swiss collections new basidiomes grew in close contact with old, dark-brown and apparently dead basidiomes, but not above them, thus explaining the lack of stratification. Specimens bearing fertile basidia have been collected in Switzerland throughout the year, even in winter at an altitude of 1400 m and at a temperature of -15 °C.

Habitat and distribution. Hitherto found only on the rhytidoma of *Acer pseudoplatanus* L. The original label of the type specimen (**PR M 686734**, ... *ad corticem Aceris platan.*) could suggest a growth on *Acer platanoides* L. However, after careful examination of the type, we can confirm that the substratum was *A. pseudoplatanus*. In the collections from Czechoslovakia described by Pilát the fungus grew on the external side of the rhytidoma in the form of small patches. It is for this reason that Pilát (1930, p. 124) wrote "Die Fruchtkörper von *Hymenochaete carpatica* Pilát sind so klein, so wenig deutlich und so neutral gefärbt, dass sie von dem Substrat fast nicht abweichen, so dass man sie leicht übersehen kann". Among the numerous Swiss collections only three specimens grew on the external side of the rhytidoma of *A. pseudoplatanus* and matched perfectly with the Pilát's original description (in these three collections the fungus was found

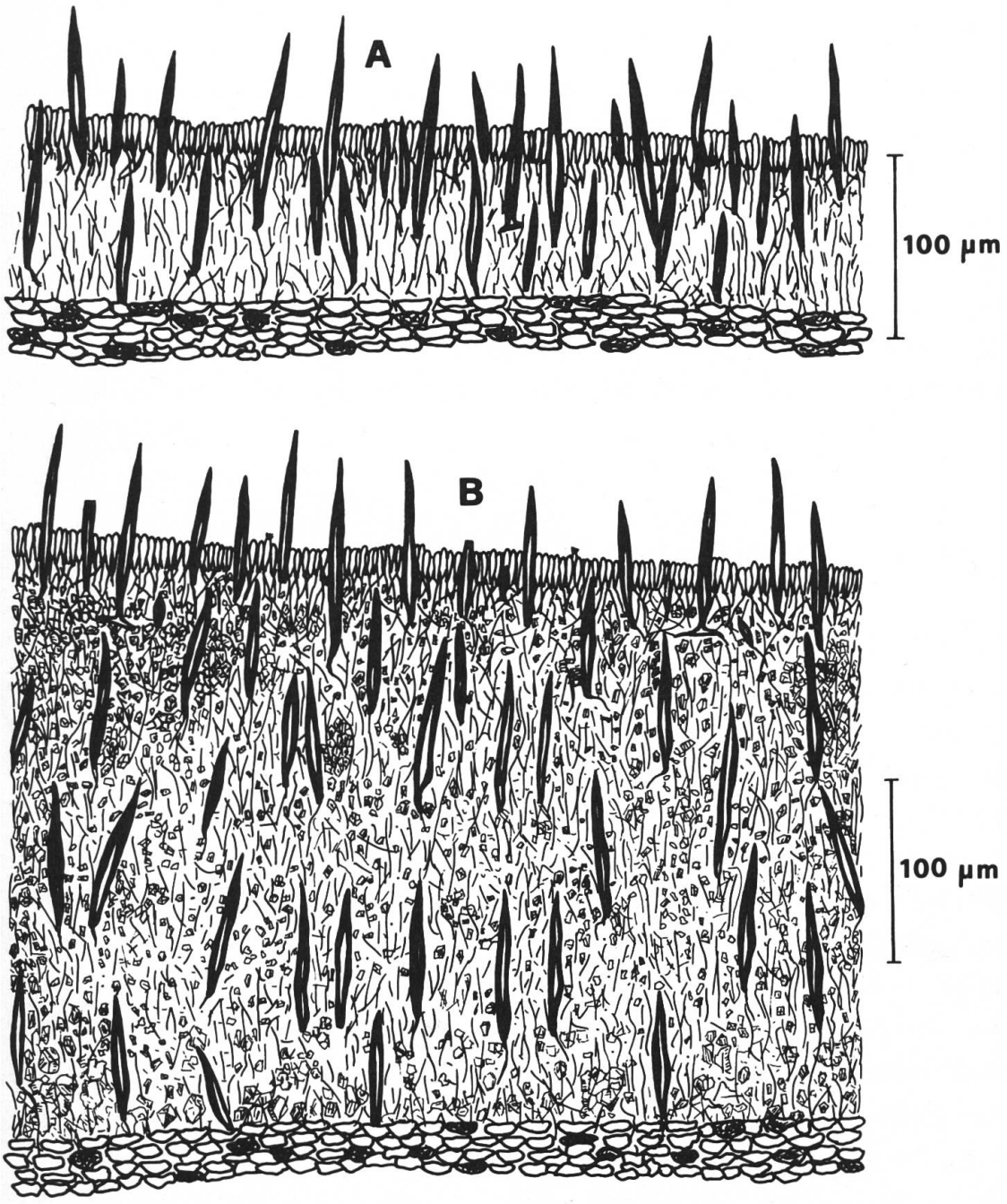

Fig. 2. Overview sections of basidiomes of *Hymenochaete carpatica*. A, Baici No. 1798; B, Baici No. 1954.

on both the internal and external side of the bark). However, the most typical mode of growth of the majority of the specimens collected in Switzerland was only on the internal side of bark scales detaching from old trees, where the fungus may reach bigger dimensions than those recorded in specimens growing on the external side. *Hymenochaete carpatica* is hitherto known from Czechoslovakia and Switzerland. In Switzerland the species is apparently common on *Acer pseudoplatanus* from the lowland to the mountains and collections were made up to 1700 m altitude. It was never found on young trees, but was quite common on old trees, in particular on those with abundant scales of detaching rhytidoma.

SPECIMENS EXAMINED

PR M 686734: Kleine Karpathen, Glasshütten, *ad corticem Aceris platan.*, IV-1925, leg. J. Hruby, det. A. Pilát [type, although the date reported on the herbarium label is IV-1925 instead of IV-1926 as published in Hedwigia by Pilát (1930) on p. 124 and 126; this is probably an error of transcription on the label]. **PR M 686736**: Primava, *Acer pseudoplatanus*, 1926, leg. A. Holitzer, det. A. Pilát. **PR M 686735**: *Ad corticem Aceris pseudoplatan.*, VIII-1926, leg. (illegible), det. A. Pilát. **PR M 616218**: Bohemia centralis, Branov prope Krivoklát, in valle "V luhu", *Acer pseudoplatanus*, 25-VI-1961, leg. et det. M. Svrček (this specimen is sterile and in poor condition and, as mentioned on a second label by F. Kotlaba and Z. Pouzar, of dubious classification).

The following collections, all on bark of *Acer pseudoplatanus* L., arise from Switzerland, leg. A. Baici. Numbers refer to the private Herbarium A. Baici. Duplicates of some collections are deposited under the same numbers in ZT and with the same numbers preceded by **B**(aici) in LY as indicated.

1798: Kanton Glarus, Braunwald, 30-VIII-1986 (ZT and LY). **1932**: Kanton Glarus, Braunwald, 8-III-1987 (on the same tree as 1798, LY). **1945, 1946, 1950 to 1956**: Kanton St. Gallen, Amden, 10-V-1987 (1950, 1952,

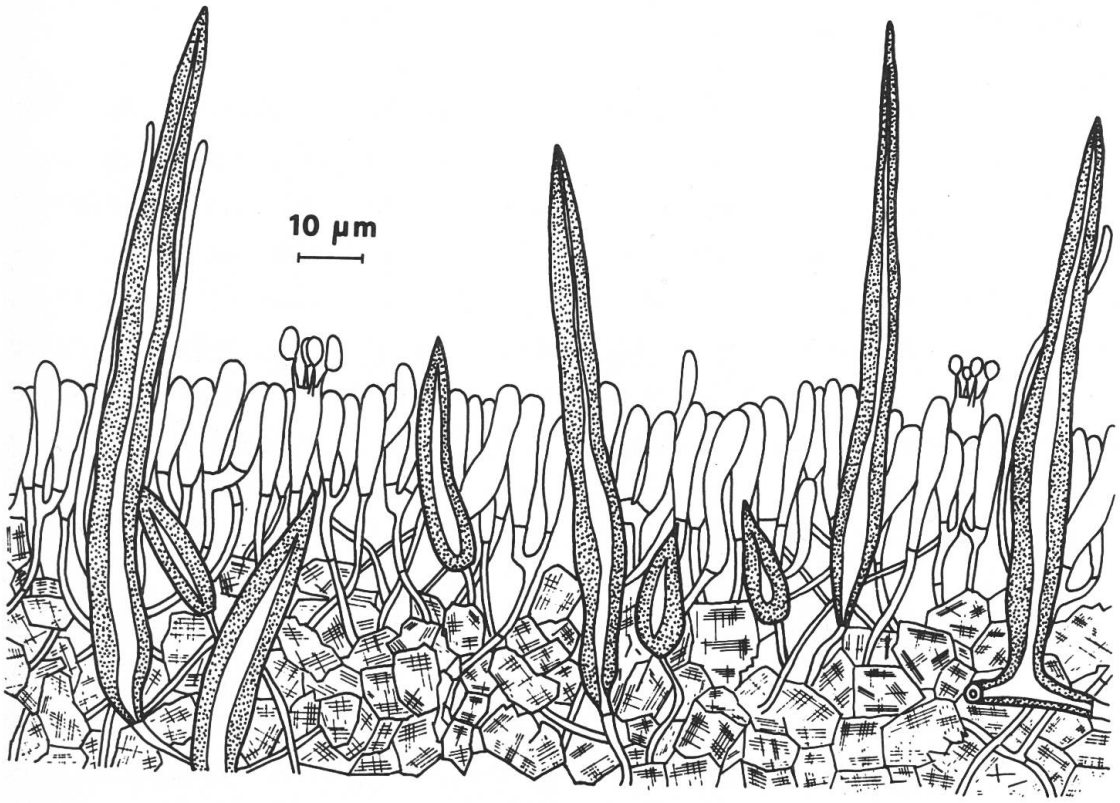

Fig. 3. Schematic view of the hymenial and subhymenial layers of *Hymenochaete carpatica*, Baici No. 1798.

1955 and 1956 in LY). **1957 to 1960**: Kanton Zürich, Zürich, Hohe Promenade, 14-V-1987. **1965**: Kanton Zürich, Zürich, General Guisan Quai, Arboretum, 30-V-1987. **1992, 1993, 1994**: Kanton Schwyz, Alpthal, between Brunni and Holzegg, 28-VI-1987 (1992 in LY, 1994 in ZT and LY). **2003 and 2004**: Kanton Glarus, Braunwald, 8-VIII-1987 (2003 in ZT, 2004 in ZT and LY). **2007**: Kanton Glarus, Braunwald, 28-VII-1987 (LY). **2099**: Kanton Fribourg, Gruyères, 16-VIII-1987.

DISCUSSION

Hymenochaete carpatica Pilát (1930) was described on the basis of a collection dated April 1926, which was at first confused with *Hymenochaete subfuliginosa* Bourd. & Galz. (Pilát, 1927). Pilát did not find spores in the type (PR M 686724) and in the other two collections examined by himself (PR M 686736 and 686735). However, a thorough examination of these three collections by one of us (J.C. L.) revealed the presence of a few spores measuring 5-6.5 x 3-4 µm (686734), 5.5-6 x 3-4 µm (686736) and 5-5.5 x 3-3.5 µm (686735). Besides the type, only three other collections were apparently known up to date (see the list of specimens examined).

It is not clear whether *H. carpatica* is poorly known because it is rare or possibly because this species was filed in herbaria under an incorrect name as a consequence of the lack of descriptions in the current literature. In fact, there is no other description available but that of the type and drawings of the microscopic characters were not shown. As already noted by Pilát (1930), *H. carpatica* is undoubtedly an inconspicuous species, with small and thin basidiomes and a colour which is hardly distinguishable from that of the substratum, so that it can easily be overlooked. The first Swiss collection was made by chance when examining under a lens fragments of bark of *Acer pseudoplatanus* L. lying on the ground. Subsequently, a purposely conducted systematic search on the same substratum led to numerous other collections.

Hymenochaete carpatica was hitherto found only on the sycamore maple (*Acer pseudoplatanus* L.). The fungus grows on the external side and, more typically, colonizes the internal side of the characteristic scales detaching from the bark of old trees. Since it was never found directly on the phloem, *H. carpatica* is unlikely to be a pathogenic agent of maples. It may be a much more common species than previously realized and probably follows the distribution of *Acer pseudoplatanus*. The habitat, the characteristically cracked surface and the small dimensions are good field characters. Macroscopically it may resemble *H. corrugata* (Fr.) Lév., but the surface crackings differ markedly,

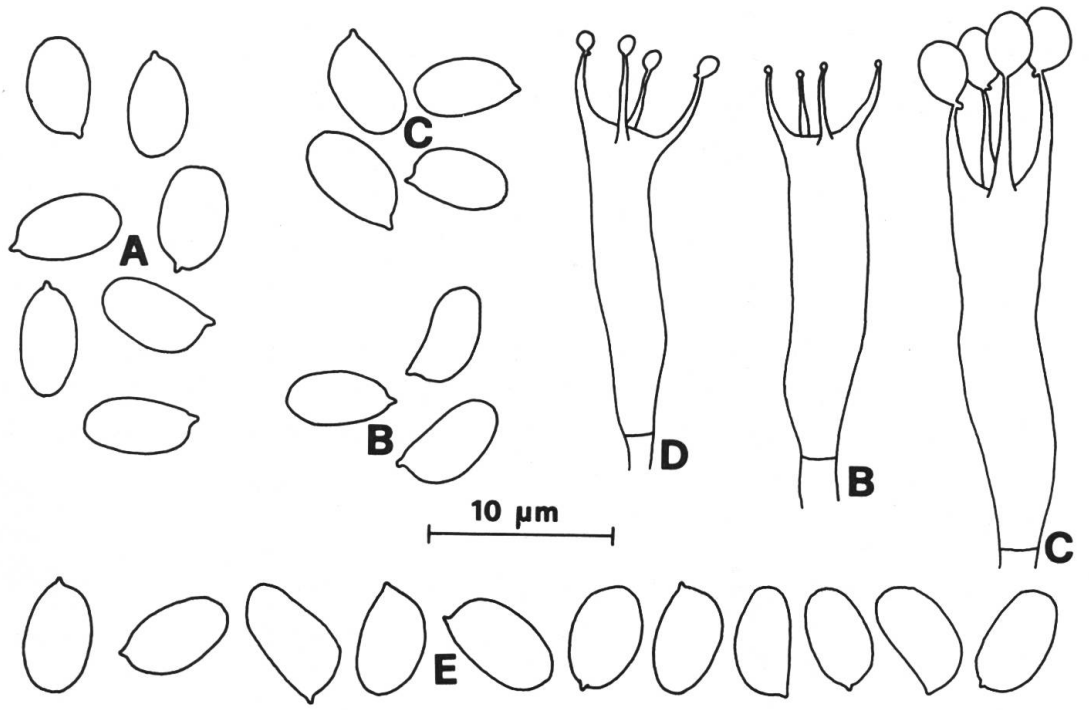

Fig. 4. Spores and basidia of *Hymenochaete carpatica*. A, Baici No. 1798; B, Baici No. 1932; C, Baici No. 1952; D, Baici No. 1954; E, Baici No. 1994 (from spore print).

being more pronounced and forming distinct areoles in the last species (compare Fig. 1A and 1B). Microscopically the long setae and the broadly elliptical spores clearly separate *H. carpatica* from *H. corrugata*, which has cylindrical spores measuring 3.5-4.5 x 1-1.5-(2.5) µm, and from other European species of *Hymenochaete*.

The genus *Hymenochaete* has been subdivided into three sections by Escobar (1978) and *H. carpatica* belongs to the section *Gymnochaete* which is defined for the basidiomes having the setigerous layer seated directly on the substratum. In this section the cortex can be present or absent. The section *Gymnochaete* includes more than forty species and is obviously the most difficult of the genus as expressed by Escobar himself who wrote "in this *confusio rerum* of the section

Gymnochaete". The closest species seems to be *H. corticolor* Berk. & Rav., reported from North America, West Indies, South America and New Zealand, whose setae are broader (10-15 µm) and spores narrower (2-2.5 µm). Moreover, *H. corticolor* is much more woody and can be resupinate, effuso-reflexed or umbonate-sessile [reference specimen examined: *Hymenochaete corticolor* Berk. & Rav. ex Herb. H.W. Ravenel. January 1891, on bark of Ulmus sp., No. 1553 (K), Type].

It is hoped that the present work will be an aid in recognizing *H. carpatica* and to collecting it in other countries so as to ascertain its geographical distribution. For this purpose the authors are willing to confirm all presumed collections of *H. carpatica* sent to them.

REFERENCES

Escobar, G.A. (1978): Contributions towards a monograph of the neotropical species of *Hymenochaete*. Ph.D. dissertation. University of Washington, 227 p.

Munsell Color Company (1954): Munsell soil color charts. Baltimore, U.S.A.

Pilát, A. (1927): Příspěvek ku poznání Aphyllophoracei západního Slovenska. (Ein Beitrag zur Kenntnis der Aphyllophoraceen der westlichen Slowakei). *Mykologia* 4: 72-74.

Pilát, A. (1930): Monographie der europäischen Stereaceen. *Hedwigia* 70: 10-132.

Reeves, F. Jr. & Welden, A.L. (1967): West Indian species of *Hymenochaete*. *Mycologia* 59: 1034-1049.