STERBEECKIA

36 (2020)

FRANS VAN STERBEECK
1630 – 1693

Koninklijke Vlaamse Mycologische Vereniging
v.z.w.

STERBEECKIA

ISSN 0562-0066

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Redactie	André De Kesel Haesaertsplaats 15 B-2850 Boom
Layout & design cover	Pascale Holemans
Zetel van de KVMV vzw.	Universiteitsplein 1 B-2610 Antwerpen
Website	www.kvmv.be
Ledenadministratie	Robert De Ceuster Kloosterbergstraat 34 B-3290 Diest
Illustraties cover	top: *Laboulbenia flagellata* from *Limodromus assimilis* (ADK6362). middle: *Hesperomyces virescens* on *Harmonia axyridis* (Meise, 2014). bottom: *Laboulbenia collae* on elytra of *Paranchus albipes* (ADK6354).

Sterbeeckia 36 : 3-143 (2020)

CATALOGUE OF THE LABOULBENIOMYCETES OF BELGIUM

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Summary

In this catalogue we summarize all species of Herpomycetales and Laboulbeniales currently reported from Belgium. A total of 115 taxa, belonging to 38 genera, are reported from 222 host species. Most hosts belong to the Coleoptera, in particular to the Carabidae and Staphylinidae. No less than 99 of 400 species of Carabidae known to occur in Belgium carry Laboulbeniales (25%). Methods for collecting hosts and mounting Laboulbeniomycetes are briefly discussed. Next to an identification key and a glossary, illustrations are provided for all species. Basic collecting data are presented for all records, as well as an excerpta of the literature referring to Laboulbeniomycetes from Belgium. Brief notes are added to explain the status of some records/species. A list of all hosts with Laboulbeniomycetes is given to better illustrate mixed infections. Host specificity and host range of the fungi can be deduced from the list of fungi. The catalogue of Laboulbeniomycetes from Belgium is far from complete because for many years the Carabidae have been the main target for screening. Based on data from our neighboring countries, a non-exhaustive list of new potential hosts, still to be studied in Belgium, is given for future research. We estimate that screening these host taxa could possibly deliver 40 more species, belonging to 18 genera thus far unknown in Belgium.

Samenvatting

Deze catalogus geeft een overzicht van alle soorten Herpomycetales en Laboulbeniales tot dusver aangetroffen in België. In totaal worden 115 taxa, afkomstig van 38 genera, gemeld op 222 gastheersoorten. Het merendeel van de gastheren zijn kevers (Coleoptera), in het bijzonder loopkevers (Carabidae) en kortschildkevers (Staphylinidae). In België zijn tot nu toe Laboulbeniales aangetroffen op 99 (25%) van de ca. 400 gekende loopkeversoorten. Technieken voor het verzamelen van gastheren en het maken van preparaten van Laboulbeniales worden kort behandeld. Een determinatiesleutel, glossarium en illustraties worden geleverd voor alle soorten. Voor elke soort worden basisgegevens van de specimens en literatuurvermeldingen geleverd. Om de status van soorten toe te lichten werd, indien nodig, een korte nota toegevoegd. Om inzicht te verschaffen in de gastheerspecificiteit werd een lijst van fungi en alle geassocieerde gastheren geleverd. Om inzicht betreffende specificiteit, en vooral gemengde infecties, te verschaffen werd een lijst geleverd van alle gastheren met geassocieerde Laboulbeniomycetes. Indien de identiteit van de gastheer goed gekend is, kan deze laatste lijst de identificatie van de fungus vergemakkelijken. De catalogus met Laboulbeniomycetes van België is ver van volledig omdat bepaalde gastheergroepen nog te weinig bestudeerd werden. Op basis van gegevens uit de buurlanden geven we een niet-limitatieve lijst van gastheergroepen die in België nog bestudeerd zouden moeten worden. Dit werk zou het gekend aantal Laboulbeniales in ons land vermoedelijk nog doen toenemen met 40 soorten uit een 18-tal genera.

1. Introduction

The Laboulbeniomycetes class comprises fungi that are obligately associated with arthropods. Three orders are recognized, i.e. Herpomycetales, Laboulbeniales and Pyxidiophorales. In this contribution we will not treat the Pyxidiophorales. This order is composed of fungi that are mycoparasites, i.e. feeding from sporocarp tissues of other fungi, such as species of *Ascobolus*, *Asterophora*, *Fusarium*, *Inonotus*, and *Lasiobolus*. Ascospores of Pyxidiophorales develop an asexual *Thaxteriola* state (Blackwell & Malloch 1989) that produces yeast-like phialoconidia. These conidia are transported to new ephemeral substrates through phoresy (mites). Germination on a new substrate is by germ tube to form a mycelium that may produce conidia and eventually perithecia.

In this contribution we treat the Herpomycetales and Laboulbeniales, both composed of obligate microscopic ectoparasites of arthropods. About 2,200 species in 142 genera are known in the order Laboulbeniales, whereas only a single genus with 27 accepted species is described in the Herpomycetales (Reboleira *et al.* 2018, Haelewaters *et al.* 2019b, Gutierrez *et al.* 2020). These two orders never form mycelia. Instead, the single-septate ascospores divide mitotically to form fruiting bodies (thalli) of 100s to 1,000s of cells by determinate growth. At maturity thalli develop reproductive structures, antheridia producing spermatia and perithecia producing ascospores. Reproductive structures can either be on the same thallus (in monoecious taxa) or on separate thalli (dioecious taxa).

Most Laboulbeniales are host specific, to genus or even species level (Thaxter 1896; De Kesel 1996a). A single

species can occur on unrelated hosts when they co-occur in the same microhabitat – subterranean caves (Reboleira *et al.* 2017), ant nests (Pfliegler *et al.* 2016), and wet decomposing logs (Seeman & Nahrung 2000). Some authors have described species that have distinct morphologies and are restricted to a particular position on the host integument (= position specificity; Benjamin & Shanor 1952; Goldmann & Weir 2012), whereas others have considered these forms as morphotypes of the same biological species (= polymorphic species; Rossi & Kotrba 2004; Santamaría & Faille 2009). Only molecular phylogenetic data can provide answers to issues related with morphological variability and host specificity in Laboulbeniales, but this was long hindered by technical issues (Weir & Blackwell 2001; Haelewaters *et al.* 2015; Sundberg *et al.* 2018). Indeed, based on DNA characters, Goldmann *et al.* (2013) found two dimorphic species of *Hesperomyces* on *Coleomegilla maculata* ladybirds, Haelewaters *et al.* (2018, 2019a) found evidence for *Hesperomyces virescens* and *Laboulbenia flagellata* being complexes of multiple species, and Haelewaters & Pfister (2019) described multiple morphotypes of *Gloeandromyces pageanus* and *G. streblae*.

The host spectrum of Herpomycetales is restricted to cockroaches (Blattodea). Laboulbeniales have hosts in three subphyla of Arthropoda: Chelicerata, Myriapoda, and Hexapoda, but the majority of described taxa occur on beetles (Weir & Hammond 1997). As mentioned before, most thallus-forming Laboulbeniomycetes are considerably host specific. This is illustrated by parasite–host lists that have been published over the years (Scheloske 1969; Tavares 1979; Huldén 1983; Santamaría *et al.* 1991; De Kesel & Rammeloo 1992; Majewski 1994, 2003). The first *Checklist of the Laboulbeniales of Belgium* was published by De Kesel & Rammeloo (1992) and presented 48 species (1 *Herpomyces*, 47 Laboulbeniales). Prior work is scanty, with contributions by Collart (1945, 1947) and Rammeloo (1986). The thallus-forming Laboulbeniales of Belgium have not been summarized since 1992 – when no material from Dermaptera, Diptera, Hymenoptera, and (semi-)aquatic Coleoptera was studied yet. However, many subsequent publications by De Kesel and colleagues (from 1989 onwards; De Kesel 1989) have added extensive information about Belgian species, their host associations and natural history.

Over the years, 9 species of Laboulbeniales have been described based on type material from Belgium. These are: *Cryptandromyces euplecti* from *Euplectus sanguineus* (Coleoptera, Staphylinidae), *Diphymyces kaaistoepi* from *Choleva cisteloides* (Coleoptera, Leiodidae), *Laboulbenia elaphri* from *Elaphrus cupreus* (Coleoptera, Carabidae), *L. hyalopoda* from *Paradromius linearis* (Coleoptera, Carabidae), *L. littoralis* from *Cafius xantholoma* (Coleoptera, Staphylinidae), *Peyritschiella heinemanniana* from *Xantholinus longiventris* (Coleoptera, Staphylinidae), *Phaulomyces simplocariae* from *Simplocaria semistriata* (Coleoptera, Byrrhidae), *Rickia laboulbenioides* from *Cylindroiulus latestriatus* (Julida, Julidae) and *Troglomyces triandrus* from *Archiboreoiulus pallidus* (Julida, Blaniulidae) (De Kesel 1994, 1998, 1999; De Kesel & Haelewaters 2014, 2019; De Kesel *et al.* 2013, Enghoff & Santamaria 2015, Spegazzini 1915).

Here we summarize all species of Herpomycetales and Laboulbeniales currently reported from Belgium, with their hosts, basic collecting data and complete literature. All species are illustrated and identification keys are provided. When necessary, brief notes are added to discuss the status of the presented records. A few species are presented as sensu lato (s.l.), because they are complexes of multiple species based on molecular data (*Hesperomyces virescens*, *Laboulbenia flagellata*; see Haelewaters *et al.* 2018, 2019a). We hope that this checklist will serve as a reference for mycologists, students and scholars studying the Laboulbeniomycetes fungi.

2. Materials & methods

Collecting, storing and identifying hosts

Almost all infected hosts were collected using various techniques, i.e. hand collected, with pitfall traps or a mouth aspirator. Technical information about insect collecting techniques can be found in Muilwijk *et al.* (2015). This book was also used to identify the Carabidae. Identifications of non-carabid hosts were confirmed by specialist entomologists (see acknowledgements).

Insects are kept in labeled vials with ethanol (> 90%). Labels carry a unique collection number and mention locality, date, habitat and collector. Other data concerning a given collection, i.e. host identity, gender, infection site, parasite identity, number of slides made, specific observations, etc., are kept in a notebook and/or database.

Detecting infections

Hosts were carefully screened for Laboulbeniales using a stereo microscope at 20-45x. Screening works best when the host is submersed in ethanol or water. Screening dried collections is less efficient as small species of Laboulbeniales are less conspicuous and can be easily overlooked.

Preparing permanent slides

Since Laboulbeniomycetes are very small (on average between 0.1 and 1mm), mounting slides is best done with a stereo microscope. The Belgian collections were prepared as follows. For thallus removal, infected hosts are transferred to a small, shallow and concave vial with water. The host is blocked with fine tweezers and the thalli are removed by pushing the tip of an insect pin (Sphinx stainless steel nr. 000) against the foot (fig. 1 & 2). Loose thalli will sink to the bottom of the vial. A microscope slide is then prepared by placing a very tiny droplet (<1mm diam.) of Hoyer's medium in the centre. With some Hoyer on a needle tip (nr. 000), the thalli are picked out of the water and transferred to the Hoyer on the slide. Since Hoyer's medium dries quickly, the

transferred thalli should be positioned without delay. The slide is then closed by gently placing a cover slip – that carries a droplet of Amann's medium in the middle – upside down on the microscope slide. The Amann drop of the cover slip should exactly cover the Hoyer's droplet with the thalli. Trapped air bubbles can be removed by briefly flame-heating the slide from below. This will also help the medium to invade the thalli and reduce the number of collapsed cells. To avoid excessive pressure between slide and cover slip, slides may need some extra Amann before sealing with nail polish.

Some thalli are so small and hyaline that transferring them becomes very difficult without loosing most of them (e.g., *Troglomyces*). In such cases, we first place the infected host in hot water (80-90°C) with cotton blue. The dye colors the thalli, making it easier to detect them and transfer them to a slide.

Finished slides, and corresponding host specimens, should be properly labeled and stored in a dark place. Variations of this mounting method and formulas to prepare Amann and Hoyer's medium can be found in Benjamin (1971), Huldén (1983), Majewski (1994), Santamaría (1998) and Rossi & Santamaría (2015).

All slides mentioned in this catalogue are deposited at Meise Botanic Garden (Belgium) unless otherwise noted.

Presentation of the data

In section 11 "Species list, chorological data and taxonomical notes", Laboulbeniomycetes and hosts are sorted alphabetically. Laboulbeniomycetes are numbered throughout (species number, 1-115), authority and protologue reference are given, as well as the corresponding plate(s). All plates are placed at the end of the catalogue. Available material (slides) is sorted by host species, by province or region (underlined) and then by locality. Names of provinces and localities are given, as much as possible, in the language of the region. Names of localities from Brussels-Capital region are in Dutch or in French. For each slide collecting date, legit, collection and all available literature references are given. For some species, taxonomic notes are provided. Unless otherwise stated, most hosts were identified to species level.

Names of hosts correspond with the Belgian Species List (2020) and names of Laboulbeniales correspond (mostly) with Index Fungorum (2020).

In section 12 "Hosts with Laboulbeniomycetes in Belgium", host taxa are given alphabetically starting at the highest taxonomical category. For each host species, the names of the associated Laboulbeniomycetes are given, followed by their species number (1-115).

Illustrations

A total of 375 separate drawings, representing 115 species, are given in 84 plates. All illustrations, except the ones from *Troglomyces triandrus* (from Denmark), are based on material found in Belgium. Thalli were drawn by Omer Van de Kerckhove (274) or by the first author (101). Drawings were made with a drawing tube connected to a research microscope (Wild M12, M20 or Olympus BX51). Shapes, pigmentations and gradients were reproduced by tracing or stipplings, using black markers of suitable thickness (Rötring or Staedler). Plates representing several thalli were either drawn directly or assembled digitally. In some cases, we included black and white micrographs (*Rickia laboulbenioides*). Measurements and scaling of drawings were checked using either a micrometer slide or an Olympus Colorview digital camera with imaging and measuring software (analySIS®).

3. Results and discussion

Laboulbeniomycetes	species	Host groups
Herpomycetales		
Herpomyces	3	Blattodea, Ectobiidae & Blattidae
Laboulbeniales		
Aphanandromyces audisioi	1	Coleoptera, Kateretidae
Asaphomyces tubanticus	1	Coleoptera, Leiodidae
Botryandromyces heteroceri	1	Coleoptera, Heteroceridae
Cantharomyces	5	Coleoptera, Staphylinidae & Dryopidae
Chitonomyces	4	Coleoptera, Dytiscidae & Haliplidae
Compsomyces lestevae	1	Coleoptera, Staphylinidae
Coreomyces arcuatus	1	Hemiptera, Corixidae
Corethromyces	2	Coleoptera, Staphylinidae & Leiodidae
Cryptandromyces	3	Coleoptera, Pselaphidae & Staphylinidae
Dimorphomyces myrmedoniae	1	Coleoptera, Staphylinidae
Diphymyces kaaistoepi	1	Coleoptera, Leiodidae
Distolomyces forficulae	1	Dermaptera, Forficulidae
Ecteinomyces trichopterophilus	1	Coleoptera, Ptiliidae
Eucantharomyces stammeri	1	Coleoptera, Carabidae
Euzodiomyces lathrobii	1	Coleoptera, Carabidae & Staphylinidae
Helodiomyces elegans	1	Coleoptera, Dryopidae
Hesperomyces	2	Coleoptera, Coccinellidae
Hydraeomyces halipli	1	Coleoptera, Haliplidae
Hydrophilomyces	2	Coleoptera, Hydrophilidae
Idiomyces peyritschii	1	Coleoptera, Staphylinidae
Kainomyces rehmanii	1	Coleoptera, Ptiliidae
Laboulbenia	36	Coleoptera, Carabidae & Staphylinidae & Gyrinidae
Misgomyces dyschirii	1	Coleoptera, Carabidae
Monoicomyces	8	Coleoptera, Staphylinidae
Peyritschiella	5	Coleoptera, Staphylinidae
Phaulomyces simplocariae	1	Coleoptera, Byrrhidae
Rhachomyces	7	Coleoptera, Carabidae & Staphylinidae
Rhadinomyces cristatus	1	Coleoptera, Staphylinidae
Rhynchophoromyces anacaenae	1	Coleoptera, Hydrophilidae
Rickia	5	Coleoptera, Staphylinidae; Julida, Blaniulidae; Hymenoptera, Formicidae
Siemaszkoa ptenidii	1	Coleoptera, Ptiliidae
Stichomyces conosomatis	1	Coleoptera, Staphylinidae
Stigmatomyces	6	Diptera, Sphaeroceridae & Drosophilidae
Symplectromyces vulgaris	1	Coleoptera, Staphylinidae
Teratomyces	2	Coleoptera, Staphylinidae
Troglomyces	2	Julida, Blaniulidae
Zodiomyces vorticellarius	1	Coleoptera, Hydrophilidae
Total species	**115**	

Table 1. Genera of Laboulbeniomycetes in Belgium, with number of species and host groups.

To date, 115 species of Laboulbeniomycetes, belonging to 38 genera, have been recorded on 222 different host species from Belgium (Table 1, Section 11 & 12). The most species-diverse genera, in decreasing order, are *Laboulbenia*, *Monoicomyces*, *Rhachomyces*, *Cantharomyces*, *Peyritschiella, Rickia* and *Stigmatomyces* (Table 1). With the exception of the latter two genera, most of the species-rich genera are found on Coleoptera, especially Carabidae and Staphylinidae. The number of species of Carabidae in Belgium is ca. 400 (Belgian Species List 2020), of which thus far 99 species (25%) are found infected with Laboulbeniales (Section 12). Carabidae are host to few genera of Laboulbeniales (5 genera), but they have many species (35 species), especially in the genus *Laboulbenia* (28 species). Around 1000 species of Staphylinidae are found in Belgium (Belgian Species List 2020), of which 65 carry Laboulbeniales. Staphylinidae host 14 genera of Laboulbeniales, the most species-rich being *Monoicomyces* and *Peyritschiella*. The genus *Rickia* is found on very different host groups, including beetles, ants and also millipedes. Many genera of Laboulbeniomycetes are represented by a single species and are usually restricted to specific hosts. All observations are more or less in line with observations made elsewhere in Europe (Scheloske 1969; Huldén 1983; Santamaría *et al.* 1991; Majewski 1994; Santamaría 1998, 2003).

The Laboulbeniomycete distribution and diversity in Belgium is still far from being known. There are two main reasons for this:
1. Different potential host groups still need to be screened in Belgium. Especially Acarina (with *Rickia*), Diplopoda (with *Troglomyces*, *Diplopodomyces*), Corixidae (with *Coreomyces*), Hebridae (with *Tavaresiella* and *Triceromyces*), Mallophaga (with *Trenomyces*), Diptera (with *Stigmatomyces*) and Coleoptera fall in this category. In the Coleoptera, special attention should go to aquatic and semi-aquatic hosts such as Dytiscidae (with *Chitonomyces*), Hydraenidae (with *Autoicomyces*, *Thripomyces*, *Hydrophilomyces*) and Hydrophilidae (with *Eusynaptomyces*, *Chaetarthriomyces*). Other genera, so far not recorded for Belgium, can also be expected on beetles from the Anthicidae (with *Dioicomyces*), Ptiliidae (with *Siemaszkoa*), Silvanidae (with *Cucujomyces*), Staphylinidae (with *Diplomyces*, *Dipodomyces*, *Sphaleromyces*, *Amorphomyces*, *Mimeomyces*, *Haplomyces*) and Tenebrionidae (with *Dimeromyces*). Even more potential host groups exist, but thorough screening of the above-mentioned host taxa is expected to increase the number of laboulbeniaceous genera in Belgium with 18 and the number of species with 40 or more. An efficient way to obtain these specific host taxa is by screening identified material, either preserved in musea or private collections (e.g., Santamaría *et al.* 2016; Haelewaters & Rossi 2017; Kaishian *et al.* 2020). However, to date, such systematic screening efforts have not yet been undertaken in Belgium.

2. Biodiversity measurements also depend on changing species concepts and/or new insights obtained from the use of new methods (molecular analysis). In this context we think that taxa of Laboulbeniales with a very large host range should be sampled and studied in more detail, i.e. using an integrative or polyphasic taxonomic approach. While making the identification keys and illustrations for this contribution we observed that some so-called 'morphologically similar' species have been erroneously placed in synonymy. An example is *L. metableti*, a species from *Syntomus sp.* (Carabidae), which was formerly considered a synonym of *L. notiophili*. Based on its striking and unique morphology (inner appendage) we here reinstate it as a separate species. As a rule, and in order to confirm or reject conspecificity, any species with a particularly broad host range should be sequenced using material obtained from different host species. Preliminary molecular phylogenetic work suggests that the host-eurytopic taxon *Laboulbenia flagellata* represents a complex of species (Haelewaters *et al.* 2019a). Also other taxa with broad host ranges, such as *L. pedicellata* and *L. vulgaris*, may turn out to be complexes of multiple species. Ultimately it is the combination of careful morphological examination, molecular analysis and ecology (host associations) that will determine how many laboulbeniaceous taxa are present on the territory.

To mitigate the taxonomic impediment, this catalogue includes a glossary and identification key in both English (sections 5, 6, 7) and Dutch (sections 8, 9, 10). In spite of being incomplete, this catalogue serves as a basis for further research on diversity, distribution and host range of Laboulbeniomycetes in Belgium.

4. Acknowledgements

We thank Albert Collart and Jan Rammeloo for providing their slide collections of Belgian Laboulbeniales. We have collected a lot of hosts ourselves, but we are very grateful to all those who provided us with infected material or allowed us to screen their collections for Laboulbeniomycetes: Wim Baert (Blattodea), Johan Bogaert (Coccinellidae), André Braeckman (Carabidae), Luc De Bruyn (Diptera), Kris Decleer (Carabidae), Shanice De Weggheleire (*Notiophilus*), Wouter Dekoninck (Formicidae), Patrice Deramaix (Coccinellidae), Konjev Desender (Carabidae), Didier Drugmand (Staphylinidae), Marc Dufrène (Carabidae), Henrik Enghoff (*Archiboreoiulus*), Guy Haeghebaert (Staphylinidae), Frederik Hanssens (Sphaeroceridae), Ivan Hoste (Kateretidae), Sophie Janssens (Carabidae), Ilse Kranen (Carabidae), Dieter Slos (Carabidae), Piet Stoffelen (Coccinellidae), Tom van den Neucker (Carabidae), Marck Van Kerckvoorde (Staphylinidae), Thierry Vercauteren, Tom Werbrouck (aquatic Coleoptera and Hemiptera).
D. Haelewaters acknowledges a SYNTHESYS+ grant (no. BE-TAF-151, Horizon 2020 Research Infrastructures Programme of the EC). Sergi Santamaría (Universitat Autònoma de Barcelona) is acknowledged for remarks on an early version of the species list (section 11).
The authors wish to thank Omer Van de Kerckhove for inking 75% of the drawings presented in this catalogue.

5. Glossary

In order to avoid confusion in abbreviations and terminology, this glossary largely follows Tavares (1985) and Santamaría (1998). The glossary covers most of the terms used in this work. Fig. 1 and 2 present the different structures on a thallus of *Laboulbenia*.

Anterior: ventral.

Accesory cell: a cell growing on the outer wall cells of the perithecium, in *Hydrophilomyces.*

Antheridium (an): male reproductive structure that produces spermatia.

Apical: at the top.

Appendages: any branch-like structure on the thallus.

Basal cell (bc): a cell at the base of a structure (appendage, perithecium, receptacle).

Basal cell of inner appendage (bc ia): (also andropodium) refers to the lowest cell of the appendage that is situated between the perithecium and outer appendage of a *Laboulbenia* thallus.

Basal cell of outer appendage (bc oa): (also paraphysopodium) refers to the lowest cell of the appendage that is situated at the dorsal margin a *Laboulbenia* thallus.

Basal cell of the receptacle: cell I, connects to the host with the foot (fo).

Basal cell of the perithecium: includes cells m, n and n'. They will form the vertical tiers of wall cells of the perithecium and are supported by cells VI and VII.

Compound antheridium (c.an): structure that groups a series of antheridia. Spermatia are released in a common chamber with one exit.

Corner cells (cc): relatively small cells formed in apical corners of cells. Some produce short branches with antheridia.

Dorsal: the opposite side of the perithecium, also called posterior.

Efferent neck: part of a compound antheridium through which spermatia are released to the outside.

Foot (fo): darkened basal part of cell I.

Growth forms: used to indicate different morphologies in one phylogenetic species. Growth forms are the result of differential growing conditions affecting thallus development. Main factors are host and position on the host.

Hyaline: translucent, used for cells without any dark pigmentation.

Ibidem: (ibid.) in the same place as the previous (from Latin).

Inner appendage (ia): ventral (anterior) part of the primary appendage of *Laboulbenia*, situated between perithecium and outer appendage. It forms antheridia.

Insertion cell (ic): (psallium) basal cell of the primary appendage in Laboulbenia. It is usually flattened and dark.

Intercalary antheridia: a cell from a branch produces spermatia that are released through a distinct lateral neck. These intercalary antheridia can occur in series (consecutively).

Lobes: conspicuous outgrowths of some length, most often at or near the perithecium tip (*Hesperomyces*, *Distolomyces*).

Outer appendage (oa): dorsal (posterior) part of the primary appendage of *Laboulbenia*, usually without antheridia (coloured in grey in the left thallus shown in fig. 2).

Ostiolum (os): see perithecium.

Receptacle: core of the thallus from which appendages, antheridia and perithecia develop.

Perithecium (per): female reproduction structure, which produces two-celled ascospores which leave the perithecium through a somital pore (ostiolum). The base is usually inflated, towards the apex gradually narrowing into a so-called neck.

Phialide: simple antheridium or one-celled antheridium, often flask-shaped, with venter and tapering into a pointed neck with minute pore.

Posterior = dorsal.

Primary appendage (pa): derived from the smaller cell of the ascospore and resting on the primary septum.

Primary axis: early thallus axis formed by cells I, II and III.

Primary septum: the septum of the ascospore, often still detectable in maturing thalli. It separates the primary appendage from the rest of the thallus.

Primary receptacle: is formed by cell I, II and III. The axis formed by these cells is called the primary axis.

Secondary appendage: a branch derived from the primary receptacle (larger cell ascospore) and not derived from the primary appendage (smaller cell ascospore).

Septum: structure that separates cells. "Septum IV-V" designates the septum between cell IV and cell V.

Stalk cell of the perithecium: cell VI.

Suprabasal cell: any cell situated above the basal cell of a structure.

Thallus: designates the body of Laboulbeniomycetes, formed by a determinate number of cell divisions of a two-celled ascospore.

Trichogyne (tr): a septate branch of variable shape, often observed at the apex of the young perithecium and meant to collect spermatia. As the perithecium develops its base often remains as a small scar in the upper third of the perithecial wall.

Venter: broadened part of a structure, mostly used for the swollen part of the perithecium that contains asci and ascospores.

Ventral: the side where the perithecium is born, also called anterior.

Wall cells: refers to the cells that compose the outer wall of the perithecium. The wall cells are organized in four vertical rows. Depending on the taxon, each vertical row has a specific number of cells with a specific height.

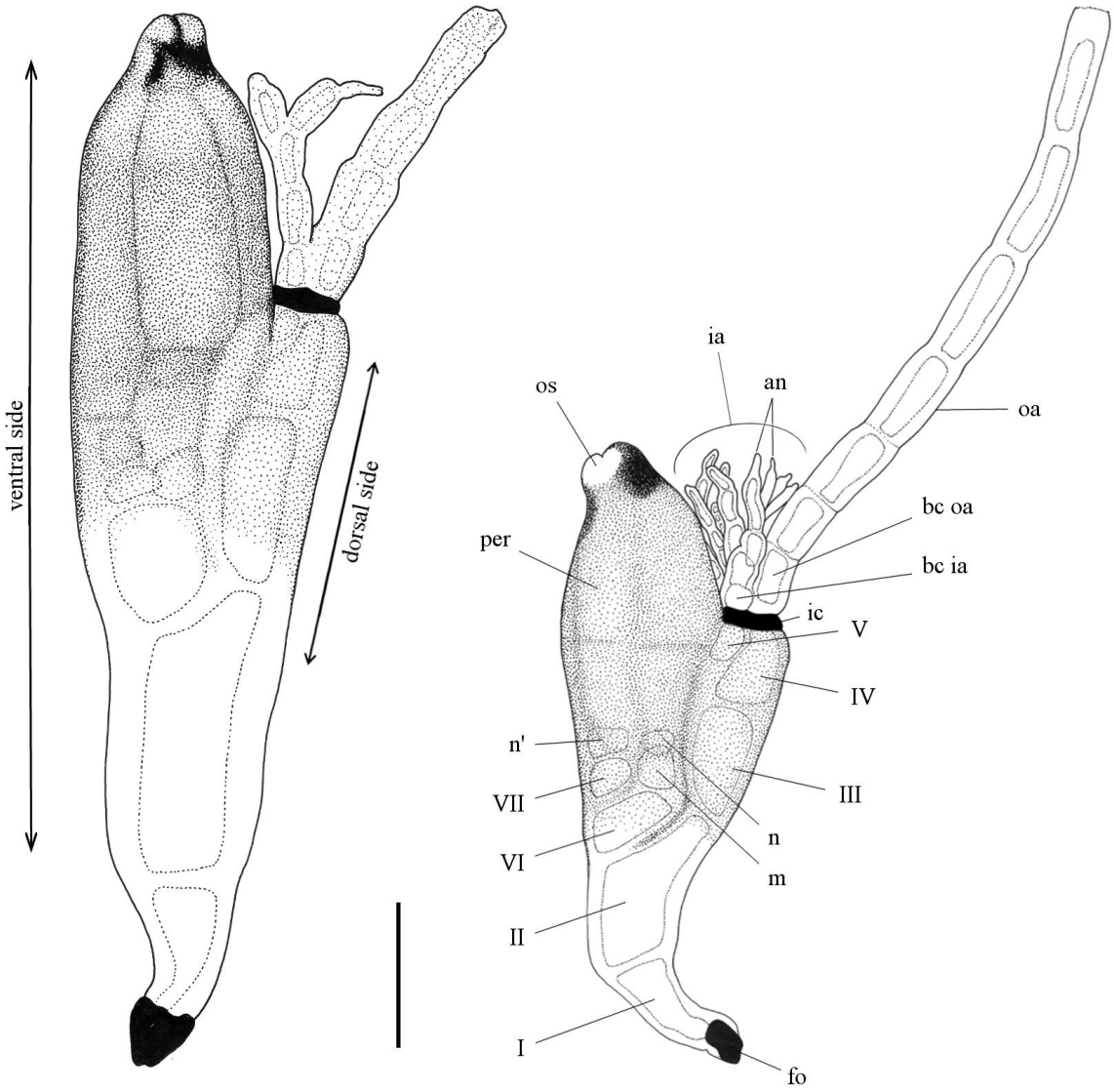

Figure 1. Thalli of *Laboulbenia* with indication of most important structures. Scale bar = 50 µm.

6. Abbreviations

I: basal cell of the receptacle
II: suprabasal cell of the receptacle
III: terminal cell, it is the third cell of the receptacle, always situated under the primary septum (septum of the spore) and primary appendage.
IV, V: cells from the receptacle of *Laboulbenia*
VI: stalk cell of the perithecium
VII: secondary stalk cell of the perithecium
Ia: cell derived from cell I
V': cell derived from cell V
a-app: in *Rhachomyces*, long, dark and sterile appendages originating from the lower parts of the receptacle.
an: antheridium
ap: appendage
b-app: in *Rhachomyces*, long or short, dark and sterile appendages originating above a-appendages.
bc: basal cell
c. an: compound antheridium
c-app: fertile appendages in Rhachomyces, few-celled with terminal phialide.
cc: corner cell
cf.: compares best with
coll.: collection
fo: foot
h: horn
ia: inner appendage
ibid.: see ibidem (glossary)
ic: insertion cell
leg.: given by
m, n, n': basal cells of the perithecium
oa: outer appendage
os: perithecial ostiolum
pa: primary appendage
per: perithecium
ps: primary septum
s.l.: sensu lato, in a broad sense
tr: trichogyne
undet.: undetermined
ut: as, or under the name
♂/♀: male / female

7. Key to the Laboulbeniomycetes of Belgium

Numbers of identification steps are aligned left and not in bold. Alternatives are indicated with a and b. Numbers in brackets (left) refer to the previous identification step. Numbers in bold (right) refer to the next identification step. Characters are kept as diagnostic as possible, and refer to fungal morphology and/or host taxa. Numbers in italic refer to the species number used in this catalogue. Reference to plates is made whenever useful and indicated as Pl.x.

Shortcuts to larger genera (>3 species) are given below:

Cantharomyces (5 sp.): step **109**
Chitonomyces (4 sp.): step **96**
Laboulbenia (36 sp.): step **55**
Monoicomyces (8 sp.): step **117**
Peyritschiella (5 sp.): step **113**
Rhachomyces (7 sp.): step **49**
Rickia (5 sp.): step **45**
Stigmatomyces (6 sp.): step **100**

1a. Parasites from Blattodea (cockroaches), dioecious (= *Herpomyces;* Pl.1) **43**
1b. On other host groups, thalli mostly monoecious **2**

2a. Perithecial wall cells numerous, subequal, always 6 or more per vertical row **3**
2b. Perithecial wall with less than 6 cells per vertical row (in at least 2 vertical rows) **7**

3a. Receptacle uniseriate, composed of numerous superposed cells **5**
3b. Receptacle multiseriate, often massive. **4**

4a. Receptacle turbinate, with apical depression holding numerous sterile appendages, stalked perithecia and antheridial branchlets. On Hydrophilidae ..... *115. Zodiomyces vorticellarius* (Pl.84)
4b. Receptacle not turbinate, laterally bearing numerous perithecia and appendages over most of its length. On Staphylinidae and Carabidae ..... *28. Euzodiomyces lathrobii* (Pl.16)

5a. Perithecium with an apical, darkened rostrum. Receptacle 4-5 celled. On Ptiliidae ..... *36. Kainomyces rehmanii* (Pl.21)
5b. Perithecium without a rostrum. Receptacle with more than 5 cells **6**

6a. Perithecium particularly long-necked. Without lobes or fine appendages on the perithecial wall. On Hydrophilidae ..... *96. Rhynchophoromyces anacaenae* (Pl.73)
6b. Perithecium without long neck, ostiolum with 4 fine ligulae, lower wall bearing slender ramified appendices. On Dryopidae ..... *29. Helodiomyces elegans* (Pl.17)

7a. (2) Antheridia simple, flask shaped; spermatia are set free through small necks **8**
7b. Antheridia grouped into a compound structure with wall **38**

8a. Sterile appendages unicellular with black basal septum. Antheridia small, always with black basal septum. Receptacle formed by 3 vertical tiers of cells, at least one tier partly or entirely flanking the perithecium (= *Rickia,* Pl.73-76).... **45**
8b. Not this combination **9**

9a. Suprabasal cell of the receptacle (cell II) produces multi-celled secondary appendages. The latter support a perithecium (with cell VI) at their base ..... *16. Compsomyces lestevae* (Pl.9)
9b. Cell II does not produce secondary appendages **10**

10a. Perithecial wall with an elongated accessory cell along its outer venter. Unicellular outgrowths are formed above the foot. On *Cercyon* (Hydrophilidae) **11**
10b. Perithecium without accessory cell. No such outgrowths present above the foot **12**

11a. Lower receptacular cells isodiametric. Perithecium neck rather straight..... *33. Hydrophilomyces cf. gracilis* (Pl.20)
11b. Lower receptacular cells flattened. Perithecium neck strongly curved ..... *34. Hydrophilomyces cf. hamatus* (Pl.20)

12a. Cell VII and basal cells of the perithecium clearly visible in mature perithecia **13**
12b. Cell VII and basal cells of the perithecium not visible in mature perithecia **36**

13a. Receptacle forms longitudinal septa, leading to a suprabasal complex with numerous secondary appendices..... **14**
13b. Receptacle stays a series of superposed cells, rarely forming longitudinal septa, not forming a suprabasal complex or secondary appendices **20**

14a. Receptacle composed of a series of superposed cells (4-5 or more), each forming on one side a basal cell with numerous, pigmented, multicellular appendages. Usually only one perithecium (= *Rhachomyces,* Pl.69-71) **49**
14b. Not with these features..... **15**

15a. Thallus hyaline. Appendages not in bunches. On Leiodidae ..... *5. Asaphomyces tubanticus* (Pl.2)
15b. Thallus moderately to deeply pigmented in some parts. Appendages appear in bunches on the receptacle **16**

16a. Receptacle asymmetrical..... **17**
16b. Receptacle mostly symmetrical **18**

17a. Antheridia in lateral series on fertile appendages. Dorsal and ventral cell of the receptacle supporting a series of appendages. Perithecium stalked by elongated cell VI and VII ..... *35. Idiomyces peyritschii* (Pl.21)
17b. Antheridia never organized in lateral series; appendages not in series. Receptacle 5-celled. Cell VI and cell VII relatively short (= *Laboulbenia,* fig.1-2) **55**

18a. Appendages with pointed-curved tips, darkened septa. Antheridia terminal, flask shaped, not forming ramifications with age (= *Teratomyces*) **19**
18b. Appendages with rounded tips, with series of intercalary antheridia, the latter ramifying into new appendages with age..... *110. Symplectromyces vulgaris* (Pl.80)

19a. Cell I and II from receptacle becoming brown with age; basal cells of appendages with laterally aligned antheridia/septa..... *112. Teratomyces philonthi* (Pl.82)
19b. Cell I hyaline and contrasting with a deep black cell II; basal cells of appendages without such laterally aligned septa. ..... *111. Teratomyces actobii* (Pl.81)

20a. (13) Primary appendage bicellular, both cells separated by a dark constricted septum. Antheridium below the primary appendage. On aquatic Coleoptera **21**
20b. Primary appendage more developed **22**

21a. All four vertical tiers of the perithecial wall have 4 cells each (= *Chitonomyces,* Pl.8) **96**
21b. Two vertical tiers of the perithecial wall have 6 cells. On Haliplidae ..... *32. Hydraeomyces halipli* (Pl.20)

22a. Receptacle composed of at least 4 cells **23**
22b. Receptacle composed of 3 cells or less **26**

23a. Primary receptacle composed of a chain of cells (at least 3 or more) **24**
23b. Primary receptacle composed of two cells (I and II), entire receptacle counts five cells (= *Laboulbenia,* fig.1-2) **55**

24a. Perithecium with obtuse apex and inconspicuous neck ..... *73. Misgomyces dyschirii* (Pl.57)
24b. Perithecium with long neck and differentiated venter. **25**

25a. Antheridia sessile, developed as corner cells of the primary appendage. Receptacle with flattened cells, broader upwards. ..... *26. Ecteinomyces trichopterophilus* (Pl.14)
25b. Antheridia not sessile but formed on lateral branchlets. Receptacle cells more elongate..... ..... *6. Botryandromyces heteroceri* (Pl.3)

26a. (22) Cell III flattened and entirely appressed against the perithecium. On Julida (= *Troglomyces,* Pl.83) **99**
26b. Cell III not so. On Insecta..... **27**

27a. On Coleoptera..... **29**
27b. Not on Coleoptera **28**

28a. On Dermaptera (*Forficula*). Basal cell of appendage dark..... *25. Distolomyces forficulae* (Pl.14)
28b. On Diptera (= *Stigmatomyces,* Pl.78-79). **100**

29a. Primary appendage easily breaking off (narrowed basal cell). On Kateretidae..... *4. Aphanandromyces audisioi* (Pl.2)
29b. Primary appendage persistent 30

30a. Receptacle cells (I, II, III) more or less superposed 31
30b. Receptacle cells not superposed, cell III touches cell I..... 35

31a. Antheridial structures are born on corner cells of appendage axis cells (on Staphylinidae) 32
31b. Antheridial branches not born from corner cells 33

32a. Cell III mostly without antheridial branches, with or without perithecium; cell VI and VII of similar height .....
..... *103. Stichomyces conosomatis* (Pl.77)
32b. Cell III always with antheridial branches, never with perithecium; cell VI much taller than cell VII.....
.....*95. Rhadinomyces cristatus* (pl.72)

33a. Primary appendage simple, composed of numerous similar superposed cells (= *Cryptandromyces,* Pl.11) 105
33b. Primary appendage branched 34

34a. Cell VI adnate to cell II. Exclusively on Leiodidae..... *24. Diphymyces kaaistoepi* (Pl.13)
34b. Cell VI supported by cell II. Mostly on Staphylinidae, rarely on Leiodidae (= *Corethromyces,* Pl.10)..... 107

35a. (30) Perithecial tip with prominent ostiolar lips and lobes. Appendage short, with sessile lateral antheridia on each cell. Fresh thalli often greenish-yellow. On Coccinellidae (= *Hesperomyces,* Pl.18-19) 108
35b. Perithecial tip without such lobes. Appendage long, with lateral antheridia on few cells. Not on Coccinellidae (= *Cryptandromyces,* Pl.11). 105

36a. (12) Receptacle between foot and cell VI counts at least 3 cells. 37
36b. Receptacle between foot and cell VI counts 2 cells. Foot entirely black. ..... *87. Phaulomyces simplocariae* (Pl.68)

37a. Receptacle with flattened and finely appendiculate cells above cell III. Foot entirely black. Only on aquatic Heteroptera from the Corixidae ..... *17. Coreomyces arcuatus* (Pl.9)
37b. Receptacle without flattened cells above cell III. Foot partly black. On Ptiliidae ..... *102. Siemaszkoa ptenidii* (Pl.77)

38a. (7) Cell I (female thallus) laterally extending and supporting a series of cells derived from cell II. Dioecious species with small male thalli ..... *23. Dimorphomyces myrmedoniae* (Pl.12)
38b. Cell I not laterally extending 39

39a. Primary receptacle composed of a chain of cells (at least 3 or more) ..... *73. Misgomyces dyschirii* (Pl.57)
39b. Primary receptacle not a chain of cells 40

40a. Primary appendage fertile, i.e. with a compound antheridium 41
40b. Primary appendage sterile or absent..... 42

41a. Compound antheridium with efferent neck. On Carabidae ..... *27. Eucantharomyces stammeri* (Pl.15)
41b. Compound antheridium different, never with efferent neck. On Staphylinidae and Dryopidae/Parnidae (= *Cantharomyces,* Pl.4-7). 109
42a. Receptacle formed by three horizontal tiers of cells. Antheridia compound, sessile, often on the median series. Sterile appendages unicellular (= *Peyritschiella,* Pl.64-67). 113
42b. Receptacle different. Sterile app. multicellular. Antheridial structure stalked, large (= *Monoicomyces,* Pl.58-63). 117

43a. (1) Secondary receptacle (female thallus) without concentrically organized cells ..... *1. Herpomyces ectobiae* (Pl.1)
43b. Secondary receptacle a series of concentrically organized and flattened cells 44

44a. Secondary receptacle at most 80 µm high, with rounded apex and darkened cells.....*3. Herpomyces stylopygae* (Pl.1)
44b. Secondary receptacle at least 100 µm high, with pointed apex, hyaline .....*2. Herpomyces periplanetae* (Pl.1)

45a. (8) Perithecium almost entirely embedded in the receptacle..... *99. Rickia peyerimhoffii* (Pl.73)
45b. Anterior part of the perithecium free 46

46a. Thalli on Diplopoda. **47**
46b. Thalli on other arthropods. **48**

47a. Dorsal margin perithecium free for 1/3rd. Ventral series receptacle counts 2 cells .....*98. Rickia laboulbenioides* (Pl.75)
47b. Dorsal margin perithecium only free at apex. Ventral series receptacle has more than 2 cells.....
.....*97. Rickia dendroiuli* (Pl.74)

48a. Thalli on Staphylinidae. Cell I very short, 12-18 µm .....*100. Rickia proteini* (Pl.76)
48b. Thalli on Myrmica ants. Cell I very long, 60-90 µm .....*101. Rickia wasmannii* (Pl.76)

49a. (14) Primary appendage hyaline, 3-celled, with dark septum and different from other appendages. On *Syntomus* (Carabidae) .....*93. Rhachomyces sciakyi* (Pl.71)
49b. Primary appendage pigmented, identical to secondary appendages **50**

50a. Receptaculum between cell VI and I usually with less than 6-7 cells, sterile appendages very long. On *Lathrobium* (Staphylinidae).....*92. Rhachomyces pilosellus* (Pl.70)
50b. Receptaculum between cell VI and I composed of at least 6 cells; sterile appendages don't exceed the perithecial apex..... **51**
51a. Cells of the B-appendages of unequal length **52**
51b. Cells of the B-appendages of similar to equal length **53**

52a. B-appendages elongate, slender, tapering up. On *Philonthus* (Staphylinidae) ..... *91. Rhachomyces philonthinus* (Pl.70)
52b. B-appendages short, with broad rounded apex. On *Thalassophilus* (Carabidae)..*94. Rhachomyces tenenbaumii* (Pl.70)

53a. Cell VI elongate and situated in the median to subapical part of the (secondary) receptacle. On *Othius* (Staphylinidae).....*89. Rhachomyces furcatus* (Pl.69)
53b. Cell VI short, distally on the (secondary) receptacle. On Carabidae..... **54**

54a. Perithecial apex with black spots; terminal cell of the B-appendages widest in the middle. On *Acupalpus* (Carabidae) .....*90. Rhachomyces lasiophorus* (Pl.69)
54b. Perithecial apex without black spotsd (hyaline); terminal cell of B-appendages cylindrical, usually proliferating. On *Trechus* (Carabidae) .....*88. Rhachomyces canariensis* (Pl.69)

55a. (17, 23) Insertion cell absent..... **56**
55b. Insertion cell present..... **58**

56a. Appendages with large basal cells and dark septa. On Carabidae ..... *50. Laboulbenia fasciculata* (Pl.35)
56b. Appendages filiform, with fine basal cells and dark septa. On Gyrinidae **57**

57a. Perithecium with two hyaline apical outgrowths, one straight one hooked .....*54. Laboulbenia gyrinicola* (Pl.37)
57b. Both perithecial outgrowths with black spots, irregularly shaped .....*51. Laboulbenia fennica* (Pl.35)

58a. On Carabidae **59**
58b. On Staphylinidae **91**

59a. Insertion cell free **60**
59b. Insertion cell fixed to the side of the perithecium, i.e. not free **64**

60a. Foot almost hyaline with only a small black dot .....*55. Laboulbenia hyalopoda* (Pl.38)
60b. Foot entirely black **61**

61a. Cell V as tall as cell IV ..... *42. Laboulbenia clivinalis* (Pl.27)
61b. Cell V smaller than cell IV **62**

62a. Outer appendage not branched **63**
62b. Outer appendage branched..... *67. Laboulbenia pseudomasei* (Pl.51)

63a. Lower 4-5 cells of outer appendage evenly pigmented; inner appendage hardly branched. Cell IV higher than broad ..... *58. Laboulbenia lecoareri* (Pl.41)
63b. Lower 4-5 cells of outer appendage deeply pigmented in their middle; each cell of inner appendage produces a short straight branch. Cell IV isodiametric..... *61. Laboulbenia metableti* (Pl.44)

64a. Cell V as tall as cell IV..... 65
64b. Cell V smaller than cell IV..... 68

65a. Outer wall of perithecium with knobs..... *47. Laboulbenia egens* (Pl.32)
65b. Outer wall of the perithecium without knobs 66

66a. Outer appendage without dark septum, grows beyond the perithecium ..... *64. Laboulbenia ophoni* (Pl.47)
66b. Outer appendage with at least one dark septum, not growing beyond the perithecium 67

67a. Thallus and receptaculum poorly pigmented (yellow-amber). Basal cell of outer appendage inflated. On *Pogonus sp.* ..... *69. Laboulbenia slackensis* (Pl.53)
67b. Thallus strongly pigmented. Basal cell outer appendage not so inflated ..... *65. Laboulbenia pedicellata* (Pl.48-49)

68a. Outer appendage not growing beyond the perithecium ..... *62. Laboulbenia murmanica* (Pl.45)
68b. Outer appendage grows beyond the perithecium 69

69a. Outer appendage branched..... 70
69b. Outer appendage not branched..... 78

70a. Cell IV very high, sometimes divided, producing a conspicuous apico dorsal bump .... *37. Laboulbenia anoplogenii* (Pl.22)
70b. Cell IV not so high, never divided, without dorso-apical bump..... 71

71a. Insertion cell on or above the middle of perithecium; inner appendage less developed than outer app. 72
71b. Insertion cell below the middle of the perithecium; inner and outer appendage equally developed 73

72a. Thallus and receptaculum pale. Septa from basal cells of outer appendage not darkened. On *Paranchus albipes*..... ..... *43. Laboulbenia collae* (Pl.28)
72b. Thallus and receptaculum strongly pigmented. Septa from basal cells of outer appendage darkened..... ..... *72. Laboulbenia vulgaris, s.l.* (Pl.56)

73a. Outer side of the base of the outer appendage strongly darkened..... 74
73b. Outer side of the base of the outer appendage not, or only very slightly, darkened 76

74a. Thallus pale brown. Appendages numerous, gradually tapering towards pointed apices. On *Dicheirotrichus* (Carabidae)..... *53. Laboulbenia giardii* (Pl.37)
74b. Thallus deep brown. Appendages not so numerous, not tapering, with rounded apices 75

75a. Septum II-III clearly shorter than septum II-VI. Cell V clearer than surrounding structures. On *Harpalus* and *Ophonus* ..... *44. Laboulbenia coneglianensis* (Pl.29)
75b. Septum II-III nearly as long as septum II-VI. Cell V not much paler than surrounding structures. On *Brachinus*..... ..... *68. Laboulbenia rougetii* (Pl.52)

76a. Thallus often bent, ventral side of the thallus concave 77
76b. Thallus not so bent, ventral side of the thallus fairly straight ..... *52. Laboulbenia flagellata, s.l.* (Pl.36)

77a. Cell V quite small, less than half the height of cell IV. Perithecium very slender, subcylindrical (not a stable feature). On *Harpalus* (Carabidae) ..... *44. Laboulbenia coneglianensis* (Pl.29)
77b. Cell V taller, usually more than half the height of cell IV. Perithecium more ovate. On *Elaphrus* (Carabidae) .... *48. Laboulbenia elaphri* (Pl.33)

78a. Insertion cell on or above the middle of the perithecium; dorsal side of the perithecium half free 79
78b. Insertion cell well below the middle of the perithecium; dorsal side of the perithecium more than half free 83

79a. Basal cells of outer appendage with darkened septa **81**
79b. Basal cells of outer appendage with normal septa **80**

80a. Cell VI wider than high..... *40. Laboulbenia benjaminii* (Pl.25)
80b. Cell VI higher than wide ..... *38. Laboulbenia argutoris* (Pl.23)

81a. Basal cell of outer appendage inflated; inner appendage grows beyond perithecium ..... *56. Laboulbenia inflata* (Pl.39)
81b. Basal cell of outer appendage normal; inner appendage never beyond perithecium **82**

82a. Inner appendage composed of a basal cell with a single antheridium. On *Asaphidion* .. *71. Laboulbenia thaxteri* (Pl.55)
82b. Inner appendage with at least two cells each supporting one or more antheridia. ..... *72. Laboulbenia vulgaris* (Pl.56)

83a. Outer appendage rotated relative to the perithecium. On *Pterostichus diligens* ..... *57. Laboulbenia kajanensis* (Pl.40)
83b. Outer appendage not rotated..... **84**

84a. Inner appendage grows far beyond the perithecium **85**
84b. Inner appendage not or hardly exceeding the perithecium **86**

85a. Cell V clearly paler than surrounding cells and perithecium (VI, III and IV)..... **86**
85b. Cell V not paler than its surrounding cells ..... *59. Laboulbenia leisti* (Pl.42)

86a. Cell IV (and III) evenly and deeply pigmented. **88**
86b. Cell IV (and III) hyaline or pigmented, their outer margins distinctly more pigmented than their inner margins **87**

87a. Cell VI higher than broad. Thallus at least 230 µm long. Only on *Calathus*..... *41. Laboulbenia calathi* (Pl.26)
87b. Cell VI isodiametric. Thallus smaller. On Carabidae belonging to the genera *Notiophilus*, *Demetrias* and *Paradromius* ..... *63. Laboulbenia notiophili, s.l.* (Pl.46)

88a. Inner appendage hardly branched, with a single antheridium. Cell IV higher than broad.....
..... *58. Laboulbenia lecoareri* (Pl.41)
88b. Inner appendage branched, with multiple antheridia. Cell IV isodiametrical..... **89**

89a. Cell V minute. Upper margin of cell IV is 4-6x the width of cell V **90**
89b. Cell V larger. Upper margin of cell IV is only 1-2x the width of cell V ..... *49. Laboulbenia eubradycelli* (Pl.34)

90a. Lower 4-5 cells of outer appendage deeply pigmented in their middle; lower 3-4 cells of both inner appendages each produces a short, straight branch ..... *61. Laboulbenia metableti* (Pl.44)
90b. Lower 4-5 cells of outer app. pigmented evenly. Inner app. different..... *63. Laboulbenia notiophili, s.l.* (Pl.46)

91a. Cell V as tall as cell IV **94**
91b. Cell V smaller than cell IV **92**

92a. Insertion cell free from the perithecium. Outer appendage branched ..... *46. Laboulbenia dubia* (Pl.31)
92b. Insertion cell fixed to the side of the perithecium, i.e. not free. Outer appendage not branched **93**

93a. Basal cells outer appendage with dark septa. Insertion cell near base of perithecium *70. Laboulbenia stilicicola* (Pl.54)
93b. Basal cells outer app. without dark septa. Insertion cell near middle of perithecium .. *39. Laboulbenia atlantica* (Pl.24)

94a. Outer appendage with at least one dark septum at the basal and suprabasal cells. Dorsal margin of suprabasal cell of outer appendage normal **95**
94b. Outer appendage without dark septa at the basal cells. Suprabasal cell of outer appendage with black remains of primary appendage..... *45. Laboulbenia cristata* (Pl.30)

95a. One black septum above the basal cell of the outer appendage. Cell II hyaline..... *60. Laboulbenia littoralis* (Pl.43)
95b. Basal cells of the inner and outer appendage with black septa. Anterior part of cell II slightly darkened.....
..... *66. Laboulbenia philonthi* (Pl.50)

96a. (21) Perithecium with conspicuous outgrowths (spike, thorn)..... **97**
96b. Perithecium without outgrowths; receptacle with outgrowth. **98**

97a. Perithecial outgrowth arising from the top (apical) wall-cell..... *15. Chitonomyces paradoxus* (Pl.8e)
97b. Perithecial outgrowth lateral, i.e. arising from sub-apical wall-cell. ..... *12. Chitonomyces aculeifer* (Pl.8a-b)

98a. Receptacular outgrowth hyaline, straight or arcuate ..... *13. Chitonomyces italicus* (Pl.8c)
98b. Receptacular outgrowth black, straight, with consicuously hooked apex..... *14. Chitonomyces melanurus* (Pl.8d)

99b. (26) Primary appendage with one antheridium, the latter always situated in the lowest cell.....
..... *113. Troglomyces manfrediae* (Pl.83a-d)
99b. Primary appendage with three antheridia situated in the third, fourth and fifth cell of the appendage.....
..... *114. Troglomyces triandrus* (Pl.83e-g)

100a. (28) Appendage branched and composed of elongated cells ..... *104. Stigmatomyces burdigalensis* (Pl.78)
100b. Appendage an unbranched axis, composed of flattened cells.....101

101a. Venter of the perithecium without protuberances.....102
101b. Venter of the perithecium with protuberances 103

102a. Perithecial basal cells elongated, longer than the appendage .....*107. Stigmatomyces limosinae* (Pl.79)
102b. Perithecial basal cells not elongated, never longer than the appendage.....*105. Stigmatomyces crassicollis* (Pl.79)

103a. Perithecial apex abruptly becoming conical, appendage not proliferating .....*109. Stigmatomyces platensis* (Pl.78)
103b. Perithecial apex gradually tapering, appendage distally proliferating.....104

104a. Venter with numerous knobs (below neck & downwards). ..... *108. Stigmatomyces minilimosinae* (Pl.78)
104b. Venter with four knobs, only below the neck .....*106. Stigmatomyces divergatus* (Pl.78)

105a. (33,35) Basal cells of the primary appendage dark brown on the outer side.....*22. Cryptandromyces euplecti* (Pl.11)
105b. Primary appendage entirely hyaline 106

106a. Cell I supports cell II. Thalli longer than 125 µm ..... *21. Cryptandromyces elegans* (Pl.11)
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107a. (34) Basal cell of the receptacle with a black upgrowth. On *Rugilus* (Staphylinidae) ....*19. Corethromyces stilici* (Pl.10)
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8. Verklarende woordenlijst

Om verwarring in terminologie en afkortingen te vermijden, komt onderstaande woordenlijst grotendeels overeen met die van Tavares (1985) en Santamaría (1998). Fig. 1 en 2 geven de situering van structuren bij een thallus van *Laboulbenia*.

Aanhangsels: om het even welke takvormige structuur van het thallus. Opgebouwd uit 1 of meestal meerdere cellen.

Achterkant = zie dorsal (posterior).

Afvoerbuis: kort of lang buisvormig deel van het samengesteld antheridium waardoor spermatia naar buiten geleid worden (bvb. *Eucantharomyces*).

Antheridium: mannelijke voortplantingsstructuur, produceert spermatia.

Apicaal: aan de top.

Basale cel van het binnenste aanhangsel: (andropodium) de onderste cel van het aanhangsel gelegen tussen het buitenste aanhangsel en het perithecium van een *Laboulbenia* thallus.

Basale cel van het buitenste aanhangsel: (paraphysopodium) de onderste cel van het meest dorsale aanhangsel van een *Laboulbenia* thallus.

Basale cel: de onderste cel van een structuur (aanhangsel, perithecium, receptaculum).

Basale cel van het perithecium: betreft cellen m, n of n'. Deze cellen worden gedragen door cellen VI en VII, en vormen de vier verticale celreeksen waaruit de peritheciumwand is opgebouwd.

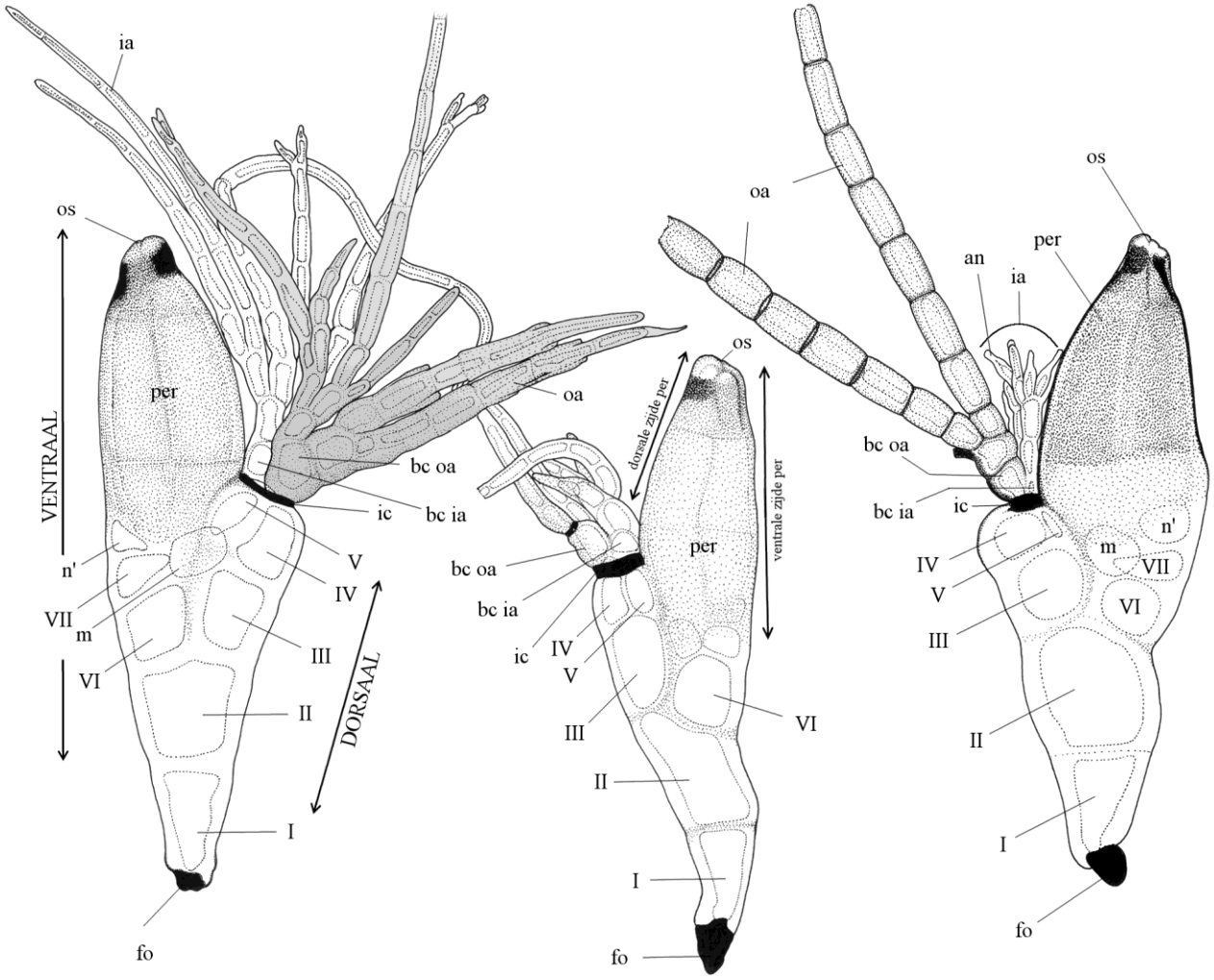
Basale cel van het receptaculum: cel I. Deze cel vormt de voet (fo) en de verbinding met de gastheer.

Bijkomende cel: een cel die naast de buitenwandcellen van het perithecium ontwikkelt (enkel bij adulte thalli van *Hydrophilomyces*).

Binnenste aanhangsel: ventral deel van het primaire aanhangsel van *Laboulbenia*. Het is gelegen tussen het perithecium en het buitenste aanhangsel, en vormt meestal antheridia.

Buik: het breed uitstaand basale deel van een structuur, meestal gebruikt voor het met asci en ascosporen gevulde deel van het perithecium.

Buitenste aanhangsel: het dorsale (posterior) deel van het primaire aanhangsel van *Laboulbenia*. Vormt meestal geen antheridia (grijs gekleurd in fig. 2).



Figuur 2. Thalli van *Laboulbenia* met aanduiding van de belangrijkste structuren. Bij het linkse thallus is het buitenste aanhangsel grijs gekleurd.

Dorsaal: in de meeste gevallen duidelijk vast te stellen als de tegenovergestelde zijde van het perithecium. Ook wel achterkant of rugzijde genoemd (posterior).

Eénhuizig: thalli dragen zowal antheridia als perithecia (1 of meerdere).

Groeivorm(en): zijn bepaalde morfologische versies van dezelfde phylogenetische soort. Groeivormen ontstaan omdat bepaalde factoren de morfologische ontwikkeling van thalli in een bepaalde richting duwen. Twee belangrijke factoren zijn de gastheer (de soort) en de plaats op de gastheer.

hyalien: glashelder, doorzichtig, zonder donkere pigmentering.

Hoekcellen (cc): relatief kleine cellen die ontstaan op de apicale hoeken van een andere cel. Meestal hebben ze een schuin septum en vormen ze korte aanhangsels met antheridia.

Ibidem: (ibid.) op dezelfde plaats als de vorige (afk. v.h. Latijn).

Intercalaire antheridia: wanneer een cel van een tak via een fijn lateral buisje spermatia produceert. Intercalaire antheridia kunnen in reeksen voorkomen.

Isodiametrisch: met min of meer gelijke lengte en breedte (we beschouwen enkel de optische doorsnede).

Lobben: opvallende uitgroeisels, meestal te vinden op het perithecium (*Hesperomyces*, *Distolomyces*).

Ostiolum: zie perithecium.

Perithecium: vrouwelijke voortplantingsstructuur, produceert tweecellige ascosporen die langs een opening (ostiolum) bovenaan vrijkomen. Onderzijde is meestal buikig, naar boven toe versmallend in een zogenoemde nek of hals.

Phialide: is een antheridium dat bestaat uit slechts één cel, meestal flesvormig, met een buikige basis en tapstoelopende hals of nek. Bovenaan zit een minuscule porie waardoor spermatia vrijkomen.

Primair aanhangsel: is afgeleid van de kleinste cel van de spore en rust op het primair septum.

Primaire as: komt overeen met de as gevormd door cel I, II en III van het nog jonge thallus.

Primair septum: het septum dat de grote en kleine cel van de spore scheidt. In rijpende thalli kan men dit

septum nog herkennen; het scheidt het primair aanhangsel van de rest van het thallus.

Primair receptaculum: bestaat uit cel I, II en III. De as gevormd door deze drie cellen is de primaire as.

Receptaculum: het deel van het thallus dat aanhangsels, antheridia en perithecia draagt.

Samengesteld antheridium: structuur die een reeks antheridia bevat. Spermatia komen via een gemeenschappelijke kamer in een uitgang naar de buitenwereld.

Secundair aanhangsel: is een tak die is afgeleid van het primaire receptaculum (grote cel van de ascospore) en dus niet van het primaire aanhangsel (kleine cel ascospore).

Septum: een structuur die twee cellen scheidt. "Septum IV-V" betekent het septum tussen cel IV en cel V.

Steuncel van het perithecium: cel VI, meestal op cel II.

Suprabasale cel: is een cel die boven een basale cel staat.

Thallus: het ganse lichaam van een Laboulbeniomyceet.

Trichogyne: een gesepteerd en vertakt aanhangsel dat altijd vastzit aan de top van het jonge perithecium. Het verzamelt spermatia. Bij rijpere thalli blijft het achter als een litteken; meestal gelegen in het bovenste derde van de buitenwand van het perithecium.

Tweehuizig: thalli dragen ofwel uitsluitend antheridia ofwel uitsluitend perithecia.

Ventraal: in de meeste gevallen duidelijk vast te stellen als de zijde waar het perithecium zit of gevormd wordt. Ook wel voorkant of voorzijde genoemd (anterior).

Verbindingscel (ic): (psallium) de basale cel van het primair aanhangsel van *Laboulbenia*. Het is meestal afgeplat en volledig donker tot zwart gepigmenteerd.

Voet (fo): donker tot zwart gepigmenteerd basaal deel van cel I dat stevig vastzit op de gastheer.

Voorzijde = voorkant, zie ventraal (anterior).

Wandcellen: de cellen van de buitenwand van het perithecium. De wandcellen zijn gegroepeerd in vier verticale rijen. Het aantal en de hoogte van de cellen in elke rij wordt gebruikt om families, genera en soorten te onderscheiden.

9. Afkortingen

I: basale cel van het receptaculum

II: suprabasale cel van het receptaculum

III: de terminale cel, is de derde cel van het receptaculum; bevindt zich steeds onder het primair septum (septum van de spore) en het primair aanhangsel.

IV, V: cellen van het receptaculum van *Laboulbenia*

VI: steuncel van het perithecium

VII: secundaire steuncel van het perithecium

Ia: is een cel afgeleid van cel I

V': is een cel afgeleid van cel V

a-app: a-aanhangsels (*Rhachomyces*), meestal lang, donker, steriel, basaal op het receptaculum.

an: antheridium

ap: aanhangsel

b-app: b-aanhangsels (*Rhachomyces*), lang of kort, donker, steeds boven de a-aanhangsels.

bc: basale cel

c. an: samengesteld antheridium

c-app: c-aanhangsels (*Rhachomyces*), met weinig cellen, fertiel, met terminale phialide.

cc: hoekcel

cf.: vergelijk met, lijkt best op

coll.: collectie

fo: voet

h: doorn

ia: binnenste aanhangsel

ibid.: zie ibidem (woordenlijst)

ic: verbindingscel

leg.: geleverd door

m, n, n': basale cellen van het perithecium

oa: buitenste aanhangsel

os: ostiolum, opening bovenaan perithecium

pa: primair aanhangsel

per: perithecium

ps: primair septum

s.l.: sensu lato, in brede zin

tr: trichogyne

ut: onder/met de naam

undet.: ongedetermineerd, zonder naam

♂/♀: mannelijk / vrouwelijk

10. Sleutel tot de Laboulbeniomycetes van België

De determinatie wordt uitgevoerd in stappen. De stappen zijn links uitgelijnd, doorlopend genummerd en niet in vetjes. Elke stap levert twee alternatieven, aangeduid met a en b. Nummers tussen haken (links) verwijzen naar de vorige stap. Nummers in vetjes (rechts) verwijzen naar de volgende stap. De alternatieven (a, b) zijn zo scheidend mogelijk en gebruiken kenmerken van zowel de schimmel als van de gastheer (identiteit). Nummers in cursief verwijzen naar het volgnummer van de soort in de catalogus. Verwijzingen naar de illustraties in de platen worden zoveel mogelijk gegeven en worden aangeduid als Pl.xx.

Genera met minstens 3 soorten kunnen direct worden uitgesleuteld vanaf stap:

Cantharomyces (5 sp.): stap **109**
Chitonomyces (4 sp.): stap **96**
Laboulbenia (36 sp.): stap **55**
Monoicomyces (8 sp.): stap **117**
Peyritschiella (5 sp.): stap **113**
Rhachomyces (7 sp.): stap **49**
Rickia (5 sp.): stap **45**
Stigmatomyces (6 sp.): stap **100**

1a. Groeiend op kakkerlakken (Blattodea), tweehuizig (= *Herpomyces;* Pl.1) **43**
1b. Niet op kakkerlakken, thalli meestal éénhuizig **2**

2a. Wandcellen van het perithecium talrijk, van gelijke hoogte, altijd 6 of meer per verticale rij **3**
2b. Perithecium met minder dan 6 cellen per verticale rij (in ten minste 2 van de 4 verticale rijen) **7**

3a. Receptaculum bestaat uit een enkele reeks van opgestapelde cellen **5**
3b. Receptaculum bestaat uit meerdere reeksen opgestapelde cellen, meestal massief. **4**

4a. Receptaculum bovenaan met een kokervormige depressie en ontelbare fijne sterile aanhangsels, gesteelde perithecia en antheridiale takjes. Op Hydrophilidae ..... *115. Zodiomyces vorticellarius* (Pl.84)
4b. Receptaculum niet kokervormig; lateraal en over de ganse lengte bezet met perithecia en fijne aanhangsels. Op Staphylinidae en Carabidae ..... *28. Euzodiomyces lathrobii* (Pl.16)

5a. Perithecium met een donker apical rostrum. Receptaculum 4-5 cellig. Op Ptiliidae ..... *36. Kainomyces rehmanii* (Pl.21)
5b. Perithecium zonder rostrum. Receptaculum met meer dan 5 cellen **6**

6a. Perithecium met een zeer lange nek/hals, zonder lobben of aanhangsels op de peritheciumwand. Op Hydrophilidae .... *96. Rhynchophoromyces anacaenae* (Pl.73)
6b. Perithecium zonder lange nek. Ostiolum met 4 fijne lobben. Onderste wandcellen met slanke, vertakte aanhangsels. Op Dryopidae ..... *29. Helodiomyces elegans* (Pl.17)

7a. (2) Antheridia enkelvoudig, flesvormig; spermatia komen vrij via een versmalde apicale opening **8**
7b. Antheridia gegroepeerd in een samengesteld antheridium **38**

8a. Steriele aanhangsels ééncellig met zwart basaal septum. Antheridia klein, met zwart basaal septum. Receptaculum opgebouwd uit 3 verticale celreeksen, waarvan ten minste één het perithecium gedeeltelijk of volledig flankeert (= genus *Rickia,* Pl.73-76) **45**
8b. Niet met deze combinatie **9**

9a. Suprabasale cel van het receptaculum (cel II) produceert een aantal multicellulaire secundaire aanhangsels, elk met een perithecium aan de basis (incl. cel VI) ..... *16. Compsomyces lestevae* (Pl.9)
9b. Cel II produceert geen secundaire aanhangsels **10**

10a. Ventrale peritheciumwand met een langwerpige bijkomende cel. Eéncellige uitgroeisels boven de voet. Op *Cercyon* (Hydrophilidae) **11**
10b. Peritheciumwand normal, zonder bijkomende cel. Geen uitgroeisels boven de voet **12**

11a. Onderste receptaculumcellen isodiametrisch. Peritheciale nek vrij recht ..... *33. Hydrophilomyces cf. gracilis* (Pl.20)
11b. Onderste receptaculumcellen afgeplat. Peritheciale nek sterk gebogen ..... *34. Hydrophilomyces cf. hamatus* (Pl.20)

12a. Cel VII en de basale cellen van het perithecium duidelijk zichtbaar in rijpe perithecia 13
12b. Cel VII en de basale cellen van het perithecium niet zichtbaar in rijpe perithecia 36

13a. Receptaculum vormt longitudinale septen, die leiden tot een complexe structuur met redelijk veel secundaire aanhangsels 14
13b. Receptaculum blijft een gestapelde celreeks en vormt bijna geen longitudinale septen. Zonder complexe structuur of secundaire aanhangsels 20

14a. Receptaculum bestaat uit een reeks opeengestapelde cellen (4-5 of meer), die elk lateraal een basiscel met talrijke, gepigmenteerde, meercellige aanhangsels produceren. Meestal 1 perithecium (= *Rhachomyces,* Pl.69-71) 49
14b. Niet met deze kenmerken 15

15a. Thallus hyalien. Aanhangsels niet in bundels. Op Leiodidae ..... *5. Asaphomyces tubanticus* (Pl.2)
15b. Thallus plaatselijk matig tot sterk gepigmenteerd. Aanhangsels in bundels op het receptaculum 16

16a. Receptaculum asymmetrisch 17
16b. Receptaculum vrijwel symmetrisch 18

17a. Antheridia in reeksen op de aanhangsels. Receptaculum driehoekig, dorsale en ventrale cel met reeksen aanhangsels. Perithecium gesteeld door zeer lange cel VI en VII..... *35. Idiomyces peyritschii* (Pl.21)
17b. Antheridia meestal solitair; aanhangsels enkel dorsaal, niet in reeksen. Receptaculum 5-cellig. Cel VI en cel VII vrij kort (= *Laboulbenia,* fig.1-2) 55

18a. Aanhangsels met gebogen-puntige top en donkere septa. Antheridia eindstandig, flesvormig, meestal niet doorgroeiend (= *Teratomyces*) 19
18b. Aanhangsels met meer afgeronde top, met reeksen intercalaire antheridia, later doorgroeiend (prolifererend) tot nieuwe aanhangsels .....*110. Symplectromyces vulgaris* (Pl.80)

19a. Cel I en II worden hooguit bruin met de leeftijd; basale cellen van de aanhangsels vertonen multipele, gealigneerde septa (zoals inktvis zuignappen) ..... *112. Teratomyces philonthi* (Pl.82)
19b. Cel I is hyalien en contrasteert met een pikzwarte cel II; basale cellen van de aanhangsels zonder gealigneerde septa .....*111. Teratomyces actobii* (Pl.81)

20a. (13) Primair aanhangsel is tweecellig; beide cellen met donker, ingesnoerd septum. Antheridium onder het primair aanhangsel. Op aquatische Coleoptera 21
20b. Primair aanhangsel is meer ontwikkeld..... 22

21a. Peritheciumwand met maximum 4 cellen per verticale reeks (= *Chitonomyces,* Pl.8) 96
21b. Twee verticale reeksen van de peritheciumwand met 6 cellen. Op Haliplidae ..... *32. Hydraeomyces halipli* (Pl.20)

22a. Receptaculum opgebouwd uit minstens 4 cellen 23
22b. Receptaculum opgebouwd uit 3 cellen of minder 26

23a. Primair receptaculum opgebouwd uit een reeks cellen (minstens 3) 24
23b. Primair receptaculum bestaat uit 2 cellen (I, II), het ganse receptaculum heeft 5 cellen (= *Laboulbenia,* fig.1-2) 55

24a. Perithecium met afgeronde top, zonder versmalde hals/nek ..... *73. Misgomyces dyschirii* (Pl.57)
24b. Perithecium met een duidelijk gedifferentieerd in een buikig deel en een lange hals. 25

25a. Antheridia zittend, gevormd op hoekcellen van het primair aanhangsel. Receptaculum met afgeplatte cellen die naar boven toe breder en hoger wordend ..... *26. Ecteinomyces trichopterophilus* (Pl.14)
25b. Antheridia gevormd op laterale takjes. Receptaculumcellen hoger dan breed, langwerpig .....
.....*6. Botryandromyces heteroceri* (Pl.3)

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31b. Antheridiale structuren niet ontstaan vanuit hoekcellen 33

32a. Cel III meestal zonder antheridiale takjes, met of zonder perithecium; cellen VI en VII van vergelijkbare hoogte.....
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33a. Primair aanhangsel onvertakt, een (soms lange) keten van gelijkaardige cellen (= *Cryptandromyces,* Pl.11) 105
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34a. Cel VI ligt naast cel II. Enkel op Leiodidae ..... *24. Diphymyces kaaistoepi* (Pl.13)
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35a. (30) Top van het perithecium met opvallen lobben of uitsteeksels. Aanhangsel kort met zittende, laterale antheridia op elke cel. Levende thalli meestal groenig-geel. Op Coccinellidae (= *Hesperomyces,* Pl.18-19) 108
35b. Perithecium zonder apicale lobben of uitsteeksels. Aanhangsel lang, met slechts enkele laterale antheridia. Niet op Coccinellidae (= *Cryptandromyces,* Pl.11). 105

36a. (12) Receptaculum telt minstens 3 cellen tussen voet en cel VI. Voet volledig of gedeeltelijk zwart 37
36b. Receptaculum telt 2 cellen tussen voet en cel VI. Voet volledig zwart..... *87. Phaulomyces simplocariae* (Pl.68)

37a. Receptaculum heeft boven cel III een reeks afgeplatte cellen met fijne aanhangsels. Voet volledig zwart. Enkel op aquatische Hemiptera van de Corixidae (Duikerwantsen)..... *17. Coreomyces arcuatus* (Pl.9)
37b. Receptaculum zonder afgeplatte cellen boven cel III. Voet gedeeltelijk zwart. Op Ptiliidae.....
..... *102. Siemaszkoa ptenidii* (Pl.77)

38a. (7) Cel I (vrouwelijk thallus) is zijdelings extreem verlengd en draagt een reeks cellen afgeleid van cel II. Tweehuizig, mannelijke thalli klein, met normale cel I ..... *23. Dimorphomyces myrmedoniae* (Pl.12)
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40a. Primair aanhangsel is fertiel en bevat een samengesteld antheridium 41
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42a. Receptaculum bestaat uit 3 horizontale celreeksen. Antheridia samengesteld, onduidelijk, meestal zittend op de middelste celreeks. Steriele aanhangsels steeds ééncellig (= *Peyritschiella,* Pl.64-67). 113
42b. Receptaculum anders. Steriele aanhangsels altijd meercellig. Antheridiale structuren groot en gesteeld (= *Monoicomyces,* Pl.58-63). 117

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43b. Secundair receptaculum is een structuur van concentrisch gearrangeerde afgeplatte cellen 44

44a. Secundair receptaculum maximum 80-90 µm hoog, met vrij afgeronde top en gedeeltelijk zwart gepigmenteerde cellen ..... *3. Herpomyces stylopygae* (Pl.1)
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46b. Thalli op andere geleedpotigen (kevers, mieren, e.d.). **48**

47a. Dorsale zijde van het perithecium voor 1/3e vrij. De voorste reeks receptaculumcellen telt slechts 2 cellen ..... *98. Rickia laboulbenioides* (Pl.75)
47b. Dorsale zijde van het perithecium nauwelijks vrij. Voorste reeks receptaculumcellen telt meer dan 2 cellen ..... *97. Rickia dendroiuli* (Pl.74)

48a. Thalli op Staphylinidae. Cel I zeer kort, 12-18 µm ..... *100. Rickia proteini* (Pl.76)
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49b. Primair aanhangsel gepigmenteerd en identiek aan de overige (secundaire) aanhangsels **50**

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51b. Cellen van de B-aanhangsels (min of meer) van gelijke lengte **53**

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53b. Cel VI kort, gewoonlijk eindstandig op het receptaculum. Op Carabidae **54**

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57b. Beide uitgroeisels onregelmatig van vorm, elk met een zwarte vlek ..... *51. Laboulbenia fennica* (Pl.35)

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59a. Verbindingscel vrij **60**
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61a. Cel V even hoog als cel IV ..... *42. Laboulbenia clivinalis* (Pl.27)
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62b. Buitenste aanhangsel vertakt ..... *67. Laboulbenia pseudomasei* (Pl.51)

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76b. Thallus niet zo gebogen, ventral zijde min of meer recht ..... *52. Laboulbenia flagellata, s.l.* (Pl.36)

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78a. Verbindingscel ter hoogte van het midden van het perithecium of hoger; dorsale zijde van het perithecium voor de helft vrij **79**
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80a. Cel VI breder dan hoog ..... *40. Laboulbenia benjaminii* (Pl.25)
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83a. Buitenste aanhangsel opvallend gedraaid ten opzichte van het perithecium. Enkel op *Pterostichus diligens* ..... *57. Laboulbenia kajanensis* (Pl.40)
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84a. Binnenste aanhangsel groeit/reikt tot ver voorbij het perithecium **85**
84b. Binnenste aanhangsel niet of nauwelijks voorbij het perithecium reikend **86**

85a. Cel V duidelijk bleker dan de omgevende cellen (VI, III en IV) en perithecium **86**
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86b. Cel IV (en III) zijn hyalien of gepigmenteerd, hun dorsale zijde steeds meer gepigmenteerd dan de ventrale **87**

87a. Cel VI iets hoger dan breed. Thallus minstens 230 µm lang. Enkel op *Calathus* ..... *41. Laboulbenia calathi* (Pl.26)
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88a. Binnenste aanhangsel nauwelijks vertakt, met één antheridium. Cel IV hoger dan breed ..... *58. Laboulbenia lecoareri* (Pl.41)
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89a. Cel V minuscuul. Bovenste zijde van cel IV meet 4-6x de breedte van cel V **90**
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98a. Uitgroeisel van het receptaculum weinig gepigmenteerd, recht of gebogen ..... *13. Chitonomyces italicus* (Pl.8c)
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100a. (28) Aanhangsel vertakt, opgebouwd uit langwerpige cellen ..... *104. Stigmatomyces burdigalensis* (Pl.78)
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101a. Buik van het perithecium zonder uitstulpingen 102
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105a. (33, 35) Basale cellen van het primair aanhangsel donker gepigmenteerd aan de buitenzijde (dorsale zijde) ..... *22. Cryptandromyces euplecti* (Pl.11)
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109a. (41) Cel II (suprabasal receptaculum cell) zwart gepigmenteerd ..... *7. Cantharomyces denigratus* (Pl.4)
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110a. Primair aanhangsel niet vertakt ..... 8. *Cantharomyces italicus* (Pl.4)
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111a. Primair aanhangsel vertakt boven de suprabasale cel; basale cel niet bolvormig **112**
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114a. Onderste horizontale rij receptaculumcellen zwart en septa tussen de cellen zeer onduidelijk ..... *82. Peyritschiella biformis* (Pl.64)
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121a. Primaire en antheridiale aanhangsels zeer lang, voorbij de top van het perithecuim reikend ..... *77. Monoicomyces fragilis* (Pl.61)
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123a. Antheridiale en secundaire aanhangsels bruin tot zwart gepigmenteerd ..... *76. Monoicomyces californicus* (Pl.60)
123b. Antheridiale en secundaire aanhangsels hyalien of nauwelijks gepigmenteerd..... *79. Monoicomyces invisibilis* (Pl.60)

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11. Species list, chorological data and taxonomical notes

Previous reports on Laboulbeniomycetes from Belgium mention five species that, after verification of identity, synonymy and locality, do not occur in Belgium:

- *Laboulbenia cafii* Thaxt., *Proc. Amer. Acad. Arts & Sci.* 35(9): 162 (1899) [1899-1900] was mentioned in De Kesel (1998). The material does not belong to *L. cafii*, but to a new taxon that was later described as *Laboulbenia littoralis* De Kesel & Haelew.
- *Laboulbenia elegans* Thaxt., *Proc. Amer. Acad. Arts & Sci.* 25: 13 (1892) was mentioned in De Kesel & Rammeloo (1992), but the correct identity is *Laboulbenia coneglianensis* Speg.
- *Laboulbenia filifera* Thaxt., *Proc. Amer. Acad. Arts & Sci.* 28: 165 (1893) was reported in De Kesel & Rammeloo (1992). The material belongs to *Laboulbenia flagellata* Peyr.
- *Laboulbenia lichtensteinii* F. Picard, Bull. Sci. France Belgique 50: 449 (1917) was mentioned in De Kesel (1998), but the host was found just across the border, in The Netherlands (Saeftinge).
- *Laboulbenia melanaria* Thaxt., *Proc. Amer. Acad. Arts & Sci.* 35(9): 186 (1899) [1899-1900] was mentioned in De Kesel (1998), but the host was found in France (Fréjus).

Based on the occurrence of their hosts in Belgium, we think *L. lichtensteinii* and *L. melanaria* could still be found in Belgium.

All specimens/slides marked **ADK** (André De Kesel), **JR** (Jan Rammeloo), **CG** (Cyrille Gerstmans), **TW** (Tom Werbrouck), **VDN** (Tom Van den Neucker), **L** (Albert Collart) are deposited at BR (Herbarium, Meise Botanic Garden, Belgium). Most of the Belgian material has been collected by the first two authors. Unless otherwise stated, all slide numbers marked ADKxxxx or CGxxxx are leg. & coll. André De Kesel or Cyrille Gerstmans, respectively.

Herpomycetales (Laboulbeniomycetes)

1. ***Herpomyces ectobiae*** **Thaxt.**, *Proc. Amer. Acad. Arts & Sci.* **38**(2): 20 (1902) [1903] **Plate 1. a**

Blattella germanica (Linnaeus, 1767) [Blattodea, Ectobiidae]

BELGIUM, Brussels-Capital Region, Brussel, 26/11/2008, leg. W. Baert, coll. A. De Kesel, slides ADK4666(a,b); ibid., Evere, 12/06/1881, leg. A. De Borre, coll. A. Collart, slides L259 (De Kesel 1997b; De Kesel 2001; De Kesel & Rammeloo 1992, *ut Herpomyces periplanetae*).

2. ***Herpomyces periplanetae*** **Thaxt.**, *Proc. Amer. Acad. Arts & Sci.* **38**(2): 13 (1902) [1903] **Plate 1. b**

Periplaneta americana (Linnaeus, 1758) [Blattodea, Blattidae]

BELGIUM, Antwerpen, Antwerpen, no date, leg. L. Becker, coll. A. Collart, slides L253 (De Kesel 1997b; De Kesel 2001; De Kesel & Rammeloo 1992).

Blatta orientalis Linnaeus, 1758 [Blattodea, Ectobiidae]

BELGIUM, Brussels-Capital Region, Sint-Joost-ten-Node, 07/04/1882, leg. H. Clavereau, coll. A. Collart, slides L254 (De Kesel 1997b; De Kesel 2001; De Kesel & Rammeloo 1992).

3. ***Herpomyces stylopygae*** **Speg.**, *Anal. Mus. nac. Hist. nat. B. Aires* **29**: 551 (1917) **Plate 1. c**

Blatta orientalis Linnaeus, 1758 [Blattodea, Ectobiidae]

BELGIUM, Liège, Visé, no date, leg. L. Quaedvlieg, coll. A. Collart, slides L255 (De Kesel 1997b; De Kesel 2001; De Kesel & Rammeloo 1992); Luxembourg, no precise loc., no date, leg. A. Mertens., coll. A. Collart, slides L256 (De Kesel 1997b; De Kesel 2001; De Kesel & Rammeloo 1992).

Laboulbeniales (Laboulbeniomycetes)

4. Aphanandromyces audisioi W. Rossi, *Mycologia* 74(3): 522 (1982) **Plate 2. a-b**

Brachypterus urticae (Fabricius, 1792) [Coleoptera, Kateretidae]

BELGIUM, Antwerpen, Niel, Walenhoek, 07/06/2019, slides ADK6471; Luxembourg, Dochamps, 19/07/2014, slides CG243; Namur, Belvaux (Rochefort), 20/06/2010, slides CG160; ibid., Beez, 21/05/2009, slides CG65; Oost-Vlaanderen, Zomergem, Prov. Dom. Het Leen, 25/07/1998, leg. I. Hoste, ADK6512; Vlaams-Brabant, Meise, Domein van Bouchout, 4/8/2008, slides ADK4672(a,b,c) (De Kesel & Gerstmans 2011)

5. Asaphomyces tubanticus (Middelh. & Boelens) Scheloske, *Parasitol. Schriftenreihe* 19: 92 (1969) **Plate 2. c-e**

Catops fuscus (Panzer, 1794) [Coleoptera, Leiodidae]

BELGIUM, West-Vlaanderen, Koksijde, 23/2/1974, leg. E. Deconinck & R. Bosmans, coll. J. Rammeloo, slides JR5058 (De Kesel 1997b; De Kesel & Rammeloo 1992; Rammeloo 1986).

Catops longulus Kellner, 1846 [Coleoptera, Leiodidae]

BELGIUM, Namur, Marche-les-Dames, 24/8/1930, leg. R. Leruth, coll. A. Collart, slides L182 (De Kesel 1997b; De Kesel & Rammeloo 1992). Oost-Vlaanderen, Drongen (Bourgoyen), 4/1/1974, leg. Dhondt, coll. J. Rammeloo, slides JR3679 (De Kesel 1997b; De Kesel & Rammeloo 1992; Rammeloo 1986).

Catops nigricans (Spence, 1813) [Coleoptera, Leiodidae]

BELGIUM, Oost-Vlaanderen, Drongen (Bourgoyen), 4/1/1974, leg. Dhondt, coll. J. Rammeloo, slides JR3680 (De Kesel 1997b; Rammeloo 1986); ibid., 18/1/1974, leg. Dhondt, coll. J. Rammeloo, slides JR3681a (De Kesel 1997b; De Kesel & Rammeloo 1992; Rammeloo 1986); Mere, Molenbeek, 9/2/1982, leg. K. Desender, coll. A. De Kesel, slides ADK538 (De Kesel 1997b); Zwijnaarde, 12/2/1974, leg. E. Deconinck & R. Bosmans, coll. J. Rammeloo, slides JR5074(a-f) (De Kesel 1997b; De Kesel & Rammeloo 1992; Rammeloo 1986); Vlaams-Brabant, Meise, Domein van Bouchout, 24/3/1993, slides ADK4712 (De Kesel & Gerstmans 2011); West-Vlaanderen, Oostduinkerke, 31/3/1974, leg. E. Deconinck & R. Bosmans, coll. J. Rammeloo, slides JR5061(a,b) (De Kesel 1997b; De Kesel & Rammeloo 1992).

Catops sp. [Coleoptera, Leiodidae]

BELGIUM, Vlaams-Brabant, Meise, Domein van Bouchout, 29/07/2019, slides CG482.

6. Botryandromyces heteroceri (Thaxt.) I.I. Tav. & T. Majewski, *Mycotaxon* 3(2): 195 (1976) **Plate 3. a-c**

Heterocerus fenestratus (Thunberg, 1784) [Coleoptera, Heteroceridae]

BELGIUM, Antwerpen, Bornem-Hingene, Schellandpolder, 16/6/1996, slides ADK4729 (De Kesel 2010a).

Heterocerus flexuosus Stephens, 1828 [Coleoptera, Heteroceridae]

BELGIUM, West-Vlaanderen, Knokke-Heist, Zwin, 28/8/1992, leg. G. Haghebaert, coll. A. De Kesel, slides ADK663 (De Kesel 1997b; De Kesel 2010a).

Heterocerus hispidulus Kiesenwetter, 1843 [Coleoptera, Heteroceridae]

BELGIUM, West-Vlaanderen, Knokke-Heist, Het Zwin, 8/8/1994, slides ADK902(a,b) (De Kesel 1997b; De Kesel 2010a).

7. Cantharomyces denigratus Thaxt., *Mem. Am. Acad. Arts Sci.*, ser. 2 **16**(1): 27 (1931) **Plate 4. a-f**

Dryops luridus (Erichson, 1847) [Coleoptera, Dryopidae]

BELGIUM, Antwerpen, Niel, Walenhoek, 10/7/2013, leg. De Kesel, Haelewaters & Gerstmans, coll. A. De Kesel, slides ADK6138(a,b) (De Kesel & Haelewaters 2015); ibid., 21/8/2014, slides ADK6144, ADK6145, ADK6147, ADK6165 (De Kesel & Haelewaters 2015); ibid., 28/8/2014, slides ADK6149(a,c) (De Kesel & Haelewaters 2015), slides ADK6177; ibid., 5/9/2014, slides ADK6154, ADK6155b (De Kesel & Haelewaters 2015), slides ADK6175.

8. Cantharomyces italicus Speg., *Anal. Mus. nac. Hist. nat. B. Aires* **27**: 42 (1915) **Plate 4. g-l**

Dryops luridus (Erichson, 1847) [Coleoptera, Dryopidae]

BELGIUM, Antwerpen, Niel, Walenhoek, 10/7/2013, leg. De Kesel, Haelewaters & Gerstmans, coll. A. De Kesel, slides ADK6140, ADK6141, ADK6142 (De Kesel & Haelewaters 2015); ibid., 21/8/2014, slides ADK6180, ADK6146, ADK6148, ADK6166 (De Kesel & Haelewaters 2015); ibid., 28/8/2014, slides ADK6149b, ADK6150, ADK6152a, ADK6162, ADK6164 (De Kesel & Haelewaters 2015); ibid., 5/9/2014, slides ADK6179.

9. Cantharomyces orientalis Speg., *Anal. Mus. nac. Hist. nat. B. Aires* **27**: 43 (1915) **Plate 5. a-e**

Carpelimus corticinus (Gravenhorst, 1806) [Coleoptera, Staphylinidae]

BELGIUM, Antwerpen, Zandvliet, Groot Buitenschoor, 11/4/1990, leg. G. Haghebaert, coll. A. De Kesel, slides ADK317(a,b) (De Kesel 1997b; De Kesel & Haghebaert 1991); Vlaams-Brabant, Meise, Domein van Bouchout, 25/6/2009, slides ADK4721 (De Kesel & Gerstmans 2011).

Carpelimus foveolatus (Sahlberg, 1832) [Coleoptera, Staphylinidae]

BELGIUM, West-Vlaanderen, Oostende, polder, 31/5/1991, leg. G. Haghebaert, coll. A. De Kesel, slides ADK404 (De Kesel 1997b; De Kesel & Haghebaert 1991).

Carpelimus sp. [Coleoptera, Staphylinidae]

BELGIUM, Vlaams-Brabant, Meise, Domein van Bouchout, 04/6/2019, slides CG477.

Diglotta mersa (Haliday, 1837) [Coleoptera, Staphylinidae]

BELGIUM, West-Vlaanderen, Oostende, 20/5/1989, leg. G. Haghebaert, coll. A. De Kesel, slides ADK513a,b (De Kesel 1997b).

10. Cantharomyces platystethi Thaxt., *Proc. Amer. Acad. Arts & Sci. 35*: 415 (1900) **Plate 6. a-c**

Platystethus sp. [Coleoptera, Staphylinidae]

BELGIUM, Vlaams-Brabant, Meise, Domein van Bouchout, 8/6/2010, slide CG151(a,b,c).

11. Cantharomyces robustus T. Majewski, *Acta Mycologica*, Warszawa **23**(2): 99 (1990) [1987] **Plate 7. a-c**

Carpelimus bilineatus Stephens, 1834 [Coleoptera, Staphylinidae]

BELGIUM, West-Vlaanderen, Oostende, 5/7/1991, leg. G. Haghebaert & L. Van Hercke, coll. A. De Kesel, slides ADK416 (De Kesel 1997b; De Kesel & Haghebaert 1991, *ut Cantharomyces thaxteri*).

Carpelimus corticinus (Gravenhorst, 1806) [Coleoptera, Staphylinidae]

BELGIUM, Antwerpen, Zandvliet, Groot Buitenschoor, 11/4/1990, leg. G. Haghebaert, coll. A. De Kesel, slides ADK317c (De Kesel 1997b; De Kesel & Haghebaert 1991).

Carpelimus rivularis (Motschulsky, 1860) [Coleoptera, Staphylinidae]

BELGIUM, West-Vlaanderen, Oostende, 28/6/1991, leg. G. Haghebaert, coll. A. De Kesel, slides ADK410 (De Kesel 1997b; De Kesel & Haghebaert 1991, *ut Cantharomyces venetus*).

Carpelimus sp. [Coleoptera, Staphylinidae]

BELGIUM, Vlaams-Brabant, Meise, Domein van Bouchout, 25/6/2009, slides ADK4719, ADK4720(a,b), ADK4722, ADK4723 (De Kesel & Gerstmans 2011).

Gnypeta rubrior Tottenham, 1939 [Coleoptera, Staphylinidae]

BELGIUM, West-Vlaanderen, Oostende, 13/10/1991, leg. G. Haghebaert, coll. A. De Kesel, slides ADK511a,c (De Kesel 1997b).

12. Chitonomyces aculeifer Speg., *Anal. Mus. nac. Hist. nat. B. Aires* **27**: 44 (1915) **Plate 8. a-b**

Graptodytes pictus (Fabricius, 1787) [Coleoptera, Dytiscidae]

BELGIUM, Antwerpen, Niel, kleiputten, 18/8/2011, slides ADK4996 (De Kesel & Haelewaters 2012).

Haliplus sp. [Coleoptera, Haliplidae]

BELGIUM, Antwerpen, Niel, Walenhoek, 24/11/2014, slides ADK6181, ADK6182.

13. Chitonomyces italicus Speg., *Anal. Mus. nac. Hist. nat. B. Aires* **27**: 46 (1915) **Plate 8. c**

Laccophilus hyalinus (De Geer, 1774) [Coleoptera, Dytiscidae]

BELGIUM, Antwerpen, Niel, Walenhoek, 30/10/2006, slides ADK4149c (De Kesel & Werbrouck 2008); ibid., 18/8/2011, slides ADK5133a (De Kesel & Haelewaters 2012).

14. Chitonomyces melanurus Peyr., *Sber. Akad. Wiss. Wien*, Math.-naturw. Kl., Abt. 1 **68**: 250 (1873) **Plate 8. d**

Laccophilus hyalinus (De Geer, 1774) [Coleoptera, Dytiscidae]

BELGIUM, Antwerpen, Niel, Walenhoek, 18/8/2011, slides ADK5133c (De Kesel & Haelewaters 2012); ibid., 30/10/2006, slides ADK4149b (De Kesel & Werbrouck 2008).

15. Chitonomyces paradoxus (Peyr.) Thaxt., *Mem. Am. Acad. Arts Sci.* **12**: 287 (1902) **Plate 8. e**

Laccophilus hyalinus (De Geer, 1774) [Coleoptera, Dytiscidae]

BELGIUM, Antwerpen, Niel, kleiputten, 30/10/2006, leg. & coll. A. De Kesel, slides ADK4149a (De Kesel & Werbrouck 2008); ibid., 18/8/2011, slides ADK5133b (De Kesel & Haelewaters 2012).

16. Compsomyces lestevae Thaxt., *Proc. Amer. Acad. Arts & Sci.* 35: 439 (1900) **Plate 9. a-c**

Lesteva longoelytrata (Goeze, 1777) [Coleoptera, Staphylinidae]

BELGIUM, West-Vlaanderen, Oostende, polder, 1/5/1987, leg. G. Haghebaert, coll. A. De Kesel, slides ADK1674a,b (De Kesel 1997b).

Lesteva pubescens Mannerheim, 1830 [Coleoptera, Staphylinidae]

BELGIUM, Vlaams-Brabant, Meise, Domein van Bouchout, 24/3/1993, slides ADK4716 (De Kesel & Gerstmans 2011).

Lesteva sicula subsp. heeri Fauvel, 1871 [Coleoptera, Staphylinidae]

BELGIUM, Liège, Moha, 13/12/1979, leg. & coll. A. De Kesel , slides ADK396 (De Kesel 1997b; De Kesel & Haghebaert 1991); Vlaams-Brabant, Galmaarden (Station S2), 10/5/1982, leg. R. Segers, coll. A. De Kesel, slides ADK645 (De Kesel 1997b); Meise, Domein van Bouchout, 24/3/1993, slides ADK4715 (De Kesel & Gerstmans 2011).

Lesteva sp. [Coleoptera, Staphylinidae]

BELGIUM, Vlaams-Brabant, Meise, Domein van Bouchout, 24/10/2019, slide CG487.

17. Coreomyces arcuatus Thaxt., *Mem. Am. Acad. Arts Sci., ser.* 2 16(1): 324 (1931) **Plate 9. d**

Sigara striata (Linnaeus, 1758) [Hemiptera, Corixidae]

BELGIUM, Antwerpen, Retie, Witte Nete, 11/10/1983 (leg. Th Vercauteren, PIH), slide T. Werbrouck 171 (De Kesel & Werbrouck 2008).

Note: the original material is lost, only digital images of the specimens are available.

18. Corethromyces henrotii Balazuc [as '*henroti*'], *Bull. mens. Soc. linn. Lyon* 42(10): 283 (1973) **Plate 10. a-b**

Choleva cisteloides (Frölich, 1799) [Coleoptera, Leiodidae]

BELGIUM, Namur, Spy (Onoz), 28/6/1942, leg. & coll. A. Collart, slides L12 (De Kesel 1997b; De Kesel & Rammeloo 1992; De Kesel & Haelewaters 2019); West-Vlaanderen, Oostduinkerke, 3/3/1974, leg. E. Deconinck & R. Bosmans, coll. J. Rammeloo, slides JR5056 (De Kesel & Rammeloo 1992; De Kesel & Haelewaters 2019).

19. Corethromyces stilici Thaxt., *Proc. Amer. Acad. Arts & Sci.* 37: 42 (1901) **Plate 10. c-f**

Rugilus rufipes Germar, 1836 [Coleoptera, Staphylinidae]

BELGIUM, Oost-Vlaanderen, Neigem, Neigembos, 18/5/1977, leg. G. Haghebaert & L. Van Hercke, coll. A. De Kesel, slides ADK417 (De Kesel 1997b; De Kesel & Haghebaert 1991); Vlaams-Brabant, Meise, Domein van Bouchout, 7/05/2019, slides CG451; West-Vlaanderen, Oostende, 1/5/1987, leg. G. Haghebaert, coll. A. De Kesel, slides ADK1680b (De Kesel 1997b).

Rugilus similis (Erichson, 1839) [Coleoptera, Staphylinidae]

BELGIUM, West-Vlaanderen, Beernem, Bulskampveld, 26/6/1986, leg. G. Haghebaert & M. Pollet, coll. A. De Kesel, slides ADK419 (De Kesel 1997b; De Kesel & Haghebaert 1991).

Rugilus sp. [Coleoptera, Staphylinidae]

BELGIUM, Antwerpen, Bornem-Hingene, Domein de Notelaer, 4/9/1994, leg. & coll. A. De Kesel , slides ADK994 (De Kesel 1997b); Vlaams-Brabant, Meise, Domein van Bouchout, 19/5/1993, slides ADK4700 (De Kesel & Gerstmans 2011).

20. Cryptandromyces bibloplecti T. Majewski, *Acta Mycologica, Warszawa* 25(1): 43 (1990) **Plate 11. a-b**

Genus et spec. undet. [Coleoptera, Pselaphidae]

BELGIUM, Vlaams-Brabant, Meise, Domein van Bouchout, 4/06/2019, slides CG476.

21. Cryptandromyces elegans (Maire) W. Rossi & D. Castaldo, *Pl. Biosystems* 138(3): 264 (2004) **Plate 11. c-d**

Brachygluta xanthoptera Reichenbach, 1816 [Coleoptera, Pselaphidae]

BELGIUM, Namur, Wavreille, 23/8/1945, leg. N. Leleup, coll. A. Collart, slides L266 (De Kesel 1997b, ut *Cryptandromyces brachyglutae*; De Kesel & Rammeloo 1992, ut *Peyerimhoffiella elegans*); ibid., 15/9/1945, leg. N. Leleup, coll. A. Collart, slides L272 (De Kesel 1997b, *ut Cryptandromyces brachyglutae*; De Kesel & Rammeloo 1992, *ut Peyerimhoffiella elegans*).

22. Cryptandromyces euplecti Santam., *Nova Hedwigia* 72(3-4): 384 (2001) **Plate 11. f-j**

Euplectus sanguineus Denny, 1825 [Coleoptera, Staphylinidae]

BELGIUM, West-Vlaanderen, Oostende, 23/11/1992, leg. G. Haghebaert, coll. A. De Kesel, slides ADK542a,b (De Kesel 1997b; Santamaría 2001).

23. Dimorphomyces myrmedoniae Thaxt., *Proc. Amer. Acad. Arts & Sci.* 36: 409 (1900) [1901] **Plate 12. a-c**

Gnypeta rubrior Tottenham, 1939 [Coleoptera, Staphylinidae]

BELGIUM, West-Vlaanderen, Oostende, 13/10/1991, leg. G. Haghebaert, coll. A. De Kesel, slides ADK511b (De Kesel 1997b).

24. Diphymyces kaaistoepi Haelew. & De Kesel, *Sterbeeckia* 35: 63 (2019) **Plate 13. a-c**

Choleva cisteloides (Frölich, 1799) [Coleoptera, Leiodidae]

BELGIUM, West-Vlaanderen, Oostduinkerke, 3/3/1974, leg. E. Deconinck & R. Bosmans, coll. J. Rammeloo, slides JR5056 (De Kesel 1997b, *ut Corethromyces cholevae*; De Kesel & Rammeloo 1992, *ut Corethromyces sp*.; De Kesel & Haelewaters 2019).

25. Distolomyces forficulae (T. Majewski) I.I. Tav., *Mycol. Mem.* 9: 207 (1985) **Plate 14. a-e**

Forficula auricularia Linnaeus, 1758 [Dermaptera, Forficulidae]

BELGIUM, Antwerpen, Boom, Haesaertsplaats, 1/2/2011, slides ADK5137; ibid., 26/3/2011, slides ADK5140; ibid., 28/8/2010, slides ADK5141 (De Kesel & Gerstmans 2012); Hingene, Schellandpolder, 5/4/2018, slides ADK6328; Klein Willebroek, Broeck de Naeyer, 1/11/2011, slides ADK5135 (De Kesel & Gerstmans 2012); Niel, Potaardestraat, 20/9/2011, slides ADK5136 (De Kesel & Gerstmans 2012), Wuustwezel, 1/04/2019, leg. S. De Weggheleire, coll. A. De Kesel, slides ADK6425; Brussels-Capital Region, Anderlecht, 19/7/2013, slide CG219; Jette, Herrewegestraat, 20/08/2019, slides CG485; Sint-Jans-Molenbeek, 14/5/2011, slides CG190 (De Kesel & Gerstmans 2012); ibid., Park Houwaert, 10/04/2018, slides CG455; ibid., Laeken, Av. Des citronniers, 26/8/2010, slides CG175 (De Kesel & Gerstmans 2012); Liège, Trooz, 3/10/2015, slides CG461; Namur, Jemeppe-sur-Sambre, 26/06/2016, slides CG349; ibid., Beez, 14/04/2012, slides CG193; Vlaams-Brabant, Meise, Domein van Bouchout, 3/3/2011, slides ADK5139; ibid., 2/3/2011, slides CG178(a,b); ibid., 04/03/2011, slides CG179 (De Kesel & Gerstmans 2012); ibid., 17/10/2018, slides ADK6361; ibid., 21/11/2018, slides ADK6366; ibid., 18/4/2019, slides ADK6437; West-Vlaanderen, Oostduinkerke, 10/4/2011, slides CG182; ibid., 15/4/2011, slides CG189 (De Kesel & Gerstmans 2012).

26. Ecteinomyces trichopterophilus Thaxt., *Proc. Amer. Acad. Arts & Sci.* 38(2): 26 (1902) [1903] **Plate 14. f-g**

Acrotrichis fascicularis (Herbst, 1793) [Coleoptera, Ptiliidae]

BELGIUM, Oost-Vlaanderen, Drongen (Bourgoyen), 17/8/1973, leg. F. Dhondt, coll. J. Rammeloo, slides JR3689 (De Kesel 1997b; De Kesel 2010a; De Kesel & Rammeloo 1992).

Acrotrichis intermedia (Gillmeister, 1845) [Coleoptera, Ptiliidae]

BELGIUM, Oost-Vlaanderen, Gontrode, 27/8/1974, leg. G. Haghebaert, coll. A. De Kesel, slides ADK979 (De Kesel 1997b; De Kesel 2010a).

Acrotrichis sp. [Coleoptera, Ptiliidae]

BELGIUM, Antwerpen, Niel, Walenhoek, 19/8/2009, slides ADK4734, ADK4769 (De Kesel 2010a; De Kesel 2010b); Namur, Belvaux (Rochefort), 19/6/2010, slide CG153; ibid., Beez, 5/5/2010, slide CG140; Vlaams-Brabant, Meise, Domein van Bouchout, 27/10/2009, slides ADK4754; ibid., 4/06/2019, slides CG474, CG475; West-Vlaanderen, Knokke-Heist, Zwin, 21/11/1992, leg. G. Haghebaert, coll. A. De Kesel, slides ADK660 (De Kesel 1997b; De Kesel 2010a).

27. Eucantharomyces stammeri Scheloske, *Parasitologische Schriftenreihe* 19: 108 (1969) **Plate 15. a-b**

Calathus melanocephalus (Linnaeus, 1758) [Coleoptera, Carabidae]

BELGIUM, Antwerpen, Heide Kalmthout, staatsnatuurreservaat, 24/7/1987, leg. K. Desender, coll. A. De Kesel, slides ADK610a,b (De Kesel 1997b); ibid., Tielen, De Hoge Rielen, 5/7/1994, leg. S. Janssens, coll. A. De Kesel, slides ADK885 (De Kesel 1996b; De Kesel 1997b).

28. Euzodiomyces lathrobii Thaxt., *Proc. Amer. Acad. Arts & Sci.* 35: 449 (1900) **Plate 16. a-b**

Patrobus atrorufus (Stroem, 1768) [Coleoptera, Carabidae]

BELGIUM, Vlaams-Brabant, Meise, Domein van Bouchout, 23/9/1992, slides ADK692, ADK693 (De Kesel 1997b; De Kesel & Gerstmans 2011).

Pterostichus strenuus (Panzer, 1796) [Coleoptera, Carabidae]

BELGIUM, Vlaams-Brabant, Meise, Domein van Bouchout, 18/11/1992, slides ADK654 (De Kesel 1997b; De Kesel & Gerstmans 2011).

Lathrobium brunnipes (Fabricius, 1793) [Coleoptera, Staphylinidae]

BELGIUM, Antwerpen, Bornem-Hingene, Domein de Notelaer, 24/8/1992, leg. & coll. A. De Kesel A. De Kesel, slides ADK986a (De Kesel 1997b); Vlaams-Brabant, Vilvoorde, 11/10/1942, leg. N.Leleup, coll. A. Collart, slides L75 (De Kesel 1997b).

Lathrobium elongatum (Linnaeus, 1767) [Coleoptera, Staphylinidae]

BELGIUM, Antwerpen, Hingene, Schellandpolder, 12/6/1991, slides ADK362 (De Kesel 1997b; De Kesel & Haghebaert 1991); Vlaams-Brabant, Meise, Domein van Bouchout, 5/5/1993, slides ADK4694c (De Kesel & Gerstmans 2011).

Lathrobium geminum Kraatz, 1857 [Coleoptera, Staphylinidae]

BELGIUM, Vlaams-Brabant, Vilvoorde, 11/10/1942, leg. N. Leleup, coll. A. Collart, slides L73 (De Kesel 1997b; De Kesel & Rammeloo 1992, *ut E. capillaris*).

Lathrobium sp. [Coleoptera, Staphylinidae]

BELGIUM, Antwerpen, Bornem, Branst, 14/5/2005, slides ADK4066; ibid., Hingene, Schellandpolder, 18/4/1991, slides ADK982 (De Kesel 1997b); Vlaams-Brabant, Meise, Domein van Bouchout, 5/5/1993, slides ADK4695 (De Kesel & Gerstmans 2011).

Lobrathium multipunctum (Gravenhorst, 1802) [Coleoptera, Staphylinidae]

BELGIUM, no loc., no date, leg. Wesmael, coll. A. Collart, slides L86, L87 (De Kesel 1997b; De Kesel & Rammeloo 1992).

29. Helodiomyces elegans F. Picard, *Bull. Soc. mycol. Fr.* 29: 557 (1913) Plate 17. a-e

Dryops luridus (Erichson, 1847) [Coleoptera, Dryopidae]

BELGIUM, Antwerpen, Niel, Walenhoek, 28/8/2014, slides ADK6151(a,b,c), ADK6152(b,c,d) (De Kesel & Haelewaters 2015); ibid., 5/9/2014, slides ADK6155a, slides ADK6156 (De Kesel & Haelewaters 2015).

30. Hesperomyces coccinelloides Thaxt., *Mem. Am. Acad. Arts Sci.*, ser. 2 16: 110 (1931) Plate 18. a-b

Stethorus punctillum (Weise, 1891) [Coleoptera, Coccinellidae (Scymninae)]

BELGIUM, Brussels-Capital Region, Brussel, Speelplein Willem de Mol, 11/10/2010, leg. Johan Bogaert, coll. A. De Kesel, slides ADK4867a,b (De Kesel 2011).

31. Hesperomyces virescens Thaxt., *Proc. Amer. Acad. Arts & Sci.* 25: 264 (1891), *s.l.* Plate 18. c-d, Plate 19. a-e

Halyzia sedecimguttata (Linnaeus, 1758) [Coleoptera, Coccinellidae]

BELGIUM, Vlaams-Brabant, Meise, Domein van Bouchout, 28/03/2019, slides CG437-440; ibid., 01/04/2019, slides CG441-442.

Harmonia axyridis (Pallas, 1773) [Coleoptera, Coccinellidae]

BELGIUM, Antwerpen, Brasschaat, 26/2/2011, slides ADK4876, ADK4877 (De Kesel 2011); ibid., Mechelen, Vrijbroekpark, 6/3/2011, slides ADK4879 (De Kesel 2011); ibid., Terhagen, Reservaat Kleiputten (Natuurpunt), 12/10/2019, slides ADK6508; Brussels-Capital Region, Sint-Jans-Molenbeek, 16/06/2013, slides CG199; ibid., Ukkel, 20/12/2010, leg. Patrice Deramaix, coll. A. De Kesel, slides ADK4872(a,b,c) (De Kesel 2011); Hainaut, Mons, 3/12/2017, slides CG372; Namur, Jemeppe-sur-Sambre, 30/06/2013, slides CG208; Oost-Vlaanderen, Moorsel, Koebrugstraat 10a, 10/3/2018, leg. P. Stoffelen, coll. A. De Kesel, slides ADK6327; ibid., Heusden (Destelbergen, Charles Lebonstraat, N438), 26/06/2013, leg. & coll. D. Haelewaters, slides D.Haelew 184a (Farlow Herbarium FH00313261; see Haelewaters *et al.* (2014a)); Vlaams-Brabant, Lennik, Kasteel van Gaasbeek, 23/10/2011, slides CG188; ibid., Meise, Domein van Bouchout, 25/2/2011, slides ADK4873(a,b,c), ADK4874, ADK4875 (De Kesel 2011); ibid. winter 2006, slide CG177 (De Kesel 2011; De Kesel & Gerstmans 2011); ibid., 21/3/2013, slides ADK5524, ADK5525; ibid., 15/4/2013, slides ADK5528, ADK5529; ibid., 25/10/2018, slides ADK6363; Waals Brabant, Villers-la-Ville, Mellery, 24/10/2015, slides CG279

Tytthaspis sedecimpunctata (Linnaeus, 1761) [Coleoptera, Coccinellidae]

BELGIUM, West-Vlaanderen, Knokke-Heist, Zwin, 7/8/1994, slides ADK763(a,b) (De Kesel 1997b, as *Adalia sp.*; De Kesel 2011, as *Psyllobora vigintiduopunctata* L.).

Note: Sequences obtained from thalli removed from multiple host species indicate that they likely represent different species of *Hesperomyces* (Haelewaters *et al.* 2018). Since these taxa are not yet formally named, we keep them under *H. virescens s.l.*

32. Hydraeomyces halipli (Thaxt.) Thaxt., *Mem. Am. Acad. Arts Sci.*, ser. 2 12: 294 (1902) Plate 20. a-b

Haliplus immaculatus Gerhardt, 1877 [Coleoptera, Haliplidae]

BELGIUM, Antwerpen, Niel, kleiputten, 30/10/2006, slides ADK4146 (De Kesel & Werbrouck 2008).

Haliplus lineatocollis (Marsham, 1802) [Coleoptera, Haliplidae]

BELGIUM, Antwerpen, Niel, kleiputten, 30/10/2006, slides ADK4145; ibid. 19/8/2008, slides ADK4664, ADK4665 (De Kesel & Werbrouck 2008).

Haliplus lineolatus Mannerheim, 1844 [Coleoptera, Haliplidae]

BELGIUM, Antwerpen, Niel, kleiputten, 30/10/2006, slides ADK4147 (De Kesel & Werbrouck 2008).

Haliplus ruficollis (De Geer, 1774) [Coleoptera, Haliplidae]
BELGIUM, Antwerpen, Niel, kleiputten, 30/10/2006, slides ADK4148 (De Kesel & Werbrouck 2008).
Haliplus sp. [Coleoptera, Haliplidae]
BELGIUM, Antwerpen, Niel, Walenhoek, 5/9/2014, slides ADK6153.

33. Hydrophilomyces cf. ***gracilis*** **T. Majewski**, *Acta Mycologica*, Warszawa **10**(2): 272 (1974) **Plate 20. c**
Cercyon marinus Thomson, 1853 [Coleoptera, Hydrophilidae]
BELGIUM, West-Vlaanderen, Knokke-Heist, zwinmonding, 28/4/2012, slides ADK5147.
Cercyon sp. [Coleoptera, Hydrophilidae]
BELGIUM, Antwerpen, Bornem, Branst, 11/06/2005, slides ADK4770.

34. Hydrophilomyces cf. ***hamatus*** **T. Majewski**, *Acta Mycologica*, Warszawa **10**(2): 274 (1974) **Plate 20. d**
Cercyon marinus Thomson, 1853 [Coleoptera, Hydrophilidae]
BELGIUM, West-Vlaanderen, Knokke-Heist, zwinmonding, 28/4/2012, slides ADK5150(a,b,c,d).

35. Idiomyces peyritschii **Thaxt.**, *Proc. Amer. Acad. Arts & Sci.* **28**: 162 (1893) **Plate 21. a**
Deleaster dichrous Gravenhorst, 1802 [Coleoptera, Staphylinidae]
BELGIUM, Namur, Wavreille, 27/7/1945, leg. N. Leleup, coll. A. Collart, slides L238(a,b,c) (De Kesel 1997b; De Kesel & Rammeloo 1992).

36. Kainomyces rehmanii **T. Majewski**, *Polish Bot. Stud.* **1**: 121 (1990) **Plate 21. b-d**
Acrotrichis sp. [Coleoptera, Ptiliidae]
BELGIUM, Antwerpen, Niel, Walenhoek, 19/8/2009, slides ADK4735(a,b), ADK4736 (De Kesel 2010b).

37. Laboulbenia anoplogenii **Thaxt.**, *Proc. Amer. Acad. Arts & Sci.* **35**(9): 156 (1899) [1899-1900] **Plate 22. a-d**
Stenolophus mixtus (Herbst, 1784) [Coleoptera, Carabidae]
BELGIUM, Antwerpen, Bornem-Hingene, Schellandpolder, 12/6/1991, slides ADK966 (De Kesel 1997b); ibid., 16/6/1991, slides ADK970 (De Kesel 1997b).
Stenolophus teutonus (Schrank, 1781) [Coleoptera, Carabidae]
BELGIUM, Oost-Vlaanderen, Smeerebbe-Vloerzegem, 17/5/1982, leg. K. Desender, coll. A. De Kesel, slides ADK544 (De Kesel 1997b); Vlaams-Brabant, Meise, Domein van Bouchout, 22/8/2006, leg. C. Gerstmans, slides CG77, ADK4703 (De Kesel & Gerstmans 2011).

38. Laboulbenia argutoris **Cépède & F. Picard**, *Bull. biol. Fr. Belg.* **42**: 260 (1909) **Plate 23. a-d**
Pterostichus diligens (Sturm, 1824) [Coleoptera, Carabidae]
BELGIUM, Luxembourg, Bihain (As Massotais), --/12/1988, leg. M. Dufrêne, coll. A. De Kesel, slides ADK316 (De Kesel 1997b; De Kesel & Rammeloo 1992); Oost-Vlaanderen, Smeerebbe-Vloerzegem, 7/4/1982, leg. K. Desender, coll. A. De Kesel, slides ADK543 (De Kesel 1997b); Vlaams-Brabant, Galmaarden, Markebeek, 7/4/1982, leg. K. Desender, coll. A. De Kesel, slides ADK553 (De Kesel 1997b); ibid., 30/6/1982, leg. K. Desender, coll. A. De Kesel, slides ADK536(a,b) (De Kesel 1997b).
Pterostichus strenuus (Panzer, 1796) [Coleoptera, Carabidae]
BELGIUM, Antwerpen, Bornem-Weert, 04-09/2001, leg. T. Van den Neucker, slides VDN(173a, 175A); Oost-Vlaanderen, Mere, Molenbeek, 7/4/1982, leg. K. Desender, coll. A. De Kesel, slides ADK541 (De Kesel 1997b); Vlaams-Brabant, Meise, Domein van Bouchout, 8/4/1992, slides ADK650 (De Kesel 1997b; De Kesel & Gerstmans 2011); ibid., 22/4/1992, slides ADK687 (De Kesel 1997b; De Kesel & Gerstmans 2011); ibid., 1/7/1992, slides ADK688 (De Kesel 1997b; De Kesel & Gerstmans 2011); ibid., 1-18/03/2019, slides ADK6421; ibid., 18/04/2019, slides ADK6433; ibid., 14-26/06/2019, slides ADK6472; West-Vlaanderen, Knokke-Heist, 6/5/1994, slides ADK897 (De Kesel 1997b); ibid., 13/4/1995, slides ADK916 (De Kesel 1997b); ibid., Oostduinkerke, 31/8/1974, leg. E. Deconinck & R. Bosmans, coll. J. Rammeloo, slides JR5049, JR5064 (De Kesel 1997b; De Kesel & Rammeloo 1992).

Note: in older thalli proliferation of the inner appendage occurs which may lead to erroneous identifications. Proliferation occurs more in thalli from *P. diligens* (50%) than in *P. strenuus* (20%).

39. Laboulbenia atlantica Thaxt., *Mem. Am. Acad. Arts Sci.* **12**: 336 (1902) **Plate 24. a-f**

Lobrathium multipunctum (Gravenhorst, 1802) [Coleoptera, Staphylinidae]

BELGIUM, Brussels-Capital Region, Jette, 25/11/2009, slides CG129; Laeken, no date, leg. C. Van Volxem, coll. A. Collart, slides L84 (De Kesel 1997b; De Kesel & Rammeloo 1992); Hainaut, Ath, 18/04/1875, leg. C. Van Volxem, coll. A. Collart, slides L85(a,b) (De Kesel 1997b; De Kesel & Rammeloo 1992); Vlaams-Brabant, Meise, Domein van Bouchout, 27/08/2010, slides CG176(a,b).

Note: this species is very rare, in Belgium only found in 1875, until new records were made in 2009 and 2010.

40. Laboulbenia benjaminii Balazuc ex Santam., *Fl. Mycol. Iberica* **4**: 45 (1998) **Plate 25. a-d**

Badister bullatus (Schrank, 1798) [Coleoptera, Carabidae]

BELGIUM, Brussels-Capital Region, Sint-Jans-Molenbeek, Park Houwaert, 10/04/2018, slides CG456; Luxembourg, Etalle (Les Abattis), --/11/1988, leg. M. Dufrêne, coll. A. De Kesel, slides ADK303 (De Kesel 1997b; De Kesel & Rammeloo 1992, *ut Laboulbenia polyphaga*); Namur, Viroinval, Roche à Lomme, 10/8/1987, leg. M. Dufrêne, coll. A. De Kesel, slides ADK808 (De Kesel 1997b); Vlaams-Brabant, Meise, Domein van Bouchout, 3/6/1992, slides ADK697 (De Kesel 1997b; De Kesel & Gerstmans 2011).

Badister lacertosus Sturm, 1815 [Coleoptera, Carabidae]

BELGIUM, Vlaams-Brabant, Meise, Domein van Bouchout, 1/7/1992, slides ADK698 (De Kesel 1997b; De Kesel & Gerstmans 2011).

Badister sodalis (Duftschmid, 1812) [Coleoptera, Carabidae]

BELGIUM, Oost-Vlaanderen, Drongen (Bourgoyen), 17/8/1973, leg. F. Dhondt, coll. J. Rammeloo, slides JR3693(I,II) (De Kesel 1997b; De Kesel & Rammeloo 1992, *ut Laboulbenia polyphaga*); Vlaams-Brabant, Boortmeerbeek, 1/2/1944, leg. N. Leleup, coll. A. Collart, slides L148a,b (De Kesel 1997b; De Kesel & Rammeloo 1992, *ut Laboulbenia polyphaga*); ibid., Meise, Domein van Bouchout, 25/6/2009, slides CG81 (De Kesel & Gerstmans 2011); ibid., 8/4/1992, slides ADK699 (De Kesel 1997b; De Kesel & Gerstmans 2011); ibid., 2/6/1993, slides ADK4684 (De Kesel & Gerstmans 2011); ibid., 17/6/1993, slides ADK4702 (De Kesel & Gerstmans 2011); ibid., 25/6/2009, leg. Gerstmans C. & coll. A. De Kesel, slides CG81, ADK4725 (De Kesel & Gerstmans 2011).

Badister unipustulatus Bonelli, 1813 [Coleoptera, Carabidae]

BELGIUM, Antwerpen, Klein Willebroek, Broeck de Naeyer, 3/11/2011, slides ADK6377.

41. Laboulbenia calathi T. Majewski, *Polish Bot. Stud.* **7**: 89 (1994) **Plate 26. a-f**

Calathus erratus (C.R. Sahlberg, 1827) [Coleoptera, Carabidae]

BELGIUM, West-Vlaanderen, Lombardsijde-Brandaris, 26/8/1989, leg. G. Haghebaert, coll. A. De Kesel, slides ADK990 (De Kesel 1997b).

Calathus melanocephalus (Linnaeus, 1758) [Coleoptera, Carabidae]

BELGIUM, West-Vlaanderen, Knokke-Heist, Zwin, 18/10/1993, slides ADK5160; ibid., 25/6/1974, leg. E. Deconinck & R. Bosmans, coll. J. Rammeloo, slides JR5048 (De Kesel 1997b; De Kesel & Rammeloo 1992, *ut Laboulbenia polyphaga*); ibid., 21/4/1995, slides ADK958(a,b,c) (De Kesel 1997b); ibid., Lombardsijde-Brandaris, 6/10/1989, leg. G. Haghebaert, coll. A. De Kesel, slides ADK988(a,b) (De Kesel 1997b); ibid., 26/8/1989, leg. G. Haghebaert, coll. A. De Kesel, slides ADK989(a,b,c,d) (De Kesel 1997b); ibid., Oostduinkerke (Koksijde), 14/8/2014, slide CG251.

Note: both hosts are common to very common in Belgium (Muilwijk *et al.* 2015), infected hosts were only found at the coast. More inland, *C. melanocephalus* is only infected with *Eucantharomyces stammeri*.

42. Laboulbenia clivinalis Thaxt., *Proc. Amer. Acad. Arts & Sci.* **35**(9): 155 (1899) [1899-1900] **Plate 27. a-d**

Clivina collaris (Herbst, 1784) [Coleoptera, Carabidae]

BELGIUM, Oost-Vlaanderen, Smeerebbe, molenbeek, 2/6/1982, leg. K. Desender, coll. A. De Kesel, slides ADK746 (De Kesel 1997b); ibid., 25/8/1982, leg. K. Desender, coll. A. De Kesel, slides ADK747 (De Kesel 1997b); Vlaams-Brabant, Meise, Domein van Bouchout, 19/4/2007, leg. & coll. C. Gerstmans , slides CG69 (De Kesel & Gerstmans 2011); ibid., 22/4/1992, slides ADK701 (De Kesel 1995; De Kesel 1997b; De Kesel & Gerstmans 2011); ibid, 20/5/1992, slides ADK702 (De Kesel 1997b; De Kesel & Gerstmans 2011); ibid., 23/9/1993, slides ADK4675 (De Kesel & Gerstmans 2011); ibid., 19/4/2007, leg. Gerstmans C. (CG69), coll. A. De Kesel, slides ADK4706 (De Kesel & Gerstmans 2011).

Clivina fossor (Linnaeus, 1758) [Coleoptera, Carabidae]

BELGIUM, Antwerpen, Bornem-Hingene, Domein de Notelaer, April-Sept./2001, leg. T. Van den Neucker, slides VDN104. Oost-Vlaanderen, Mere, Molenbeek, 25/8/1982, leg. K. Desender, coll. A. De Kesel, slides ADK751 (De Kesel 1995; De Kesel 1997b); ibid., Poeke, 17/5/1982, leg. K. Desender, coll. A. De Kesel,

slides ADK754 (De Kesel 1995; De Kesel 1997b); ibid., Smeerebbe, molenbeek, 5/5/1982, leg. K. Desender, coll. A. De Kesel, slides ADK716 (De Kesel 1995; De Kesel 1997b); ibid., 17/5/1982, leg. K. Desender, coll. A. De Kesel, slides ADK717 (De Kesel 1997b); ibid., 2/6/1982, leg. K. Desender, coll. A. De Kesel, slides ADK718, ADK744, ADK745 (De Kesel 1997b); ibid., 7/4/1982, leg. K. Desender, coll. A. De Kesel, slides ADK752 (De Kesel 1995; De Kesel 1997b); ibid., Viane, Markebeek, 5/5/1982, leg. K. Desender, coll. A. De Kesel, slides ADK727(a,b) (De Kesel 1997b); ibid., 17/5/1982, leg. K. Desender, coll. A. De Kesel, slides ADK728 (De Kesel 1995; De Kesel 1997b); ibid., 11/8/1982, leg. K. Desender, coll. A. De Kesel, slides ADK731 (De Kesel 1997b); ibid., 28/7/1982, leg. K. Desender, coll. A. De Kesel, slides ADK733, ADK734, ADK735 (De Kesel 1997b); ibid., 14/7/1982, leg. K. Desender, coll. A. De Kesel, slides ADK737, ADK738 (De Kesel 1997b); ibid., 25/8/1982, leg. K. Desender, coll. A. De Kesel, slides ADK739(a,b), ADK740, ADK741, ADK742(a,b), ADK743 (De Kesel 1997b); ibid., Zwijnaarde, no date, leg. M. Vaneeckoutte, coll. A. De Kesel, slides ADK335(a,b,c) (De Kesel 1995; De Kesel 1997b); Vlaams-Brabant, Galmaarden, Markebeek, 5/5/1982, leg. K. Desender, coll. A. De Kesel, slides ADK534, ADK753 (De Kesel 1995; De Kesel 1997b); ibid., Meise, Domein van Bouchout, 30/06/2015, leg. C. Gerstmans, slide CG256; ibid., 21/11/2018, slides ADK6367 (De Kesel & Gerstmans 2011); ibid., 26/04/2019, slides ADK6449; West-Vlaanderen, Hertsberge, 21/4/1982, leg. K. Desender, coll. A. De Kesel, slides ADK755 (De Kesel 1995; De Kesel 1997b); ibid., Knokke-Heist, Zwin, 15/5/1993, leg. K. Desender, coll. A. De Kesel, slides ADK750 (De Kesel 1995; De Kesel 1997b); ibid., Oostkamp, 21/4/1982, leg. K. Desender, coll. A. De Kesel, slides ADK756 (De Kesel 1995; De Kesel 1997b).

Note: *Laboulbenia clivinalis* shows morphological variation according to the position on the host. Compared to C*livina collaris*, *C. fossor* is the most common host and shows highest parasite prevalence on heavier (clay) soils (De Kesel 1997b).

43. Laboulbenia collae T. Majewski, *Polish Bot. Stud.* **7**: 104 (1994) **Plate 28. a-c**

Paranchus albipes (Fabricius, 1796) [Coleoptera, Carabidae]

BELGIUM, Antwerpen, Bornem, Scheldeschorren, 5/4/2018, slides ADK6331, ADK6354; ibid., 15/11/1990, slides ADK320b (De Kesel 1997b); ibid., 21/3/1995, slides ADK950(a,b,f) (De Kesel 1997b); ibid., Branst, Scheldeschorren, 14/9/2004, slides ADK3847; ibid., 04-09/2001, leg. T. Van den Neucker, slides VDN (115, 123, 185, 186, 245); ibid., 3/10/2018, slides ADK6459 (mixed), ADK6461, ADK6462, ADK6466a; ibid., Hingene, de Notelaer, 19/8/2008, slides ADK4661; ibid., 04-09/2001, leg. T. Van den Neucker, slides VDN (1-14, 16, 17, 19, 20, 24-27, 85-89, 91, 93-95, 97, 100); Luxembourg, Resteigne, Belvau, 23/5/1996, slides ADK1693 (De Kesel 1997b); Vlaams-Brabant, Meise, Domein van Bouchout, 1/7/1992, slides ADK695 (De Kesel 1997b; De Kesel & Gerstmans 2011); ibid., 24/3/1992, slides ADK711 (De Kesel 1997b; De Kesel & Gerstmans 2011); ibid., 4/8/2008, slides ADK4659(a,b) (De Kesel & Gerstmans 2011); Brabant wallon, Ohain, 17/8/1945, leg. N. Leleup, coll. A. Collart, slides L258 (De Kesel 1997b; De Kesel & Rammeloo 1992, *ut Laboulbenia flagellata*).

Agonum micans (Nicolai, 1822) [Coleoptera, Carabidae]

BELGIUM, Antwerpen, Bornem, Hingene Scheldeschorren (De Notelaer), 04-09/2001, leg. T. Van den Neucker, slides VDN101, VDN238.

44. Laboulbenia coneglianensis Speg., *Redia* **10**: 47 (1914), *s.l.* **Plate 29. a-e**

Harpalus affinis (Schrank, 1781) [Coleoptera, Carabidae]

BELGIUM, West-Vlaanderen, Knokke-Heist, Zwin, 19/9/1988, slides ADK288 (De Kesel 1997b, *ut L. flagellata*; De Kesel 2005a; De Kesel & Rammeloo 1992, *ut Laboulbenia elegans*); Namur, Anhée, 28/4/2008, slide CG92; ibid., Falmignoul, Ravin du Colébi, 27/6/2009, slide CG96; ibid.,

Harpalus atratus Latreille, 1804 [Coleoptera, Carabidae]

BELGIUM, Namur, Viroinval, Roche à Lomme, 10/8/1987, leg. M. Dufrêne, coll. A. De Kesel, slides ADK810 (De Kesel 1997b, *ut L. flagellata*; De Kesel 2005a) ; ibid., 10/6/1987, leg. M. Dufrêne, coll. A. De Kesel, slides ADK314, ADK315 (De Kesel 1997b, *ut L. flagellata*; De Kesel & Rammeloo 1992, *ut L. flagellata*).

Harpalus attenuatus Stephens, 1828 [Coleoptera, Carabidae]

BELGIUM, Namur, Viroinval, Roche à Lomme, 25/6/1986, leg. Dufrêne, coll. A. De Kesel, slides ADK781(a,b) (De Kesel 1997b, *ut L. flagellata*; De Kesel 2005a).

Harpalus griseus (Panzer, 1796) [Coleoptera, Carabidae]

BELGIUM, Luxembourg, Torgny, 2/9/1942, leg. N. Leleup, coll. A. Collart, slides L63 (De Kesel 1997b, *ut L. flagellata*; De Kesel 2005a; De Kesel & Rammeloo 1992, *ut L. flagellata*); Vlaams-Brabant, Diest, no date, leg. Putzeys, coll. A. Collart, slides L62, L66(a,b,c) (De Kesel 1997b, *ut L. flagellata*; De Kesel 2005a; De Kesel & Rammeloo 1992, *ut L. flagellata*).

Harpalus rufipes (De Geer, 1774) [Coleoptera, Carabidae]

BELGIUM, Luxembourg, Torgny, 20/4/1943, leg. N. Leleup, coll. A. Collart, slides L50 (De Kesel 1997b, *ut L. flagellata*; De Kesel 2005a; De Kesel & Rammeloo 1992, *ut L. flagellata*); Namur, Bois-de-Villers, 28/11/1942, leg. N. Leleup, coll. A. Collart, slides L51(a,b) (De Kesel 1997b, *ut L. flagellata*; De Kesel 2005a; De Kesel & Rammeloo 1992, ut *L. flagellata*); Vlaams-Brabant, Tervuren, --/05/1909, leg. P. Dupuis, coll. A. Collart, slides L53(a,b), L54(a,b,c,d) (De Kesel 1997b, *ut L. flagellata*; De Kesel & Rammeloo 1992, *ut L. flagellata;* De Kesel 2005a).

Harpalus tardus (Panzer, 1796) [Coleoptera, Carabidae]

BELGIUM, Namur, Viroinval, Roche à Lomme, 10/5/1987, leg. M. Dufrêne, coll. A. De Kesel, slides ADK792(a,b) (De Kesel 1997b, *ut L. flagellata*; De Kesel 2005a).

Harpalus sp. [Coleoptera, Carabidae]

BELGIUM, Namur, Anhée, 4/5/2014, slide CG424.

Ophonus rufibarbis (Fabricius, 1792) [Coleoptera, Carabidae]

BELGIUM, Brussels-Capital Region, Anderlecht, 19/07/2013, slide CG222; ibid., Jette, 20/5/2009, slide CG101, CG102; ibid., Laeken, 30/6/2009, slide CG104. Namur, Beez, 5/5/2010, slide CG141.

Note: the host range of this species is fairly wide and the material obtained from different hosts shows obvious morphological differences. *Laboulbenia coneglianensis* could be a species complex and needs to be properly studied using an integrative taxonomic approach.

45. Laboulbenia cristata Thaxt., *Proc. Amer. Acad. Arts & Sci.* **29**: 174 (1893) **Plate 30. a-d**

Paederus littoralis Gravenhorst, 1802 [Coleoptera, Staphylinidae]

BELGIUM, Antwerpen, Bornem-Hingene, Scheldeschorren, 17/1/1993, slides ADK639 (De Kesel 1997b); Oost-Vlaanderen, Neigem, 1/5/1977, leg. G. Haghebaert, coll. A. De Kesel, slides ADK420 (De Kesel 1997b; De Kesel & Haghebaert 1991).

Paederus riparius (Linnaeus, 1758) [Coleoptera, Staphylinidae]

BELGIUM, Oost-Vlaanderen, Drongen (Bourgoyen), 17/8/1973, leg. F. Dhondt, coll. J. Rammeloo, slides JR3682 (De Kesel 1997b; De Kesel & Rammeloo 1992); ibid., 21/12/1973, leg. F. Dhondt, coll. J. Rammeloo, slides JR3684 (De Kesel 1997b; De Kesel & Rammeloo 1992); ibid., 1/2/1974, leg. F. Dhondt, coll. J. Rammeloo, slides JR3685 (De Kesel 1997b); ibid., 17/12/1973, leg. F. Dhondt, coll. J. Rammeloo, slides JR3692 (De Kesel 1997b; De Kesel & Rammeloo 1992).

Paederus sp. [Coleoptera, Staphylinidae]

BELGIUM, Antwerpen, Bornem, Branst, 14/5/2005, slides ADK4064; Namur, Anhée, La Jonction, 20/4/2007, slide CG87 ; ibid., 06/7/2009, Beez, slide CG107; ibid., 5/5/2010, slide CG142; ibid., Jemeppe-sur-Sambre, 15/8/2006, slide CG84.

46. Laboulbenia dubia Thaxt., *Proc. Amer. Acad. Arts & Sci.* **38**(2): 35 (1902) [1903] **Plate 31. a-b**

Philonthus cognatus Stephens, 1832 [Coleoptera, Staphylinidae]

BELGIUM, Luxembourg, Chiny, 23/11/1943, leg. N. Leleup, coll. A. Collart, slides L152 (De Kesel 1997b; De Kesel & Rammeloo 1992).

Note: the identity and presence of *L. dubia* in Belgium needs to be confirmed with more mature material.

47. Laboulbenia egens Speg., *Anal. Soc. cient. argent.* **85**(3): 323 (1918) **Plate 32. a-c**

Elaphropus parvulus (Dejean, 1831) [Coleoptera, Carabidae]

BELGIUM, Namur, Wavreille, 23/8/1945, leg. N. Leleup, coll. A. Collart, slides L263, L264, L265 (De Kesel 1997b; De Kesel & Rammeloo 1992); West-Vlaanderen, Oostduinkerke (Koksijde), 4/7/2013, slide CG210.

Paratachys micros (Fischer von Waldheim, 1828) [Coleoptera, Carabidae]

BELGIUM, Brussels-Capital Region, Laeken, 18/5/2010, slide CG148; Vlaams-Brabant, Meise, Domein van Bouchout, 30/6/2009, leg. C. Gerstmans C., slides CG100, ADK4727 (De Kesel & Gerstmans 2011); West-Vlaanderen, Oostduinkerke (Koksijde), 7/7/2013, slide CG213.

48. Laboulbenia elaphri Speg., *Anal. Mus. nac. B. Aires* **26**: 64 (1915) **Plate 33. a-d**

Elaphrus cupreus Duftschmid, 1812 [Coleoptera, Carabidae]

BELGIUM, Antwerpen, Bornem, Wielewaal res., 04-09/2001, leg. T. Van den Neucker, slides VDN203; Oost-Vlaanderen, Ename, Grotenbos noord, 5/5/2016, leg. André Braeckman, coll. A. De Kesel, slides ADK6415; Vlaams-Brabant, Meise, Domein van Bouchout, 29/7/1992, slides ADK710 (De Kesel 1997b; De Kesel & Gerstmans 2011); ibid., 18/04/2019, slides ADK6436, ADK6438; ibid., 26/04/2019, slides ADK6447; ibid., Relegem (Bois de -), 15/4/1944, leg. C. J. Segers, coll. A. Collart, slides L171(a,b,c,d) (De Kesel 1997b; De

Kesel & Rammeloo 1992); ibid., Wemmel, 22/4/1944, leg. W. L. Hassewer, coll. A. Collart, slides L175, L176, L177, L178, L179 (De Kesel 1997b; De Kesel & Rammeloo 1992). The holotype of *L. elaphri* comes from Belgium, unknown locality, without date, see Spegazzini (1915) and Collart (1947).

Elaphrus riparius (Linnaeus, 1758) [Coleoptera, Carabidae]

BELGIUM, Vlaams-Brabant, Meise, 10/5/1944, leg. Hassewer, coll. A. Collart, slides L237 (De Kesel 1997b; De Kesel & Gerstmans 2011; De Kesel & Rammeloo 1992).

49. Laboulbenia eubradycelli Huldén, *Karstenia* **25**(1): 4 (1985) **Plate 34. a-g**

Bradycellus harpalinus (Audinet-Serville, 1821) [Coleoptera, Carabidae]

BELGIUM, Antwerpen, Heide Kalmthout, staatsnatuurreservaat, 29/1/1988, leg. K. Desender, coll. A. De Kesel, slides ADK655 (De Kesel 1997b); ibid., Tielen, De Hoge Rielen, 03/1994-03/1995, leg. S. Janssens, coll. A. De Kesel, slides ADK806, ADK807, ADK817-ADK852, ADK855 (De Kesel 1997b); Hainaut, Stambruges (Mer de Sable), --/01/1989, leg. M. Dufrêne, coll. A. De Kesel, slides ADK309 (De Kesel 1997b; De Kesel & Rammeloo 1992); Limburg, Maaseik, 8/8/1992, leg. L. Crêvecoeur, coll. A. De Kesel, slides ADK651(a,b) (De Kesel 1997b); Oost-Vlaanderen, Drongen (Bourgoyen), 23/11/1973, leg. F. Dhondt, coll. J. Rammeloo, slides JR3678(a,b) (De Kesel 1997b; De Kesel & Rammeloo 1992); Vlaams-Brabant, Meise, Domein van Bouchout, 7/4/1993, leg. I. Kranen, coll. A. De Kesel, slides ADK714 (De Kesel 1997b; De Kesel & Gerstmans 2011); ibid., Tervuren, no date, mentioned by L. Hulden (Huldén 1985).

Bradycellus ruficollis (Stephens, 1828) [Coleoptera, Carabidae]

BELGIUM, Hainaut, Stambruges (Mer de Sable), --/01/1989, leg. M. Dufrêne, coll. A. De Kesel, slides ADK291(a,b,c) (De Kesel 1997b), ADK308 (De Kesel 1997b; De Kesel & Rammeloo 1992, *ut Laboulbenia bradycelli*).

Bradycellus verbasci (Duftschmid, 1812) [Coleoptera, Carabidae]

BELGIUM, Namur, Beez, 5/7/2009, slide CG105; Limburg, Koersel, 30/7/1978, leg. M. Vaneeckoutte, coll. A. De Kesel, slides ADK339(ab,c) (De Kesel 1997b); Vlaams-Brabant, Meise, Domein van Bouchout, 10/5/1992, leg. I. Kranen, coll. A. De Kesel, slides ADK700 (De Kesel 1997b; De Kesel & Gerstmans 2011).

Trichocellus placidus (Gyllenhal, 1827) [Coleoptera, Carabidae]

BELGIUM, Antwerpen, Terhagen, Reservaat Kleiputten, 14/05/2019, slides ADK6469; Vlaams-Brabant, Galmaarden, Markebeek, 24/2/1982, leg. K. Desender, coll. A. De Kesel, slides ADK516 (De Kesel 1997b).

Note: *Laboulbenia eubradycelli* is a very variable species. Thallus length differs significantly between different host species (De Kesel 1997b) and proliferation of the inner appendage is observed in about half of the thalli from *Bradycellus verbasci*.

50. Laboulbenia fasciculata Peyr., *Sber. Akad. Wiss. Wien*, Math.-naturw. Kl., Abt. 1 **68**: 248 (1873) **Plate 35. a-c**

Nebria brevicollis (Fabricius, 1792) [Coleoptera, Carabidae]

BELGIUM, Vlaams-Brabant, Galmaarden, Markebeek (S), per 17, 8/9/1982, leg. K. Desender, coll. A. De Kesel, slides ADK547 (De Kesel 1997b).

Patrobus atrorufus (Stroem, 1768) [Coleoptera, Carabidae]

BELGIUM, Antwerpen, Bornem, Wielewaal res., 04-09/2001, leg. T. Van den Neucker, slides VDN237; Luxembourg, Hachy (Les Moutes), 15/1/1989, leg. M. Dufrêne, coll. A. De Kesel, slides ADK298(a,b,c,d,e) (De Kesel 1997b; De Kesel & Rammeloo 1992); Vlaams-Brabant, Meise, Domein van Bouchout, 22/4/1992, leg. I. Kranen, coll. A. De Kesel, slides ADK689, ADK690 (De Kesel 1997b; De Kesel & Gerstmans 2011); ibid., 9/9/1992, slides ADK691 (De Kesel 1997b; De Kesel & Gerstmans 2011); ibid., 4/06/2019, slides ADK6454; ibid., 23/09/2019, slides ADK6487.

Pterostichus nigrita (Paykull, 1790) [Coleoptera, Carabidae]

BELGIUM, Vlaams-Brabant, Meise, Domein van Bouchout, 3/6/1992, slides ADK709 (De Kesel 1997b; De Kesel & Gerstmans 2011); ibid., 7/4/1993, slides ADK713 (De Kesel 1997b; De Kesel & Gerstmans 2011).

Note: *Patrobus atrorufus* is the main host of *L. fasciculata*. Infections of *Nebria brevicollis* and *Pterostichus nigrita* are rare and considered accidental (Scheloske 1969).

51. Laboulbenia fennica Huldén, *Karstenia* **23**(2): 54 (1983) **Plate 35. d**

Gyrinus substriatus Stephens, 1829 [Coleoptera, Gyrinidae]

BELGIUM, Antwerpen, Bornem, Branst, 4/4/2007, slides ADK4152b (De Kesel & Werbrouck 2008).

52. Laboulbenia flagellata Peyr., *Sber. Akad. Wiss. Wien*, Math.-naturw. Kl., Abt. 1 **68**: 247 (1873), *s.l.* **Plate 36. a-g**

Agonum emarginatum (Gyllenhal, 1827) [Coleoptera, Carabidae]

BELGIUM, Vlaams-Brabant, Meise, Domein van Bouchout, 18/04/2019, slides ADK6428, ADK6445; ibid. 04/06/2019, slides ADK6457.

Agonum fuliginosum (Panzer, 1809) [Coleoptera, Carabidae]

BELGIUM, Vlaams-Brabant, Galmaarden, Markebeek, 21/4/1982, leg. K. Desender, coll. A. De Kesel, slides ADK518(a,b) (De Kesel 1997b); ibid., 14/7/1982, leg. K. Desender, coll. A. De Kesel, slides ADK519 (De Kesel 1997b); ibid., Meise, Domein van Bouchout, 4/8/2008, slides ADK4656 (De Kesel & Gerstmans 2011); Brabant wallon, Nethen, 3/8/1945, leg. & coll. A. Collart, slides L241, L242, L243 (De Kesel 1997b; De Kesel & Rammeloo 1992).

Agonum marginatum (Linnaeus, 1758) [Coleoptera, Carabidae]

BELGIUM, Oost-Vlaanderen, Smeerebbe, molenbeek, 17/5/1982, leg. K. Desender, coll. A. De Kesel, slides ADK555 (De Kesel 1997b).

Agonum micans (Nicolai, 1822) [Coleoptera, Carabidae]

BELGIUM, Antwerpen, Bornem, Hingene Scheldeschorren, 5/4/2018, slides ADK6332; ibid., 3/10/2018, slides ADK6464; ibid. Bornem, 04-09/2001, leg. T. Van den Neucker, slides VDN255a; ibid., 21/3/1995, slides ADK955(a,b) (De Kesel 1997b; De Kesel & Van den Neucker 2005); ibid., 04-09/2001, leg. T. Van den Neucker, slides VDN (29, 30); ibid., Branst, Scheldeschorren, 04-09/2001, leg. T. Van den Neucker, slides VDN (125, 182, 216); ibid., Hingene, Domein d'Ursel, 04-09/2001, leg. T. Van den Neucker, slides VDN148; ibid., Niel, Waterfront, 1/5/2011, slides ADK4884.

Agonum moestum (Duftschmid, 1812) [Coleoptera, Carabidae]

BELGIUM, Vlaams-Brabant, Meise, Domein van Bouchout, 3/7/1993, slides ADK4688 (De Kesel & Gerstmans 2011).

Agonum muelleri (Herbst, 1784) [Coleoptera, Carabidae]

BELGIUM, Antwerpen, Hingene, Domein d'Ursel, 04-09/2001, leg. T. Van den Neucker, slides VDN214-215; ibid., Bornem-Weert, 04-09/2001, leg. T. Van den Neucker, slides VDN (155, 159, 161, 162); ibid., Geel, --/08/1972, leg. R.Jocqué, coll. A. De Kesel, slides ADK310, ADK311, ADK312, JR3548 (De Kesel 1997b; De Kesel & Rammeloo 1992); Brussels-Capital Region, Sint-Jans-Molenbeek, 20/6/2013, slides CG203; Namur, Beez, 5/07/2009, slides CG106; Oost-Vlaanderen, Elene, 12/12/1972, leg. Deconinck & Bosmans, coll. J. Rammeloo, slides JR5078 (De Kesel 1997b); Vlaams-Brabant, Galmaarden, Markebeek, 14/7/1982, leg. K. Desender, coll. A. De Kesel, slides ADK520, ADK521 (De Kesel 1997b).

Agonum nigrum Dejean, 1828 [Coleoptera, Carabidae]

BELGIUM, Vlaams-Brabant, Meise, Domein van Bouchout, 22/4/1992, slides ADK712 (De Kesel 1997b; De Kesel & Gerstmans 2011); ibid., 14-26/06/2019, slides ADK6473.

Agonum thoreyi Dejean, 1828 [Coleoptera, Carabidae]

BELGIUM, Limburg, Zonhoven, 9/3/1977, leg. , coll. A. De Kesel, slides ADK325, JR5570 (De Kesel 1997b).

Agonum viridicupreum Goeze, 1777 [Coleoptera, Carabidae]

BELGIUM, Oost-Vlaanderen, Smeerebbe, molenbeek, 30/6/1982, leg. K. Desender, coll. A. De Kesel, slides ADK1899 (De Kesel 1997b).

Anisodactylus binotatus (Fabricius, 1787) [Coleoptera, Carabidae]

BELGIUM, Brussels-Capital Region, Anderlecht, 19/7/2013, slide CG220.

Laemostenus terricola (Herbst, 1784) [Coleoptera, Carabidae]

BELGIUM, Liège, Lanaye, 22/5/1932, leg. R. Leruth, coll. A. Collart, slides L183, L184 (De Kesel 1997b; De Kesel & Rammeloo 1992); ibid., Visé (Mt. St. Pierre), 10/4/1944, leg. & coll. A. Collart, slides L170(a,b) (De Kesel 1997b; De Kesel & Rammeloo 1992); West-Vlaanderen, Knokke-Heist, Zwin, 24/10/1988, slides ADK289.

Limodromus assimilis (Paykull, 1790) [Coleoptera, Carabidae]

BELGIUM, Antwerpen, Bornem, Branst, 24/8/2003, slides ADK3556; ibid., Hingene Scheldeschorren, 5/4/2018, slides ADK6329; ibid., 29/9/1991, slides ADK1679; ibid., ADK6172, ADK6173, ADK6174, ADK6352(a,b,c); ibid., 21/3/1995, slides ADK959(a,b), ADK960(a,b,c,d,e,g), ADK963, ADK971(a,b,c,d,e,f,g,h,i,j) (De Kesel 1997b; De Kesel & Van den Neucker 2005); ibid. 29/9/1991, slides ADK985 (De Kesel 1997b); ibid., Hingene, Domein d'Ursel, 17/6/2001, slides ADK3022(a,b); ibid., 04-09/2001, leg. T. Van den Neucker, slides VDN (31b, 32a, 47a); ibid., Hingene, Notelaer, 19/8/2008, slides ADK4660d; ibid., 04-09/2001, leg. T. Van den Neucker, slides VDN28; ibid., Hingene, Schellandpolder, 24/10/2018, slides ADK6355; ibid., Weert, 04-09/2001, leg. T. Van den Neucker, slides VDN (105-110, 153, 154, 229, 230); Hainaut, Thuin, Bois de l'abbaye d'Aulne, 30/4/2017, slide CG469(a,b); Brussels-Capital Region, Jette, Laarbeekbos, 5/7/1978, leg. K. Desender, coll. A. De Kesel, slides ADK1700 (De Kesel 1997b); Oost-Vlaanderen, Baasrode, 3/4/1982, leg. M. Vaneeckoutte, coll. A. De Kesel, slides ADK336(a,b,c,d) (De Kesel 1997b); Oost-Vlaanderen, Ename, Grotenbos noord, 30/5/2015, leg. André Braeckman, coll. A. De Kesel, slides ADK6283, ADK6284; Vlaams-Brabant, Meise, Domein van Bouchout, 8/4/1992, slides ADK694

(De Kesel 1997b; De Kesel & Gerstmans 2011); ibid., 17/10/2018, slides ADK6358, ADK6362 ; ibid., 4/8/2008, slides ADK4655 (De Kesel & Gerstmans 2011) ; ibid., 3/7/1993, slides ADK4689 (De Kesel & Gerstmans 2011); ibid., 1/02/2016, slides CG471; ibid., 18/04/2019, slides ADK6431, ADK6442.

Loricera pilicornis (Fabricius, 1775) [Coleoptera, Carabidae]

BELGIUM, Antwerpen, Bornem-Hingene, Domein de Notelaer, 9/8/1993, slides ADK993(a,b) (De Kesel 1997b; De Kesel & Van den Neucker 2005); ibid., Hingene, Domein d'Ursel, 04-09/2001, leg. T. Van den Neucker, slides VDN (133, 134, 135, 137, 142, 143); ibid., Bornem-Weert, 04-09/2001, leg. T. Van den Neucker, slides VDN (166, 202); Brussels-Capital Region, Jette, Laarbeekbos, 5/9/1996, slides ADK1779 (De Kesel 1997b).

Nebria brevicollis (Fabricius, 1792) [Coleoptera, Carabidae]

BELGIUM, Antwerpen, Bornem, Hingene, Domein d'Ursel, 04-09/2001, leg. T. Van den Neucker, slides VDN209.

Oxypselaphus obscurus (Herbst, 1784) [Coleoptera, Carabidae]

BELGIUM, Antwerpen, Bornem, Hingene, Domein d'Ursel, 04-09/2001, leg. T. Van den Neucker, slides VDN (49, 51, 54, 55, 59, 64, 129, 205, 206, 208); ibid., Mortsel, 15/3/1903, leg. A. d'Orchymont, coll. A. Collart, slides L4 (De Kesel 1997b; De Kesel & Rammeloo 1992, *ut Laboulbenia rougetii*); ibid., Terhagen, 14/05/2019, slides ADK6470; Hainaut, Mons, Mesvin, 31/03/2018, slide CG388; Vlaams-Brabant, Galmaarden, Markebeek, 25/8/1982, leg. K. Desender, coll. A. De Kesel, slides ADK522(a,b), ADK523(a,b,c), ADK524 (De Kesel 1997b); West-Vlaanderen, Geluwe, 5/6/1910, leg. A. d'Orchimont, coll. A. Collart, slides L11(a,b,c) (De Kesel 1997b; De Kesel & Rammeloo 1992, *ut Laboulbenia rougetii*).

Paranchus albipes (Fabricius, 1796) [Coleoptera, Carabidae]

BELGIUM, Antwerpen, Branst, 14/9/2004, slides ADK3848; ibid., ibid., 04-09/2001, leg. T. Van den Neucker, slides VDN (123b, 247a, 248a,c); ibid., Bornem-Hingene, Scheldeschorren, 15/11/1990, slides ADK320a (De Kesel 1997b); ibid., 21/3/1995, slides ADK950(c,d) (De Kesel 1997b; De Kesel & Van den Neucker 2005); ibid., 04-09/2001, leg. T. Van den Neucker, slides VDN (22, 85, 89, 95); ibid., 3/10/2018, slides ADK6466-6468; ibid., 24/10/2018, slides ADK6356; ibid., Zwijndrecht, 9/8/1907, leg. d'Orchimont, coll. A.Collart, slides L48 (De Kesel 1997b; De Kesel & Rammeloo 1992).

Parophonus maculicornis (Duftschmid, 1812) [Coleoptera, Carabidae]

BELGIUM, Brussels-Capital Region, Brussel, Quartier Louise, --/--/1873, leg. L. Mélisse, coll. A. Collart, slides L69, L70 (De Kesel 1997b; De Kesel & Rammeloo 1992, *ut Laboulbenia filifera*).

Pterostichus vernalis (Panzer, 1796) [Coleoptera, Carabidae]

BELGIUM, Antwerpen, Bornem-Hingene, Scheldeschorren, 12/3/1955, leg. A. d'Orchymont, coll. A. Collart, slides ADK957 (De Kesel 1997b); Oost-Vlaanderen, Viane, Markebeek, 20/10/1982, leg. K. Desender, coll. A. De Kesel, slides ADK551 (De Kesel 1997b); Namur, Jemeppe-sur-Sambre, 8/08/2010, slides CG165; Vlaams-Brabant, Galmaarden, Markebeek, 14/8/1982, leg. K. Desender, coll. A. De Kesel, slides ADK537 (De Kesel 1997b); West-Vlaanderen, Geluwe, 15/5/1910, leg. A. d'Orchimont, coll. A. Collart, slides L1 (a-g) (De Kesel 1997b).

Trichotichnus laevicollis (Duftschmid, 1812) [Coleoptera, Carabidae]

BELGIUM, Brussels-Capital Region, Zoniënbos, 3/3/1944, leg. N. Leleup, coll. A. Collart, slides L164 (De Kesel 1997b; De Kesel & Rammeloo 1992, ut *Laboulbenia filifera*).

Note: *Laboulbenia flagellata*'s host range is very wide, including ground beetles (Carabidae) from several genera. Although the species has relatively few diagnostic features, material obtained from the different hosts (see Plate 36) shows some morphological differences. Based on preliminary molecular work, we know that *L. flagellata* is a complex of species, possibly driven by host segregation and island biogeography (De Weggheleire 2019, Haelewaters *et al.* 2019a). Further molecular analysis is needed to sort out the taxonomy of the species complex of *L. flagellata s.l.*

53. Laboulbenia giardii Cépède & F. Picard, *Bull. Sci. France Belgique* 42: 258 (1908) **Plate 37. a-b**

Dicheirotrichus gustavii Crotch, 1871 [Coleoptera, Carabidae]

BELGIUM, West-Vlaanderen, Knokke-Heist, Het Zwin, 6/5/1994, slides ADK762d (De Kesel 1997b) ; ibid., 19/11/1988, slides ADK282, ADK283, ADK284, ADK286 (De Kesel 1997b; De Kesel & Rammeloo 1992); ibid., 19/9/1988, slides ADK285 (De Kesel 1997b; De Kesel & Rammeloo 1992); ibid., 16/6/1993, slides ADK5162, ADK5163; ibid., 5/6/1973, leg. E. Deconinck & R. Bosmans, coll. J. Rammeloo, slides JR5075(b,c) (De Kesel & Rammeloo 1992); ibid., 25/9/2019, slides ADK6491.

Dicheirotrichus obsoletus (Dejean, 1829) [Coleoptera, Carabidae]

BELGIUM, West-Vlaanderen, Knokke-Heist, Het Zwin, 25/9/2019, slides ADK6490.

54. Laboulbenia gyrinicola Speg., *Redia* 10: 34 (1914) **Plate 37. c**

Gyrinus marinus Gyllenhal, 1808 [Coleoptera, Gyrinidae]

BELGIUM, Antwerpen, Niel, Walenhoek, 18/8/2008, slides ADK4662, ADK4663 (De Kesel & Werbrouck 2008).

Gyrinus natator (Linnaeus, 1758) [Coleoptera, Gyrinidae]

BELGIUM, no date, no locality.

Note: the presence on *G. natator* from Belgium was reported by Collart (1945) and repeated by De Kesel & Rammeloo (1992) and De Kesel & Werbrouck (2009). No confirming material was found in Collart's Laboulbeniales collection.

55. Laboulbenia hyalopoda De Kesel, *Sterbeeckia* 18: 17 (1998) **Plate 38. a-e**

Paradromius linearis (Olivier, 1795) [Coleoptera, Carabidae]

BELGIUM, Antwerpen, Heide Kalmthout, 24/3/1987, leg. K. Desender, coll. A. De Kesel, slides ADK510, ADK992 (De Kesel 1997b; De Kesel 1998); ibid., 28/8/1987, leg. K. Desender, coll. A. De Kesel, slides ADK991 (De Kesel 1997b; De Kesel 1998); West-Vlaanderen, Knokke-Heist, zwinmonding, 28/4/2012, slides ADK6504. Oostduinkerke (Koksijde), Plaatsduinen, 9/8/2014, slide CG250.

Note: the host *P. linearis* can be simultaneously infected with *Laboulbenia notiophili* (CG250). *Laboulbenia hyalopoda* only occurs on a specific place on the host, i.e. the soft part of the last abdominal sternite. Some consider it an extreme form of *L. notiophili*. Molecular analysis is needed to confirm conspecificity with *L. notiophili*.

56. Laboulbenia inflata Thaxt., *Proc. Amer. Acad. Arts & Sci.* 27: 41 (1892) **Plate 39. a-b**

Acupalpus dubius Schilsky, 1888 [Coleoptera, Carabidae]

BELGIUM, Antwerpen, Bornem - Hingene, Scheldeschorren, 17/1/1993, slides ADK634 (De Kesel 1997b); ibid., 16/6/1991, slides ADK969 (De Kesel 1997b); ibid., Domein d'Ursel, 04-09/2001, leg. T. Van den Neucker, slides VDN (45, 83, 211); Oost-Vlaanderen, Smeerebbe-Vloerzegem, 12/8/1982, leg. K. Desender, coll. A. De Kesel, slides ADK545 (De Kesel 1997b); ibid., 17/5/1982, leg. K. Desender, coll. A. De Kesel, slides ADK983 (De Kesel 1997b); Vlaams-Brabant, Meise, Domein van Bouchout, 18/4/2019, slides ADK6439.

Acupalpus exiguus Dejean, 1829 [Coleoptera, Carabidae]

BELGIUM, Oost-Vlaanderen, Viane, Markebeek, 14/7/1982, leg. K. Desender, coll. A. De Kesel, slides ADK633 (De Kesel 1997b, 1998).

Stenolophus mixtus (Herbst, 1784) [Coleoptera, Carabidae]

BELGIUM, Antwerpen, Hingene, Schellandpolder, 16/6/1991, slides ADK967 (De Kesel 1997b, 1998).

57. Laboulbenia kajanensis Huldén, *Karstenia* 23(2): 56 (1983) **Plate 40. a-b**

Pterostichus diligens (Sturm, 1824) [Coleoptera, Carabidae]

BELGIUM, Vlaams-Brabant, Galmaarden, Markebeek, 7/4/1982, leg. K. Desender, coll. A. De Kesel, slides ADK552 (De Kesel 1997b).

Pterostichus strenuus (Panzer, 1796) [Coleoptera, Carabidae]

BELGIUM, Vlaams-Brabant, Meise, Domein van Bouchout, 4/8/2008, slides ADK4657 (De Kesel & Gerstmans 2011).

58. Laboulbenia lecoareri (Balazuc) Huldén, *Karstenia* 25(1): 6 (1985) **Plate 41. a-b**

Trechoblemus micros (Herbst, 1784) [Coleoptera, Carabidae]

BELGIUM, Oost-Vlaanderen, Melle, no date, leg. M. Vaneeckoutte, coll. A. De Kesel, slides ADK338 (De Kesel 1997b); Vlaams-Brabant, Galmaarden, 12/8/1982, leg. K. Desender, coll. A. De Kesel, slides ADK548 (De Kesel 1997b).

59. Laboulbenia leisti J. Siemaszko & W. Siemaszko, *Polsk. Pism. Entomolog.* 6: 203 (1928) [1927] **Plate 42. a-d**

Agonum muelleri (Herbst, 1784) [Coleoptera, Carabidae]

BELGIUM, Vlaams-Brabant, Meise, Domein van Bouchout, 24/4/2007, slides CG70(a,b); ibid., 11/8/2006, slides CG73 (De Kesel & Gerstmans 2011); ibid., 28/8/2006, leg. , coll. , slides CG76 (De Kesel & Gerstmans 2011); ibid., 22/8/2006, leg. Gerstmans C., coll. A. De Kesel, slides ADK4704 (De Kesel & Gerstmans 2011); ibid., 24/4/2007, leg. Gerstmans C., coll. A. De Kesel, slides ADK4707(a,b) (De Kesel & Gerstmans 2011); ibid., 11/8/2006, leg. Gerstmans C., coll. A. De Kesel, slides ADK4711(a,b) (De Kesel & Gerstmans 2011); ibid., 17/10/2018, slide CG409(a,b).

Leistus ferrugineus (Linnaeus, 1758) [Coleoptera, Carabidae]

BELGIUM, West-Vlaanderen, Lombardsijde, 1/11/1989, leg. G. Haghebaert, coll. A. De Kesel, slides ADK360(a,b,c) (De Kesel 1997b).

60. Laboulbenia littoralis De Kesel & Haelew., *Mycologia* 106(3): 408 (2014) **Plate 43. a-f**

Cafius xantholoma (Gravenhorst, 1806) [Coleoptera, Staphylinidae]

BELGIUM, West-Vlaanderen, Knokke-Heist, zwinmonding, 28/4/2012, slides ADK5148, ADK5151(a,b), ADK5152(a,b) (De Kesel & Haelewaters 2014), ADK5534, ADK5535, ADK5536, ADK5537, ADK5538, ADK5539; ibid., 17/5/2012, slides ADK5155, ADK5156, ADK5159, ADK5161; ibid., Knokke-Heist, no date, leg. C. Van Volxem, coll. A. Collart, slides L103, L104, L105, L106 (mentioned in De Kesel & Rammeloo 1992 and De Kesel 1997b as *L. cafii*).

61. Laboulbenia metableti Scheloske, *Parasitologische Schriftenreihe* 19: 124 (1969) **Plate 44. a-e**

Syntomus foveatus (Geoffroy, 1785) [Coleoptera, Carabidae]

BELGIUM, Namur, Seilles (Sclaigneau), --/07/1988, leg. M. Dufrêne, coll. A. De Kesel, slides ADK296 (De Kesel 1997b, *ut L. casnoniae*); West-Vlaanderen, Oostduinkerke (Koksijde), 15/05/2010, slides CG146; ibid., 23-24/05/2010, slide CG149(a,b); ibid., 13/07/2013, slide CG218.

Syntomus truncatellus (Linnaeus, 1760) [Coleoptera, Carabidae]

BELGIUM, West-Vlaanderen, Knokke-Heist, Zwin, 26/6/1974, leg. E. Deconinck & R. Bosmans, coll. J. Rammeloo, slides JR5057 (De Kesel 1997b, *ut L. casnoniae*).

Note: based on good and intact material from *Syntomus foveatus* we were able to observe the unique construction and pigmentation of the appendage system (Plate 44), as illustrated and described by Scheloske (1969). We here reinstate *L. metableti* as a separate species. The lower 4-5 cells of outer appendage are more pigmented in their middle. The basal of the inner appendage produces two quite symmetrical branches. The lower cells - of both the inner appendages - each produce a flask shaped antheridium, usually on the same side (dorsal). The antheridia later proliferate into short branches.

62. Laboulbenia murmanica Huldén, *Karstenia* 23(2): 57 (1983) **Plate 45. a-f**

Bembidion assimile Gyllenhall, 1810 [Coleoptera, Carabidae]

BELGIUM, West-Vlaanderen, Diksmuide, Blankaart, no date, leg. M. Vaneeckoutte, coll. A. De Kesel, slides ADK333(a,b,c,d); ibid., Woumen-Merkem (Diksmuide), De Blankaart, 1/2/1988, leg. C. Decleer, slides ADK1658, ADK1659, ADK1660 (De Kesel 1997b); ibid., 1/9/1988, leg. C. Decleer, slides ADK1661(a,b), ADK1662 (De Kesel 1997b), ADK1663(a,b,c,d,e), ADK1664, ADK1665, ADK1666(a,b), ADK1667, ADK1668, ADK1669, 1670(a,b,c), ADK1671(a,b,c) (De Kesel 1997b).

63. Laboulbenia notiophili Cépède & F. Picard, *Bull. biol. Fr. Belg.* 42: 259 (1909) **Plate 46. a-f**

Demetrias atricapillus (Linnaeus, 1758) [Coleoptera, Carabidae]

BELGIUM, Antwerpen, Boom, fietspad Boom-Niel, langs spoorwegberm, 28/4/2012, slides ADK5153.

Demetrias imperialis (Germar, 1824) [Coleoptera, Carabidae]

BELGIUM, Oost-Vlaanderen, Zele, 5/2/1978, leg. M. Vaneeckoutte, coll. A. De Kesel, slides ADK334 (De Kesel 1997b, *ut L. casnoniae*).

Demetrias monostigma Samouelle, 1819 [Coleoptera, Carabidae]

BELGIUM, West-Vlaanderen, Oostduinkerke (Koksijde), Plaatsduinen, 4/7/2013, slide CG211; ibid., Witteburg, 6/7/2013, slide CG212.

Notiophilus biguttatus (Fabricius, 1779) [Coleoptera, Carabidae]

BELGIUM, Antwerpen, Wuustwezel, 1/04/2019, leg. S. De Wegghelleire, coll. A. De Kesel, slides ADK6424; ibid., 20/04/2019, slides ADK6445; Oost-Vlaanderen, Zwijnaarde, 18/7/1973, leg. E. Deconinck & R. Bosmans, coll. J. Rammeloo, slides JR5067(a,b,c,d,e) (De Kesel 1997b; De Kesel & Rammeloo 1992); Vlaams-Brabant, Meise, Domein van Bouchout, 7/8/2006, slides CG75, ADK4710 (De Kesel & Gerstmans 2011); ibid., 3/4/1992, leg. I. Kranen, coll. A. De Kesel, slides ADK703 (De Kesel 1997b; De Kesel & Gerstmans 2011); ibid., 17/10/2018, slides ADK6360; ibid., 21/11/2018, slides ADK6365 (De Kesel & Gerstmans 2011); ibid., 15/6/1993, leg. I. Kranen, coll. A. De Kesel, slides ADK924, ADK930 (De Kesel 1996b; De Kesel 1997b; De Kesel & Gerstmans 2011); ibid., 1-18/03/2019, slides ADK6422; ibid., 18/04/2019, slides ADK6427; West-Vlaanderen, Oostduinkerke, 23/2/1974, leg. E. Deconinck & R. Bosmans, coll. J. Rammeloo, slides JR5053a, JR5053bI-III (De Kesel 1997b; De Kesel & Rammeloo 1992); ibid., 23/3/1974, leg. E. Deconinck & R. Bosmans, coll. J. Rammeloo, slides JR5062(aI-III,b,e) (De Kesel 1997b; De Kesel & Rammeloo 1992).

Notiophilus rufipes Curtis, 1829 [Coleoptera, Carabidae]

BELGIUM, Antwerpen, Wuustwezel, 1/04/2019, leg. S. De Wegghelleire, coll. A. De Kesel, slides ADK6423; Oost-Vlaanderen, Zwijnaarde, 28/3/1973, leg. E. Deconinck & R. Bosmans, coll. J. Rammeloo, slides JR5071 (De Kesel 1997b; De Kesel & Rammeloo 1992); Vlaams-Brabant, Meise, Domein van Bouchout, 8/4/1992, slides ADK704 (De Kesel 1997b; De Kesel & Gerstmans 2011).

Notiophilus sp. [Coleoptera, Carabidae]

BELGIUM, Brussels-Capital Region, Anderlecht, 19/7/2013, slide CG221; ibid., Sint-Jans Molenbeek, Park Houwaert, 10/04/2018, slides CG457; Namur, Courrière-Assesse, Bois de Courrière, 20/09/2009, slides CG125; ibid., Falmignoul, Ravin du Colébi, 27/6/2009, slide CG98; ibid., Beez, 1/05/2010, slides CG135; ibid., Belvaux (Rochefort), 5/08/2010, slides CG163; Vlaams-Brabant, Meise, Domein van Bouchout, 22/07/2014, slides CG241; ibid., 22/10/2018, slide CG413.

Paradromius linearis (Olivier, 1795) [Coleoptera, Carabidae]

BELGIUM, Namur, Wavreille, 23/8/1945, leg. N. Leleup, coll. A. Collart, slides L267 (De Kesel 1997b, *ut L. casnoniae*; De Kesel & Rammeloo 1992, *ut Laboulbenia pulchella*); West-Vlaanderen, Oostduinkerke (Koksijde), Plaatsduinen, 9/8/2014, slide CG250.

Note: *Paradromius linearis* can simultaneously be infected with *L. hyalopoda* (CG250) and *L. notiophili*. Molecular analysis is needed to confirm conspecificity of material named *L. notiophili* obtained from *Notiophilus sp.* and *Demetrias sp.* Although the differences are very subtle, the material from *Demetrias sp.* could belong to *Laboulbenia blanchardii* Cépède, a species since long considered a synonym of *L. notiophili* (Santamaría *et al.* 1991).

64. Laboulbenia ophoni Thaxt., *Proc. Amer. Acad. Arts & Sci.* 35(9): 190 (1899) [1899-1900] Plate 47. a-b

Harpalus rubripes (Duftschmid, 1812) [Coleoptera, Carabidae]

BELGIUM, Namur, Viroinval, Roche à Lomme, 10/8/1987, leg. M. Dufrêne, coll. A. De Kesel, slides ADK809(a,b,c,d,e) (De Kesel 1997b).

Ophonus rufibarbis (Fabricius, 1792) [Coleoptera, Carabidae]

BELGIUM, Antwerpen, Niel, Potaardestraat, 20/9/2011, slides ADK6376.

65. Laboulbenia pedicellata Thaxt., *Proc. Amer. Acad. Arts & Sci.* 29: 109 (1893) Plate 48. a-f, Plate 49. a-g

Bembidion aeneum Germar, 1824 [Coleoptera, Carabidae]

BELGIUM, West-Vlaanderen, Knokke-Heist, Zwin, 19/9/1988, slides ADK281 (De Kesel 1997b; De Kesel & Rammeloo 1992); ibid., 27/6/1974, leg. E. Deconinck & R. Bosmans, coll. J. Rammeloo, slides JR5060(a,b,cI-II) (De Kesel 1997b; De Kesel & Rammeloo 1992); ibid., 5/6/1973, leg. Deconinck & Bosmans, coll. J. Rammeloo, slides JR5077(a,b) (De Kesel 1997b; De Kesel & Rammeloo 1992).

Bembidion gilvipes Sturm, 1825 [Coleoptera, Carabidae]

BELGIUM, Vlaams-Brabant, Galmaarden, Markebeek, 25/8/1982, leg. K. Desender, coll. A. De Kesel, slides ADK529, ADK530 (De Kesel 1997b); West-Vlaanderen, Diksmuide, Blankaart, 2/5/1979, leg. M. Vaneeckoutte, coll. A. De Kesel, slides ADK332 (De Kesel 1997b).

Bembidion guttula (Fabricius, 1792) [Coleoptera, Carabidae]

BELGIUM, Vlaams-Brabant, Galmaarden, Markebeek, grasland (G), 28/7/1982, leg. K. Desender, coll. A. De Kesel, slides ADK531 (De Kesel 1997b); ibid., 28/8/1982, leg. K. Desender, coll. A. De Kesel, slides ADK532 (De Kesel 1997b).

Bembidion iricolor Bedel, 1879 [Coleoptera, Carabidae]

BELGIUM, West-Vlaanderen, Knokke-Heist, Nieuwe watergang, 2/5/1979, leg. M. Vaneeckoutte, coll. A. De Kesel, slides ADK328(a,b) (De Kesel 1997b).

Bembidion lunulatum (Fourcroy, 1785) [Coleoptera, Carabidae]

BELGIUM, West-Vlaanderen, Knokke-Heist, Zwin, 6/6/1988, slides ADK287 (De Kesel 1997b; De Kesel & Rammeloo 1992, *ut Laboulbenia vulgaris*); ibid., 24/10/1988, slides ADK1673(a,b) (De Kesel 1997b).

Bembidion minimum (Fabricius, 1792) [Coleoptera, Carabidae]

BELGIUM, West-Vlaanderen, Knokke-Heist, Het Zwin, 17/8/1994, leg. E. Deconinck & R. Bosmans, coll. A. De Kesel, slides ADK904 (De Kesel 1997b); ibid., 5/6/1973, leg. E. Deconinck & R. Bosmans, coll. J. Rammeloo, slides JR5065(a,b) (De Kesel 1997b).

Bembidion normannum Dejean, 1831 [Coleoptera, Carabidae]

BELGIUM, West-Vlaanderen, Knokke-Heist, Zwin, 4/5/1979, leg. M. Vaneeckoutte, coll. A. De Kesel, slides ADK329(a,b,c) (De Kesel 1997b); ibid., 6/5/1994, leg. Vaneeckoutte, coll. A. De Kesel, slides ADK761a (De Kesel 1997b); ibid., 25/6/1974, leg. E. Deconinck & R. Bosmans, coll. J. Rammeloo, slides JR5046 (De Kesel 1997b; De Kesel & Rammeloo 1992).

Bembidion obtusum Audinet-Serville, 1821 [Coleoptera, Carabidae]

BELGIUM, Oost-Vlaanderen, Mere, Molenbeek, 7/4/1982, leg. K. Desender, coll. A. De Kesel, slides ADK539 (De Kesel 1997b).

Bembidion quadrimaculatum (Linnaeus, 1761) [Coleoptera, Carabidae]

BELGIUM, Oost-Vlaanderen, Melle, no date, leg. M. Vaneeckoutte, coll. A. De Kesel, slides ADK331(a,b) (De Kesel 1997b); Vlaams-Brabant, Galmaarden, Markebeek, 25/8/1982, leg. K. Desender, coll. A. De Kesel, slides ADK533 (De Kesel 1997b).

Bembidion varium (Olivier, 1795) [Coleoptera, Carabidae]

BELGIUM, West-Vlaanderen, Stuivekenskerke, 18/4/1976, leg. J. Rammeloo, coll. A. De Kesel, slides ADK324(a,b) (De Kesel 1997b).

Dyschirius tristis Stephens, 1827 [Coleoptera, Carabidae]

BELGIUM, Oost-Vlaanderen, Smeerebbe, Molenbeek, 25/8/1982, leg. K. Desender, coll. A. De Kesel, slides ADK557a (De Kesel 1997b).

Pogonus chalceus (Marsham, 1802) [Coleoptera, Carabidae]

BELGIUM, West-Vlaanderen, Oostende, Halve Maan, 20/3/1983, leg. K. Desender, coll. A. De Kesel, slides ADK270 (De Kesel 1997b; De Kesel & Rammeloo 1992).

Note: the host range of *L. pedicellata* is very wide, including 3 genera of ground beetles (Carabidae) in Belgium, with most species in *Bembidion*. Desender *et al.* (1980) erroneously mention *L. pedicellata* instead of *L. vulgaris* on *Trechus obtusus*. Material obtained from the different hosts (see Plate 48 and 49) shows subtle to strong morphological differences. Molecular analysis is needed to determine whether host-related growth forms of *L. pedicellata* (see Huldén 1985, De Kesel 1997b) represent host-specific species. *Laboulbenia pedicellata* could be a complex of species.

66. Laboulbenia philonthi Thaxt., *Proc. Amer. Acad. Arts & Sci*. 28: 174 (1893) **Plate 50. a-e**

Philonthus rubripennis Stephens, 1832 [Coleoptera, Staphylinidae]

BELGIUM, Vlaams-Brabant, Meise, Domein van Bouchout, 26/04/2019, slide ADK6450.

Philonthus sp. [Coleoptera, Staphylinidae]

BELGIUM, Vlaams-Brabant, Meise, Domein van Bouchout, 14/10/2015, slide CG268.

67. Laboulbenia pseudomasei Thaxt., *Proc. Amer. Acad. Arts & Sci.* 35: 196 (1899) **Plate 51. a-e**

Loricera pilicornis (Fabricius, 1775) [Coleoptera, Carabidae]

BELGIUM, Antwerpen, Bornem-Hingene, Dom. Notelaer, 11/6/1992, slides ADK631 (De Kesel 1997b).

Nebria brevicollis (Fabricius, 1792) [Coleoptera, Carabidae]

BELGIUM, Vlaams-Brabant, Meise, Domein van Bouchout, 4/8/2008, slides ADK4654 (De Kesel & Gerstmans 2011); ibid., 28/11/2018, slides ADK6368 (De Kesel & Gerstmans 2011).

Pterostichus anthracinus (Illiger, 1798) [Coleoptera, Carabidae]

BELGIUM, Vlaams-Brabant, Galmaarden, Markebeek, 7/4/1982, leg. K. Desender, coll. A. De Kesel, slides ADK549 (De Kesel 1997b); ibid., Meise, Domein van Bouchout, 22/4/1992, leg. I. Kranen, coll. A. De Kesel, slides ADK705 (De Kesel 1997b; De Kesel & Gerstmans 2011); ibid., 1-18/03/2019, slides ADK6418, ADK6419; ibid, 18/4/2019, slides ADK6434, ADK6443.

Pterostichus minor (Gyllenhal, 1827) [Coleoptera, Carabidae]

BELGIUM, Antwerpen, Bornem-Hingene, Schellandpolder, 12/6/1991, slides ADK965(a,b,c) (De Kesel 1997b).; ibid., 20/6/1991, slides ADK984(a,b,c,d,e) (De Kesel 1997b).

Pterostichus nigrita (Paykull, 1790) [Coleoptera, Carabidae]

BELGIUM, Oost-Vlaanderen, Ename, Grotenbos noord, 30/5/2015, leg. André Braeckman, coll. A. De Kesel, slides ADK6285; Oost-Vlaanderen, Smeerebbe, Molenbeek, 21/4/1982, leg. K. Desender, coll. A. De Kesel, slides ADK556 (De Kesel 1997b); Vlaams-Brabant, Meise, Dom. v. Bouchout, 25/6/2009, slides CG82, ADK4726 (De Kesel & Gerstmans 2011); ibid., 8/4/1992, coll. A. De Kesel, slides ADK706, ADK707, ADK708 (De Kesel 1997b; De Kesel & Gerstmans 2011); ibid., 18/4/2019, slides ADK6435, ADK6444.

Pterostichus strenuus (Panzer, 1796) [Coleoptera, Carabidae]

BELGIUM, Antwerpen, Bornem, Hingene, Domein d'Ursel, April-Sept./2001, leg. T. Van den Neucker, slides VDN (149, 150); ibid, Weert, April-Sept./2001, leg. T. Van den Neucker, slides VDN (175-176).

Stomis pumicatus (Panzer, 1796) [Coleoptera, Carabidae]

BELGIUM, Vlaams-Brabant, Galmaarden, Markebeek, 25/8/1982, leg. K. Desender, coll. A. De Kesel, slides ADK632(a,b,c) (De Kesel 1997b).

68. Laboulbenia rougetii Mont. & C.P. Robin, in Robin, *Hist. nat. Vegetaux Parasites* (Paris): 622 (1853) **Plate 52. a-b**

Brachinus crepitans (Linnaeus, 1758) [Coleoptera, Carabidae]

BELGIUM, Luxembourg, Lamorteau, 9/8/1939, leg. E. Derenne, coll. A. Collart, slides L17(a,b), L18(a,b) (De Kesel 1997b; De Kesel & Rammeloo 1992); ibid., 20/7/1935, leg. E. Derenne, coll. A. Collart, slides L19(a,b,c) (De Kesel 1997b; De Kesel & Rammeloo 1992); ibid., 22/7/1939, leg. E. Derenne, coll. A. Collart, slides L20(a,b); ibid., 9/8/1939, leg. E. Derenne, coll. A. Collart, slides L22(a,b,c) (De Kesel 1997b; De Kesel & Rammeloo 1992); ibid., Torgny, 23/7/1935, leg. E. Derenne, coll. A. Collart, slides L21(a,b) (De Kesel 1997b; De Kesel & Rammeloo 1992).

Note: this species has not been reported since 1939, its host is very rare (Muilwijk *et al.* 2015).

69. Laboulbenia slackensis Cépède & F. Picard, *C. r. Assoc. Franç. Avancem. Sci.* 35: 775 (1907) **Plate 53. a-d**

Pogonus chalceus (Marsham, 1802) [Coleoptera, Carabidae]

BELGIUM, West-Vlaanderen, Knokke-Heist, Het Zwin, 12/8/1994, slides ADK796 (De Kesel 1997b); ibid., 21/3/1993, slides (in De Kesel 1993); ibid., 1/4/1994, slides (in De Kesel 1996a); ibid., 24/10/1988, slides ADK271, ADK272, ADK273, ADK274, ADK275, ADK276, ADK277, ADK278, ADK279; ibid., 4/10/1988, slides ADK280 (De Kesel 1989; De Kesel 1997b; De Kesel & Rammeloo 1992); ibid., 22/6/1994, leg. E. Deconinck & R. Bosmans, coll. A. De Kesel, slides ADK685 (De Kesel 1997b); ibid., 5/6/1992, slides ADK795 (De Kesel 1997b); ibid., 7/6/1993, leg. E. Deconinck & R. Bosmans, coll. A. De Kesel, slides ADK935, ADK1000 (De Kesel 1997b); ibid., 19/11/1988, slides ADK5158; ibid., 21/3/1993, slides ADK5547(a,b); ibid., 26/6/1974, leg. Deconicnk & Bosmans, coll. J. Rammeloo, slides JR5055 (De Kesel 1997b; De Kesel & Rammeloo 1992); ibid., 25/9/2019, slides ADK6488-ADK6489; ibid., Nieuwpoort, 5/7/1978, leg. K. Desender, coll. A. De Kesel, slides ADK263, ADK264, ADK265, ADK267, ADK268 (De Kesel 1997b; De Kesel & Rammeloo 1992); ibid., Oostende, 20/2/1983, leg. K. Desender, coll. A. De Kesel, slides ADK266 (De Kesel 1997b; De Kesel & Rammeloo 1992); ibid., 16/10/1982, leg. K. Desender, coll. A. De Kesel, slides ADK269 (De Kesel 1997b; De Kesel & Rammeloo 1992).

70. Laboulbenia stilicicola Speg., *Redia* 10: 41 (1914) **Plate 54. a-c**

Rugilus orbiculatus (Paykull, 1789) [Coleoptera, Staphylinidae]

BELGIUM, West-Vlaanderen, Koksijde, duinen, 22/7/1984, leg. G. Haghebaert, coll. A. De Kesel, slides ADK341(a,b,c) (De Kesel 1997b; De Kesel & Haghebaert 1991).

Rugilus rufipes Germar, 1836 [Coleoptera, Staphylinidae]

BELGIUM, West-Vlaanderen, Oostende, 1/5/1987, leg. G. Haghebaert, coll. A. De Kesel, slides ADK1680(a,c) (De Kesel 1997b).

71. Laboulbenia thaxteri Cépède & F. Picard, *Bull. biol. Fr. Belg.* 42: 260 (1909) **Plate 55. a-b**

Asaphidion flavipes (Linnaeus, 1761) [Coleoptera, Carabidae]

BELGIUM, Antwerpen, Bornem-Hingene, Dom. Notelaer, parkbos, 13/5/1992, slides ADK638 (De Kesel 1997b); ibid., Domein d'Ursel, April-Sept./2001, leg. T. Van den Neucker, slides VDN146; Brussels-Capital Region, Sint-Jans-Molenbeek, 9/06/2013, slides CG467; Namur, Anhée, 14/06/2013, slide CG200; ibid., 4/5/2014, slide CG423; Oost-Vlaanderen, Ename, Grotenbos noord, 5/5/2016, leg. André Braeckman, coll. A. De Kesel, slides ADK6416; Vlaams-Brabant, Meise, Domein van Bouchout, 6/5/1992, leg. I. Kranen, coll. A. De Kesel, slides ADK696 (De Kesel 1997b; De Kesel & Gerstmans 2011); ibid., 24/6/1994, leg. I. Kranen, coll. A. De Kesel, slides ADK887 (De Kesel 1997b; De Kesel & Gerstmans 2011); ibid., 15/6/1993, leg. I. Kranen, coll. A. De Kesel, slides ADK933 (De Kesel 1997b; De Kesel & Gerstmans 2011); ibid., 26/10/2018, slide CG416.

72. Laboulbenia vulgaris Peyr., *Sber. Akad. Wiss. Wien*, Math.-naturw. Kl., Abt. 1 68: 248 (1873) *s.l.* **Plate 56. a-f**

Bembidion biguttatum (Fabricius, 1779) [Coleoptera, Carabidae]

BELGIUM, Antwerpen, Deurne (Eksterlaar), 29/4/1906, leg. A. d'Orchimont, coll. A. Collart, slides L2(a,b) (De Kesel 1997b; De Kesel & Rammeloo 1992, *ut L. pedicellata*); Vlaams-Brabant, Galmaarden, Markebeek, 5/5/1982, leg. K. Desender, coll. A. De Kesel, slides ADK525(a,b), ADK526, ADK527 (De Kesel 1997b); ibid., 30/6/1982, leg. K. Desender, coll. A. De Kesel, slides ADK528 (De Kesel 1997b).

Bembidion dentellum (Thunberg, 1787) [Coleoptera, Carabidae]

BELGIUM, Antwerpen, Hingene, Schellandpolder, 12/6/1991, slides ADK968 (De Kesel 1997b); ibid., 2/6/1991, slides ADK974(a,b) (De Kesel 1997b); ibid., 16/4/1991, slides ADK636 (De Kesel 1997b).

Bembidion elongatum Dejean 1831 [Coleoptera, Carabidae]

BELGIUM, Namur, Wavreille, 23/7/1945, leg. A. Collart, coll. A. Collart, slides L244 (De Kesel 1997b; De Kesel & Rammeloo 1992); ibid., 28/7/1945, leg. N. Leleup, coll. A. Collart, slides L245, L247, L248, L252 (De Kesel 1997b; De Kesel & Rammeloo 1992); ibid., 27/7/1945, leg. N. Leleup, coll. A. Collart, slides L249, L250 (De Kesel 1997b; De Kesel & Rammeloo 1992); ibid., 30/7/1945, leg. N. Leleup, coll. A. Collart, slides L251 (De Kesel 1997b; De Kesel & Rammeloo 1992).

Bembidion femoratum Sturm, 1825 [Coleoptera, Carabidae]

BELGIUM, Oost-Vlaanderen, Boerenkreek, 20/3/1982, leg. M. Vaneeckoutte, coll. A. De Kesel, slides ADK330(a,b) (De Kesel 1997b).

Bembidion mannerheimi C.R. Sahlberg, 1827 [Coleoptera, Carabidae]

BELGIUM, Liège, Hautes Ardennes, vallée de la Holzwarche, 1/10/1989, leg. M. Dufrêne, coll. A. De Kesel, slides ADK1684(a,b) (De Kesel 1997b); Luxembourg, Arlon, --/06/1987, leg. M. Dufrêne, coll. A. De Kesel, slides ADK307 (De Kesel 1997b; De Kesel & Rammeloo 1992, *ut Laboulbenia pedicellata*); ibid., Etalle (Les

Abattis), --/06/1987, leg. M. Dufrêne, coll. A. De Kesel, slides ADK306 (De Kesel 1997b; De Kesel & Rammeloo 1992, *ut Laboulbenia pedicellata*).

Bembidion properans (Stephens, 1828) [Coleoptera, Carabidae]

BELGIUM, Vlaams-Brabant, Meise, Domein van Bouchout, 27/7/2007, slides CG72, ADK4708 (De Kesel & Gerstmans 2011) ; ibid., 30/10/2006, slides CG74, ADK4709 (De Kesel & Gerstmans 2011); ibid., 4/8/2008, slides ADK4658 (De Kesel & Gerstmans 2011); ibid., 18/04/2019, slides ADK6430.

Bembidion tetracolum Say, 1823 [Coleoptera, Carabidae]

BELGIUM, Antwerpen, Bornem, Branst, Scheldeschorren, April-Sept./2001, leg. T. Van den Neucker, slides VDN180; Brussels-Capital Region, Jette, Laarbeekbos, 6/9/2003, slides ADK3558; Oost-Vlaanderen, Mere, Molenbeek, 7/4/1982, leg. K. Desender, coll. A. De Kesel, slides ADK540 (De Kesel 1997b); Vlaams-Brabant, Meise, Domein van Bouchout, 25/6/2009, slides CG80, ADK4724 (De Kesel & Gerstmans 2011); ibid., 10/07/2010, CG109; ibid., 1-18/03/2019, slides ADK6420; ibid., 27/03/2019, CG436; ibid., 18/04/2019, slides ADK6429, ADK6441.

Bembidion tibiale (Duftschmid, 1812) [Coleoptera, Carabidae]

BELGIUM, Liège, Julémont, 27/5/1939, leg. E. Derenne, coll. A. Collart, slides L13, L14(a,b,c) (De Kesel 1997b; De Kesel & Rammeloo 1992); Vlaams-Brabant, Meise, Domein van Bouchout, 27/3/2019, slides CG435.

Bembidion sp. [Coleoptera, Carabidae]

BELGIUM, Brussels-Capital Region, Molenbeek-Saint-Jean, 11/7/2013, slide CG214; Namur, Falmignoul, Ravin du Colébi, 27/6/2009, slide CG97.

Bembidion stephensii Crotch, 1866 [Coleoptera, Carabidae]

BELGIUM, Brabant wallon, Rixensart, Bois de Mérode, 27/4/2007, slides CG95(a,b).

Ocys harpaloides (Audinet-Serville, 1821) [Coleoptera, Carabidae]

BELGIUM, Antwerpen, Bornem, Hingene Scheldeschorren, 5/4/2018, slides ADK6330; ibid., 21/3/1995, slides ADK936, ADK943(a,b) (De Kesel 1997b); ibid., 5/4/2018, slides ADK6353; ibid., 17/1/1993, slides ADK637 (De Kesel 1997b).

Trechus quadristriatus (Schrank, 1781) [Coleoptera, Carabidae]

BELGIUM, Brabant wallon, Braine l'Alleud (Eigenbrakel), 17/8/1945, leg. N. Leleup, coll. A. Collart, slides L257 (De Kesel 1997b; De Kesel & Rammeloo 1992).

Trechus rubens (Fabricius, 1792) [Coleoptera, Carabidae]

BELGIUM, Luxembourg, Tintigny, Loth. Les Abattis, --/09/1988, leg. M. Dufrêne, coll. A. De Kesel, slides ADK297 (De Kesel 1997b).

Note: *Laboulbenia vulgaris* has a very wide host range, infecting 13 Carabidae (Belgium) belonging to three distinct genera. Desender *et al.* (1980) erroneously mention *L. pedicellata* instead of *L. vulgaris* on *Trechus obtusus.* Based on preliminary molecular work (De Weggheleire 2019) we know that thalli from *Bembidion biguttatum* (Vlaams-Brabant, Meise, Domein van Bouchout, 26/04/2019, slides ADK6448) represent a phylogenetic species different from *L. vulgaris* obtained from *Ocys harpaloides* and *Bembidion tetracolum*. Plate 56 shows that there are also morphological differences with material from *Trechus*. Further molecular analysis is needed to sort out the taxonomy of *L. vulgaris*.

73. Misgomyces dyschirii Thaxt., *Proc. Amer. Acad. Arts & Sci.* 35: 443 (1900) Plate 57. a-c

Dyschirius aeneus (Dejean, 1825) [Coleoptera, Carabidae]

BELGIUM, Brussels-Capital Region, Ouderghem, 10/5/1938, leg. L. Derenne, coll. A. Collart, slides L188 (De Kesel 1997b; De Kesel & Rammeloo 1992).

Dyschirius globosus (Herbst, 1784) [Coleoptera, Carabidae]

BELGIUM, Vlaams-Brabant, Galmaarden, Markebeek, 24/2/1982, leg. K. Desender, coll. A. De Kesel, slides ADK517(a,b) (De Kesel 1997b); ibid., 30/6/1982, leg. K. Desender, coll. A. De Kesel, slides ADK535 (De Kesel 1997b).

Dyschirius intermedius Putzeys, 1846 [Coleoptera, Carabidae]

BELGIUM, Vlaams-Brabant, Vilvoorde, 10/7/1945, leg. N. Leleup, coll. A. Collart, slides L246 (De Kesel 1997b; De Kesel & Rammeloo 1992).

Dyschirius tristis Stephens, 1827 [Coleoptera, Carabidae]

BELGIUM, Oost-Vlaanderen, Smeerebbe, molenbeek, 25/8/1982, leg. K. Desender, coll. A. De Kesel, slides ADK557b (De Kesel 1997b).

74. Monoicomyces bolitocharae T. Majewski, *Polish Bot. Stud.* 7: 193 (1994) Plate 58. a

Bolitochara obliqua Erichson, 1837 [Coleoptera, Staphylinidae]

BELGIUM, Hainaut, Lessines, 10/4/1990, leg. G. Haghebaert, coll. A. De Kesel, slides ADK512 (De Kesel 1997b; De Kesel 2005b).

75. Monoicomyces britannicus Thaxt., *Proc. Amer. Acad. Arts & Sci.* 35: 412 (1900) **Plate 59. a-e**

Atheta sp. [Coleoptera, Staphylinidae]

BELGIUM, Antwerpen, Bornem, Gemeenteplein, 14/5/2005, slides ADK4065 (De Kesel 2005b); ibid., Nonnenbos, 14/5/2005, slides ADK4063 (De Kesel 2005b); ibid., Domein d'Ursel, 5/10/1995, slides ADK999(a,b) (De Kesel 1997b; De Kesel 2005b)

Atheta (*Mocyta*) *fungi* (Gravenhorst, 1806) [Coleoptera, Staphylinidae]

BELGIUM, West-Vlaanderen, Lombardsijde, 21/7/1989, leg. G. Haghebaert, coll. A. De Kesel, slides ADK353, ADK1675 (De Kesel 1997b; De Kesel 2005b; De Kesel & Haghebaert 1991).

Atheta (*Mocyta*) *orbata* (Erichson, 1837) [Coleoptera, Staphylinidae]

BELGIUM, West-Vlaanderen, Knokke-Heist, Zwin, 21/11/1992, leg. G. Haghebaert, coll. A. De Kesel, slides ADK1677 (De Kesel 1997b; De Kesel 2005b).

76. Monoicomyces californicus Thaxt., *Mem. Am. Acad. Arts Sci.*, ser. 2 16(1): 38 (1931) **Plate 60. a-b**

Anotylus sculpturatus (Gravenhorst, 1806) [Coleoptera, Staphylinidae]

BELGIUM, Antwerpen, Bornem, Weert, 14/5/2005, slides ADK4060 (De Kesel 2005b); Liège, Logne, 9/6/1989, leg. R. Detry, coll. A. De Kesel, slides ADK394 (De Kesel 1997b; De Kesel 2005b; De Kesel & Haghebaert 1991); Oost-Vlaanderen, Neigem, 9/6/1989, leg. Van Hercke, coll. A. De Kesel, slides ADK399 (De Kesel 1997b; De Kesel 2005b; De Kesel & Haghebaert 1991); ibid., 18/5/1977, slides ADK397 (De Kesel 1997b; De Kesel 2005b; De Kesel & Gerstmans 2011; De Kesel & Haghebaert 1991); Vlaams-Brabant, Meise, Domein van Bouchout, 2/5/1992, slides ADK647 (De Kesel 1997b; De Kesel 2005b; De Kesel & Gerstmans 2011); ibid, 18/4/2019, slides ADK6432; ibid., 13/05/2019, slides CG452.

Note: *Monoicomyces californicus* is sometimes considered a synonym of *M. invisibilis* (Majewski 1994). Both taxa show a different pigmentation of the appendages from the compound antheridia (Plate 60). In the absence of proof that this feature has taxonomic value, we keep both taxa separate.

77. Monoicomyces fragilis Scheloske, *Parasitologische Schriftenreihe* 19: 138 (1969) **Plate 61. a-b**

Ocalea picata (Stephens, 1832) [Coleoptera, Staphylinidae]

BELGIUM, Liège, Moha, 18/12/1979, leg. G. Haghebaert, coll. A. De Kesel, slides ADK395(a,b) (De Kesel 1997b; De Kesel 2005b; De Kesel & Haghebaert 1991).

78. Monoicomyces homalotae Thaxt., *Proc. Amer. Acad. Arts & Sci.* 35: 412 (1900) **Plate 62. a-c**

Atheta longicornis (Gravenhorst, 1802) [Coleoptera, Staphylinidae]

BELGIUM, Antwerpen, Niel, Walenhoek, 19/8/2009, slides ADK4737(a,b,c) (De Kesel 2010b).

Atheta sp. [Coleoptera, Staphylinidae]

BELGIUM, Antwerpen, Boom, Krekelenberg 1, 1/7/2012, slides ADK5166; ibid., Bornem, Branst, 14/5/2005, slides ADK4061 (De Kesel 2005b); ibid., Bornem-Hingene, 17/4/1996, slides ADK1681 (De Kesel 1997b; De Kesel 2005b); ibid., Niel, Walenhoek, 19/8/2009, slides ADK4738; Vlaams-Brabant, Meise, Domein van Bouchout, 24/2/1993, slides ADK653 (De Kesel 1997b; De Kesel 2005b; De Kesel & Gerstmans 2011); ibid., 24/11/1993, slides ADK4676, ADK4677(a,b,c) (De Kesel & Gerstmans 2011); ibid., 24/3/1993, slides ADK4679, ADK4680, ADK4713, ADK4714 (De Kesel & Gerstmans 2011).

Atheta triangulum (Kraatz, 1856) [Coleoptera, Staphylinidae]

BELGIUM, West-Vlaanderen, Oostende, 1-8/08/1987, leg. G. Haghebaert, coll. A. De Kesel, slides ADK1676 (De Kesel 1997b; De Kesel 2005b).

Atheta (*Thinobaena*) *vestita* (Gravenhorst, 1806) [Coleoptera, Staphylinidae]

BELGIUM, West-Vlaanderen, Nieuwpoort, Yzermonding, 15/5/1989, leg. G. Haghebaert, coll. A. De Kesel, slides ADK319(a,b) (De Kesel 1997b; De Kesel 2005b; De Kesel & Haghebaert 1991, *ut Monoicomyces britannicus*).

Note: *Monoicomyces britannicus* is closely related to *M. homalotae* (Santamaría 1989, De Kesel 2005). Some authors state that they may be identical (Majewski 1994). However, based on the shape and pigmentation of the basal cell of the primary appendage, both species can be separated (Haelewaters *et al.* 2014b).

79. Monoicomyces invisibilis Thaxt., *Proc. Amer. Acad. Arts & Sci.* 36: 414 (1900) [1901] **Plate 60. c-d**

Anotylus sculpturatus (Gravenhorst, 1806) [Coleoptera, Staphylinidae]

BELGIUM, Antwerpen, Bornem, Branst, 14/5/2005, slides ADK4059 (De Kesel 2005b); West-Vlaanderen, Raversijde, duin Prins Karel, --/05/1984, leg. G. Haghebaert, coll. A. De Kesel, slides ADK343(a,b,c) (De Kesel 1997b; De Kesel 2005b; De Kesel & Haghebaert 1991, *ut Monoicomyces californicus*).

Anotylus sp. [Coleoptera, Staphylinidae]

BELGIUM, Vlaams-Brabant, Meise, Domein van Bouchout, 21/5/2019, slides ADK6451(a-e).

Oxytelus laqueatus (Marsham, 1802) [Coleoptera, Staphylinidae]

BELGIUM, Antwerpen, Bornem, Branst, 15/5/2005, slides ADK4067 (De Kesel 2005b); Hainaut, Ath, 5/7/1965, leg. G. Haghebaert, coll. A. De Kesel, slides ADK515(a,b) (De Kesel 1997b; De Kesel 2005b).

Oxytelus sp. [Coleoptera, Staphylinidae]

BELGIUM, Antwerpen, Niel, Walenhoek, 19/8/2009, slides ADK4739 (De Kesel 2010b).

Platystethus arenarius (Geoffroy, 1785) [Coleoptera, Staphylinidae]

BELGIUM, West-Vlaanderen, Lombardsijde, 16/4/1989, leg. G. Haghebaert, coll. A. De Kesel, slides ADK352(a,b,c) (De Kesel 1997b; De Kesel 2005b; De Kesel & Haghebaert 1991).

80. Monoicomyces matthiatis T. Majewski, *Acta Mycologica*, Warszawa **25**(1): 49 (1990) [1989] **Plate 58. b-d**

Platystethus arenarius (Fourcroy, 1785) [Coleoptera, Staphylinidae]

BELGIUM, Antwerpen, Niel, Walenhoek, 19/8/2009, slides ADK4741, ADK4742, ADK4743, ADK4744 (De Kesel 2010b).

81. Monoicomyces nigrescens Thaxt., *Proc. Amer. Acad. Arts & Sci.* **35**: 412 (1900) **Plate 63. a-b**

Atheta sp. [Coleoptera, Staphylinidae]

BELGIUM, Antwerpen, Bornem-Hingene, Domein d'Ursel, 5/10/1995, slides ADK996, ADK997(a,b), ADK998 (De Kesel 1997b; De Kesel 2005b); West-Vlaanderen, Knokke-Heist, Zwin, 7/5/2005, slides ADK4058(a,b,c) (De Kesel 2005b).

Atheta (*Actophylla*) *marina* (Mulsant & Rey, 1853) [Coleoptera, Staphylinidae]

BELGIUM, West-Vlaanderen, Knokke-Heist, Zwin, 3/7/1992, leg. G. Haghebaert, coll. A. De Kesel, slides ADK657(a,b,c) (De Kesel 1997b; De Kesel 2005b).

82. Peyritschiella biformis (Thaxt.) I.I. Tav., *Mycol. Mem.* **9**: 270 (1985) **Plate 64. a-b**

Philonthus umbratilis (Gravenhorst, 1802) [Coleoptera, Staphylinidae]

BELGIUM, Brussels-Capital Region, Zoniënbos, 1/8/1908, leg. , coll. A. Collart, slides L128(a,b) (De Kesel 1997b; De Kesel & Rammeloo 1992); Vlaams-Brabant, Grimbergen, 1/8/1908, leg. & coll. A. Collart, slides L127(a,b,c,d), L130 (De Kesel 1997b); ibid., no date, leg. Loesmael, coll. A. Collart, slides L129 (De Kesel 1997b).

83. Peyritschiella dubia (Thaxt.) I.I. Tav., *Mycol. Mem.* **9**: 270 (1985) **Plate 64. c**

Philonthus politus (Linnaeus, 1758) [Coleoptera, Staphylinidae]

BELGIUM, Antwerpen, Antwerpen, no date, leg. & coll. A. Collart, slides L111(a,b) (De Kesel 1997b; De Kesel & Rammeloo 1992, ut *Peyritschiella dubius*).

84. Peyritschiella heinemanniana De Kesel, *Belg. Jl Bot.* **131**(2): 177 (1999) [1998] **Plate 65. a-e**

Xantholinus longiventris Heer, 1839 [Coleoptera, Staphylinidae]

BELGIUM, Antwerpen, Hingene (Bornem), Wiel, vijverrand, 28/5/1992, slides ADK643(a,b) (De Kesel 1997b, *ut Peyritschiella xantholini nom. prov*.); De Kesel 1999); Vlaams-Brabant, Meise, Domein van Bouchout, 15/6/1992, slides ADK648(a,b) (De Kesel 1997b; De Kesel 1999; De Kesel & Gerstmans 2011); ibid., 5/5/1993, slides ADK4696 (De Kesel & Gerstmans 2011); ibid., 19/5/1993, slides ADK4699 (De Kesel & Gerstmans 2011); ibid., 17/6/1993, slides ADK4701 (De Kesel & Gerstmans 2011); ibid., 4/06/2019, slides ADK6453.

85. Peyritschiella princeps (Thaxt.) I.I. Tav., *Mycol. Mem.* **9**: 270 (1985) **Plate 66. a-c**

Bisnius cephalotes (Gravenhorst, 1802) [Coleoptera, Staphylinidae]

BELGIUM, Brussels-Capital Region, Brussel, Schaarbeek, no date, leg. & coll. A. Collart, slides L126 (De Kesel 1997b; De Kesel & Rammeloo 1992).

Bisnius sordidus (Gravenhorst, 1802) [Coleoptera, Staphylinidae]

BELGIUM, Antwerpen, Dessel, 28/11/1977, leg. R. Bosmans, coll. , slides JR5540(a,b,c) (De Kesel 1997b).

Philonthus politus (Linnaeus, 1758) [Coleoptera, Staphylinidae]

BELGIUM, Antwerpen, Antwerpen, no date, leg. & coll. A. Collart, slides L111(b,c) gemengd (De Kesel 1997b; De Kesel & Rammeloo 1992); Brussels-Capital Region, Brussel, 04/06/1877, leg. Delecolle, coll. A. Collart, slides L112 (De Kesel 1997b; De Kesel & Rammeloo 1992).

Philonthus sp. [Coleoptera, Staphylinidae]

BELGIUM, Liège, Hannut, 5/5/2016, slide CG342.

86. Peyritschiella protea Thaxt., *Proc. Amer. Acad. Arts & Sci.* 35: 427 (1900) **Plate 67. a-d**

Anotylus insecatus Gravenhorst, 1806 [Coleoptera, Staphylinidae]

BELGIUM, Antwerpen, Bornem-Hingene, 26/8/1992, slides ADK641 (De Kesel 1997b).

Anotylus rugosus (Fabricius, 1775) [Coleoptera, Staphylinidae]

BELGIUM, Antwerpen, Bornem-Hingene, scheldeschorren, 17/1/1993, slides ADK640 (De Kesel 1997b); ibid., Hingene, Wiel, 28/5/1992, slides ADK642 (De Kesel 1997b); ibid., Zandvliet, Groot Buitenschoor, 11/4/1990, leg. G. Haghebaert, coll. A. De Kesel, slides ADK318(a,b) (De Kesel 1997b; De Kesel & Haghebaert 1991); Brussels-Capital Region, Zoniënbos, 3/3/1944, leg. N. Leleup, coll. A. Collart, slides L163 (De Kesel 1997b; De Kesel & Rammeloo 1992); Liège, Logne, Vieuxville, 23/4/1985, leg. G. Haghebaert, coll. A. De Kesel, slides ADK344 (De Kesel 1997b; De Kesel & Haghebaert 1991); Luxembourg, Buzenol, 14/7/1981, leg. G. Haghebaert, coll. A. De Kesel, slides ADK402 (De Kesel 1997b; De Kesel & Haghebaert 1991); ibid., Melreux, 9/2/1944, leg. N. Leleup, coll. A. Collart, slides L150 (De Kesel 1997b; De Kesel & Rammeloo 1992); Oost-Vlaanderen, Neigem, Neigembos, 9/6/1977, leg. G. Haghebaert & L. Van Hercke, coll. , slides ADK401 (De Kesel 1997b; De Kesel & Haghebaert 1991); Vlaams-Brabant, Meise, Domein van Bouchout, 23/9/1993, slides ADK4681 (De Kesel & Gerstmans 2011); West-Vlaanderen, Beernem, Bulskampveld, 28/6/1986, leg. G. Haghebaert, coll. A. De Kesel, slides ADK403 (De Kesel 1997b; De Kesel & Haghebaert 1991); ibid., Koksijde, 22/7/1983, leg. G. Haghebaert, coll. A. De Kesel, slides ADK345 (De Kesel 1997b; De Kesel & Haghebaert 1991).

Anotylus sp. [Coleoptera, Staphylinidae]

BELGIUM, Vlaams-Brabant, Meise, Domein van Bouchout, 10/3/1993, slides ADK4678 (De Kesel & Gerstmans 2011).

Unidentified staphylinid beetle [Coleoptera, Staphylinidae]

BELGIUM, Namur, Anhée, 16/06/2013, slide CG426.

87. Phaulomyces simplocariae De Kesel, *Mycotaxon* 50: 192 (1994) **Plate 68. a-e**

Simplocaria semistriata Fabricius, 1794 [Coleoptera, Byrrhidae]

BELGIUM, Antwerpen, Bornem-Hingene, domein de Notelaer, 7/3/1993, slides ADK666(a,b), ADK667, ADK668(a,b), ADK669, ADK670 (holotype, De Kesel 1994; De Kesel 1997b), ADK671(a,b), ADK672(a,b,c,d), ADK673(a,b), ADK674 (De Kesel 1994; De Kesel 1997b); ibid., 21/2/1993, slides ADK675(a,b), ADK676, ADK677 (De Kesel 1994; De Kesel 1997b); ibid., 5/4/1993, slides ADK681, ADK682 (De Kesel 1994; De Kesel 1997b); ibid., 19/5/1993, slides ADK683 (De Kesel 1994; De Kesel 1997b); Vlaams-Brabant, Meise, Domein van Bouchout, 20/4/1993, slides ADK4686 (De Kesel 1994; De Kesel & Gerstmans 2011); West-Vlaanderen, Knokke-Heist, Zwin, 12/3/1993, leg. G. Haghebaert, coll. A. De Kesel, slides ADK684(a,b,c), ADK686(a,b,c) (De Kesel 1994; De Kesel 1997b).

88. Rhachomyces canariensis Thaxt., *Proc. Amer. Acad. Arts & Sci.* 35: 436 (1900) **Plate 69. a**

Trechus obtusus Erichson, 1837 [Coleoptera, Carabidae]

BELGIUM, Antwerpen, Niel, Walenhoek, 21/11/2009, slides ADK4767.

Trechus quadristriatus (Schrank, 1781) [Coleoptera, Carabidae]

BELGIUM, West-Vlaanderen, Hertsberge, Hertsbergebeek, 3/11/1982, leg. K. Desender, coll. A. De Kesel, slides ADK554 (De Kesel 1997b; De Kesel 2002); ibid., Oostduinkerke, 23/2/1974, leg. E. Deconinck & R. Bosmans, coll. J. Rammeloo, slides JR5079(a,b,c) (De Kesel 1997b; De Kesel & Rammeloo 1992).

Trechus sp. [Coleoptera, Carabidae]

BELGIUM, Brabant wallon, Villers-la-Ville, Mellery, 26/4/2014, slide CG240.

89. Rhachomyces furcatus (Thaxt.) Thaxt., *Proc. Amer. Acad. Arts & Sci.* 30: 467 (1895) [1894] **Plate 69. b-c**

Othius myrmecophilus Kiesenwetter, 1843 [Coleoptera, Staphylinidae]

BELGIUM, Antwerpen, Bornem-Hingene, Domein de Notelaer, 24/8/1992, slides ADK980(a,b) (De Kesel 1997b; De Kesel 2002); Oost-Vlaanderen, Zwijnaarde, 28/3/1974, leg. E. Deconinck & R. Bosmans, coll. J. Rammeloo, slides JR5069(a,b,c,e,f,i) (De Kesel 1997b; De Kesel 2002; De Kesel & Rammeloo 1992); ibid., 20/2/1974, leg. E. Deconinck & R. Bosmans, coll. J. Rammeloo, slides JR5073 (De Kesel 1997b; De Kesel 2002; De Kesel & Rammeloo 1992); West-Vlaanderen, Beernem, Bulskampveld, 20/6/1986, leg. G. Haghebaert, coll. A. De Kesel, slides ADK418 (De Kesel 1997b; De Kesel 2002; De Kesel & Haghebaert 1991); ibid., Koksijde, 23/2/1974, leg. E. Deconinck & R. Bosmans, coll. J. Rammeloo, slides JR5054(a,b) (De Kesel 1997b; De Kesel 2002; De Kesel & Rammeloo 1992); ibid., 23/3/1974, leg. E. Deconinck & R. Bosmans, coll. J. Rammeloo, slides JR5059b (De Kesel 1997b; De Kesel 2002; De Kesel & Rammeloo 1992); ibid., Oostduinkerke, 30/4/1974, leg. E. Deconinck & R. Bosmans, coll. J. Rammeloo, slides JR5050 (De Kesel 1997b; De Kesel 2002; De Kesel & Rammeloo 1992).

Othius punctulatus (Goeze, 1777) [Coleoptera, Staphylinidae]

BELGIUM, Brussels-Capital Region, Zoniënbos, --/10/1906, leg. & coll. A. Collart, slides L174 (De Kesel 1997b; De Kesel 2002; De Kesel & Rammeloo 1992); Luxembourg, Attert (Rodenhoff), no date, leg. Van Volxem, coll. A. Collart, slides L172 (De Kesel 1997b; De Kesel 2002); ibid., Luxembourg, no date, leg. A. Mertens, coll. A. Collart, slides L173 (De Kesel 1997b; De Kesel 2002; De Kesel & Rammeloo 1992).

90. Rhachomyces lasiophorus (Thaxt.) Thaxt., *Proc. Amer. Acad. Arts & Sci.* 30: 468 (1895) [1894] **Plate 69. d**

Acupalpus dubius Schilsky, 1888 [Coleoptera, Carabidae]

BELGIUM, Antwerpen, Bornem, Hingene, Domein d'Ursel, 04-09/2001, leg. T. Van den Neucker, slides VDN83d; Oost-Vlaanderen, Smeerebbe-Vloerzegem, 17/5/1982, leg. K. Desender, coll. A. De Kesel, slides ADK635(a,b) (De Kesel 1997b; De Kesel 2002).

Acupalpus exiguus Dejean, 1829 [Coleoptera, Carabidae]

BELGIUM, Vlaams-Brabant, Boortmeerbeek, 1/2/1944, leg. N. Leleup, coll. A. Collart, slides L149 (De Kesel 1997b; De Kesel 2002; De Kesel & Rammeloo 1992).

91. Rhachomyces philonthinus Thaxt., *Proc. Amer. Acad. Arts & Sci.* 35: 435 (1900) **Plate 70. a**

Bisnius fimetarius (Gravenhorst, 1802) [Coleoptera, Staphylinidae]

BELGIUM, Antwerpen, Schoten, 25/8/1990, leg. De Bruyn, coll. A. De Kesel, slides ADK981 (De Kesel 1997b; De Kesel 2002); Liège, Werbomont, 13/6/1986, leg. G. Haghebaert, coll. A. De Kesel, slides ADK359 (De Kesel 1997b; De Kesel 2002; De Kesel & Haghebaert 1991).

Philonthus fumarius (Gravenhorst, 1806) [Coleoptera, Staphylinidae]

BELGIUM, Vlaams-Brabant, Wemmel, 5/7/1987, leg. G. Haghebaert, coll. A. De Kesel, slides ADK358 (De Kesel 1997b; De Kesel 2002; De Kesel & Haghebaert 1991).

Philonthus marginatus (Müller, 1764) [Coleoptera, Staphylinidae]

BELGIUM, Namur, Bois-de-Villers, 28/11/1942, leg. N. Leleup, coll. A. Collart, slides L136, L137, L138 (De Kesel 1997b; De Kesel 2002; De Kesel & Rammeloo 1992).

Philonthus rectangulus Sharp, 1874 [Coleoptera, Staphylinidae]

BELGIUM, Namur, Erpent, 5/7/1984, leg. G. Haghebaert, coll. A. De Kesel, slides ADK355; Brabant wallon, Ottignies, 2/8/1980, leg. G. Haghebaert, coll. A. De Kesel, slides ADK357; West-Vlaanderen, Oostende, 13/6/1987, leg. G. Haghebaert, coll. A. De Kesel, slides ADK356 (De Kesel 1997b; De Kesel 2002; De Kesel & Haghebaert 1991).

Philonthus sp. [Coleoptera, Staphylinidae]

BELGIUM, Antwerpen, Niel, Walenhoek, 19/8/2009, slides ADK4740 (De Kesel 2010b); Namur, Jemeppe-sur-Sambre, 3/4/2007, slide CG90; ibid., Gesves, Haltinne, 30/4/2012, slide CG312; ibid., Rochefort, Belvaux, 19/6/2010, slide CG152.

Philonthus varians (Paykull, 1789) [Coleoptera, Staphylinidae]

BELGIUM, Antwerpen, Bornem-Hingene, Schellandpolder, 13/4/1992, slides ADK630 (De Kesel 1997b; De Kesel 2002); Namur, Profondeville, 17/12/1942, leg. N. Leleup, coll. A. Collart, slides L78, L79, L80, L81, L165, L166, L167(a,b,c), L168(a,b) (De Kesel 1997b; De Kesel 2002; De Kesel & Rammeloo 1992); Wépion, 16/12/1942, leg. N. Leleup, coll. A. Collart, slides L77 (De Kesel 1997b; De Kesel 2002; De Kesel & Rammeloo 1992); Vlaams-Brabant, Meise, Domein van Bouchout, 23/9/1993, slides ADK4683 (De Kesel & Gerstmans 2011); ibid., 2/6/1993, slides ADK4685 (De Kesel & Gerstmans 2011), ibid., 3/7/1993, slides ADK4690, ADK4691 (De Kesel & Gerstmans 2011); West-Vlaanderen, Koksijde, 8/7/1983, leg. G. Haghebaert, coll. A. De Kesel, slides ADK346(a,b,c); ibid., 22/7/1984, leg. G. Haghebaert, coll. A. De Kesel, slides ADK347; ibid., 17/6/1983, leg. G. Haghebaert, coll. A. De Kesel, slides ADK348; ibid., 27/6/1983, leg. G. Haghebaert, coll. A. De Kesel, slides ADK349(a,b,c); ibid., 20/5/1983, leg. G. Haghebaert, coll. A. De Kesel, slides ADK350(a,b) (De Kesel 1997b; De Kesel 2002; De Kesel & Haghebaert 1991).

92. Rhachomyces pilosellus (C.P. Robin) Thaxt., *Proc. Amer. Acad. Arts & Sci.* 30: 467 (1895) [1894] **Plate 70. b**

Lathrobium fulvipenne (Gravenhorst, 1806) [Coleoptera, Staphylinidae]

BELGIUM, Luxembourg, Arlon, 01/06/1879, leg. Mertens, coll. A. Collart, slides L89; Namur, Furfooz, 03/06/1878, leg. Stephenne, coll. A. Collart, slides L88(a,b,c) (De Kesel 1997b; De Kesel 2002; De Kesel & Rammeloo 1992).

Lathrobium geminum Kraatz, 1857 [Coleoptera, Staphylinidae]

BELGIUM, Luxembourg, Arlon, --/06/1879, leg. Mertens, coll. A. Collart, slides L74a (De Kesel 1997b; De Kesel 2002; De Kesel & Rammeloo 1992).

93. Rhachomyces sciakyi W. Rossi, *Mycologia* **74**(6): 1025 (1982) **Plate 71. a-d**

Syntomus foveatus (Geoffroy, 1785) [Coleoptera, Carabidae]

BELGIUM, Antwerpen, Heide Kalmthout, Staatsnatuurreservaat, 24/4/1987, leg. K. Desender, coll. A. De Kesel, slides ADK995(a,b,c); Limburg, Mechelen-aan-de-Maas, 20/5/1986, leg. Dufrêne, coll. A. De Kesel, slides ADK815; ibid., St. Pietersberg, 20/5/1986, leg. Dufrêne, coll. A. De Kesel, slides ADK813 (De Kesel 1997b; De Kesel 2002).

94. Rhachomyces tenenbaumii J. Siemaszko & W. Siemaszko, *Polsk. Pism. Entomolog.* **6**: 205 (1928) **Plate 70. c**

Thalassophilus longicornis (Sturm, 1825) [Coleoptera, Carabidae]

BELGIUM, Namur, Wavreille, 4/7/1945, leg. N. Leleup, coll. A. Collart, slides L239 (De Kesel 1997b; De Kesel 2002; De Kesel & Rammeloo 1992).

95. Rhadinomyces cristatus Thaxt., *Proc. Amer. Acad. Arts & Sci.* **28**: 180 (1893) **Plate 72. a-d**

Lathrobium brunnipes (Fabricius, 1793) [Coleoptera, Staphylinidae]

BELGIUM, Antwerpen, Hingene, Domein de Notelaer, 24/8/1992, leg. F. Dhondt, coll. A. De Kesel, slides ADK986(b,c,d) (De Kesel 1997b); Brussels-Capital Region, Anderlecht, 9/4/1900, leg. & coll. A. Collart, slides L76 (De Kesel 1997b; De Kesel & Rammeloo 1992); Oost-Vlaanderen, Drongen (Bourgoyen), 17/8/1973, leg. F. Dhondt, coll. J. Rammeloo, slides JR3686 (De Kesel 1997b); Vlaams-Brabant, Meise, Domein van Bouchout, 23/9/1993, slides ADK4682 (De Kesel & Gerstmans 2011); ibid., 4/06/2019, slides ADK4682.

Lathrobium castaneipenne Kolenati, 1846 [Coleoptera, Staphylinidae]

BELGIUM, Luxembourg, La-Roche-en-Ardenne, 29/3/1943, leg. N. Leleup, coll. A. Collart, slides L82 (De Kesel 1997b; De Kesel & Rammeloo 1992); Namur, Hermeton-sur-Meuse, 25/11/1942, leg. N. Leleup, coll. A. Collart, slides L83 (De Kesel 1997b; De Kesel & Rammeloo 1992).

Lathrobium elongatum (Linnaeus, 1767) [Coleoptera, Staphylinidae]

BELGIUM, Vlaams-Brabant, Meise, Domein van Bouchout, 5/5/1993, slides ADK4694(a,b) (De Kesel & Gerstmans 2011); ibid., 1-18/03/2019, slides ADK6417.

Lathrobium fulvipenne (Gravenhorst, 1806) [Coleoptera, Staphylinidae]

BELGIUM, Namur, Furfooz, 04/06/1878, leg. Stephenne, coll. A. Collart, slides L88 (De Kesel 1997b; De Kesel & Rammeloo 1992).

Lathrobium geminum Kraatz, 1857 [Coleoptera, Staphylinidae]

BELGIUM, Luxembourg, Arlon, --/07/1879, leg. Mertens, coll. A. Collart, slides L74b (De Kesel 1997b; De Kesel & Rammeloo 1992); Oost-Vlaanderen, Drongen (Bourgoyen), 14/9/1973, leg. Dhondt, coll. J. Rammeloo, slides JR3687(I-II) (De Kesel 1997b; De Kesel & Rammeloo 1992).

Lathrobium sp. [Coleoptera, Staphylinidae]

BELGIUM, Antwerpen, Bornem, Weert, 14/5/2005, slides ADK4062.

96. Rhynchophoromyces anacaenae Scheloske, *Parasitologische Schriftenreihe* **19**: 143 (1969) **Plate 73. b**

Anacaena lutescens (Stephens, 1829) [Coleoptera, Hydrophilidae]

BELGIUM, Antwerpen, Niel, Walenhoek, 21/8/2014, slides ADK6143; West-Vlaanderen, Ardooie, Koolskamp, 2/3/2007, coll. T. Werbrouck, slides TW167 (De Kesel & Werbrouck 2008).

97. Rickia dendroiuli W. Rossi, Revue Mycol., Paris **41**(4): 531 (1977) **Plate 74. a-c**

Undet. Julid [Julida]

BELGIUM, Brussels-Capital Region, Sint-Jans-Molenbeek, 30/06/2015, slides CG259; Namur, Beez, 05/05/2010, slides CG138(a,b,c,d).

98. Rickia laboulbenioides De Kesel, *Sterbeeckia* **32**: 6 (2013) **Plate 75. a-i**

Cylindroiulus latestriatus (Curtis, 1845) [Julida, Blaniulidae]

BELGIUM, West-Vlaanderen, Knokke-Heist, zwinmonding, 17/5/2012, slides ADK5157(a,b,c,d,e) (De Kesel, Haelewaters & Gerstmans 2013); ibid., Oostduinkerke, 4/08/2014, slides CG247 (host as cf. *Cylindroiulus latestriatus*).

Cylindroiulus punctatus (Leach, 1815) [Julida, Blaniulidae]

BELGIUM, Vlaams Brabant, Tervuren, park RMCA, 23/1/2009, leg. H. Enghoff (ZMUC 100956), slides ADK6511(a,b).

Undet. Julid [Julida]

BELGIUM, Vlaams-Brabant, Meise, Domein van Bouchout, 30/04/2014, slides CG253, ibid., 25/06/2015, slides CG252; ibid., 14/03/2018, slides CG382(a,b,c); 17/10/2018, slides ADK6357; ibid., 21/5/2019, slides CG301.

99. Rickia peyerimhoffii Maire, *Bull. Sci. France Belgique* **7**(51): 290 (1916) **Plate 73. a**

Scaphisoma sp. [Coleoptera, Staphylinidae]

BELGIUM, West-Vlaanderen, Raversijde, duin Prins Karel, 12/9/1987, leg. G. Haghebaert, coll. A. De Kesel, slides ADK354 (De Kesel 1997b).

100. Rickia proteini T. Majewski, Acta Mycologica, Warszawa **19**(2): 191 (1985) **Plate 76. f-i**

Proteinus sp. [Coleoptera, Staphylinidae]

BELGIUM, West-Vlaanderen, Knokke-Heist, zwinmonding, 28/4/2012, slides ADK5146(a,b) (De Kesel, Haelewaters & Gerstmans 2013).

101. Rickia wasmannii Cavara, *Malpighia* **13**: 182 (1899) **Plate 76. a-e**

Myrmica sabuleti Meinert, 1861 [Hymenoptera, Formicidae]

BELGIUM, Limburg, Moelingen, 13/9/2015, slides ADK6270 (De Kesel, Haelewaters & Dekoninck 2016).

102. Siemaszkoa ptenidii (Scheloske) I.I. Tav. & T. Majewski, *Mycotaxon* **3**(2): 204 (1976) **Plate 77. a-c**

Ptenidium sp. [Coleoptera, Ptiliidae]

BELGIUM, West-Vlaanderen, Knokke-Heist, Zwin, 21/11/1992, leg. G. Haghebaert, coll. A. De Kesel, slides ADK659 (De Kesel 1997b); Vlaams-Brabant, Meise, Domein van Bouchout, 21/5/2019, slides ADK6452(a,b).

103. Stichomyces conosomatis Thaxt., *Proc. Amer. Acad. Arts & Sci.* **37**: 38 (1901) **Plate 77. d-g**

Sepedophilus marshami (Stephens, 1832) [Coleoptera, Staphylinidae]

BELGIUM, West-Vlaanderen, Knokke-Heist, Zwin, 5/6/1992, leg. G. Haghebaert, coll. A. De Kesel, slides ADK661 (De Kesel 1997b).

Sepedophilus nigripennis (Stephens, 1832) [Coleoptera, Staphylinidae]

BELGIUM, West-Vlaanderen, Raversijde, 1/5/1984, leg. G. Haghebaert, coll. A. De Kesel, slides ADK431 (De Kesel 1997b; De Kesel & Haghebaert 1991).

Sepedophilus pedicularius (Gravenhorst, 1802) [Coleoptera, Staphylinidae]

BELGIUM, West-Vlaanderen, Knokke-Heist, Zwin, 21/11/1992, leg. G. Haghebaert, coll. A. De Kesel, slides ADK662 (De Kesel 1997b); ibid., Oostduinkerke, 23/2/1974, leg. E. Deconinck & R. Bosmans, coll. J. Rammeloo, slides JR5070(a,c,d,i) (De Kesel 1997b; De Kesel & Rammeloo 1992).

Sepedophilus sp. [Coleoptera, Staphylinidae]

BELGIUM, Antwerpen, Wuustwezel, 1/04/2019, leg. S. De Wegghеleire, coll. A. De Kesel, slides ADK6426; Vlaams-Brabant, Meise, Domein van Bouchout, 6/9/2010, slide CG296; West-Vlaanderen, Knokke-Heist, Zwin, 6/8/1993, slides ADK1683 (De Kesel 1997b); Oostduinkerke, 4/8/2014, slide CG248.

104. Stigmatomyces burdigalensis (Balazuc) A. Weir & W. Rossi, *Mycol. Res.* **99**(7): 843 (1995) **Plate 78. c-d**

Copromyza stercoraria (Meigen, 1830) [Diptera, Sphaeroceridae]

BELGIUM, Antwerpen, Hoboken, Hobokense polder, 8/6/1990, leg. & coll. F. Ven, slides ADK4478, ADK4480, ADK4481 (De Kesel & Hanssens 2008); ibid., 29/6/1990, leg. & coll. F. Ven, slides ADK4479(a,b,c) (De Kesel & Hanssens 2008); ibid., Kalmthout, Withoefse Heide, 16/6/1997, leg. & coll. L. De Bruyn, slides ADK4485 (De Kesel & Hanssens 2008).

Crumomyia (*Spaerocera*) *pedestris* (Meigen, 1830) [Diptera, Sphaeroceridae]

BELGIUM, Antwerpen, Bornem, Branst, 27/9/2005, slides ADK4068(a,b) (De Kesel & Hanssens 2008).

105. Stigmatomyces crassicollis Thaxt., *Proc. Amer. Acad. Arts & Sci.* **52**: 661 (1917) **Plate 79. a-b**

Leptocera caenosa (Rondani, 1880) [Diptera, Sphaeroceridae]

BELGIUM, Antwerpen, Schoten, 27/8/1990, leg. & coll. F. Ven, slides ADK4490(a,b) (De Kesel & Hanssens 2008).

Leptocera fontinalis (Fallén, 1826) [Diptera, Sphaeroceridae]

BELGIUM, Antwerpen, Ranst, Muizenbos, 18/07/1997 - 06/08/1997, leg. & coll. B. Engelen, slides ADK4527, ADK4528(a,b), ADK4529(a,b) (De Kesel & Hanssens 2008); ibid., Schoten, 31/8/1990, leg. & coll. F. Ven, slides ADK4475 (De Kesel & Hanssens 2008).

Leptocera lutosoidea (Duda, 1938) [Diptera, Sphaeroceridae]
BELGIUM, Antwerpen, Hingene, Domein d'Ursel, 9/3/1996, slides ADK4474 (De Kesel & Hanssens 2008).
Opacifrons humida (Haliday, 1836) [Diptera, Sphaeroceridae]
BELGIUM, Antwerpen, Hoboken, Hobokense polder, 24/8/1990, slides ADK4496(a,b), ADK4497(a,b) (De Kesel & Hanssens 2008).
Spelobia rufilabris (Stenhammar, 1855) [Diptera, Sphaeroceridae]
BELGIUM, Vlaams-Brabant, Liedekerke, RTT-domein, 21/4/1997, leg. & coll. L. De Bruyn, slides ADK4498 (De Kesel & Hanssens 2008).
Unidentified sphaerocerid fly [Diptera, Sphaeroceridae]
Vlaams-Brabant, Meise, Domein van Bouchout, 27/3/2019, slide CG434.

106. Stigmatomyces divergatus Thaxt., *Mem. Am. Acad. Arts Sci., ser.* 2 **16**(1): 122 (1931) **Plate 78. a-b**
Apteromyia claviventris (Strobl, 1909) [Diptera, Sphaeroceridae]
BELGIUM, West-Vlaanderen, Oostkamp, Nieuwhoven, 31/8/1990, leg. & coll. F. Ven, slides ADK4482 (De Kesel & Hanssens 2008); ibid., 20/6/1990, leg. & coll. L. De Bruyn, slides ADK4487 (De Kesel & Hanssens 2008).
Spelobia parapusio (Dahl, 1909) [Diptera, Sphaeroceridae]
BELGIUM, Antwerpen, Schoten, 14/9/1990, leg. & coll. F. Ven, slides ADK4477 (De Kesel & Hanssens 2008); ibid., 17/8/1991, leg. & coll. F. Ven, slides ADK4491 (De Kesel & Hanssens 2008); ibid., 15/6/1990, leg. & coll. F. Ven, slides ADK4492(a,b) (De Kesel & Hanssens 2008); Limburg, Wimmertingen, 18/6/1997, leg. & coll. L. De Bruyn, slides ADK4505(a,b) (De Kesel & Hanssens 2008); Oost-Vlaanderen, Knesselare, Drongengoed, 12/5/1997, leg. & coll. L. De Bruyn, slides ADK4506(a,b) (De Kesel & Hanssens 2008); Maldegem, Paddepoelenbos, 30/7/1997, leg. L. De Bruyn, coll. L. De Bruyn, slides ADK4509(a,b) (De Kesel & Hanssens 2008); ibid., Serskamp, Zandputten Serskamp, 16/7/1997, leg. & coll. L. De Bruyn, slides ADK4507 (De Kesel & Hanssens 2008); ibid., 14/8/1997, leg. & coll. L. De Bruyn, slides ADK4508 (De Kesel & Hanssens 2008); West-Vlaanderen, Wijnendale, Wijnendalebos, 30/6/1997, leg. & coll. L. De Bruyn, slides ADK4499, ADK4500, ADK4502 (De Kesel & Hanssens 2008); ibid., 18/6/1997, leg. & coll. L. De Bruyn, slides ADK4501, ADK4503, ADK4504 (De Kesel & Hanssens 2008).
Spelobia sp. [Diptera, Sphaeroceridae]
Vlaams-Brabant, Meise, Domein van Bouchout, 18/8/2019, slide CG484.

107. Stigmatomyces limosinae Thaxt., *Proc. Amer. Acad. Arts & Sci.* **36**: 406 (1900) [1901] **Plate 79. c-e**
Spelobia clunipes (Meigen, 1830) [Diptera, Sphaeroceridae]
BELGIUM, Antwerpen, Ranst, Muizenbos, 18/04/1997-05/06/1997, leg. & coll. B. Engelen, slides ADK4511 (De Kesel & Hanssens 2008); ibid., 05-18/06/1997, leg. & coll. B. Engelen, slides ADK4512(a,b) (De Kesel & Hanssens 2008); ibid., 18/08/1997-06/08/1997, leg. & coll. B. Engelen, slides ADK4516 (De Kesel & Hanssens 2008).

108. Stigmatomyces minilimosinae T. Majewski, *Polish Bot. Stud.* **1**: 122 (1990) **Plate 78. e**
Minilimosina parvula (Stenhammar, 1855) [Diptera, Sphaeroceridae]
BELGIUM, West-Vlaanderen, Oostkamp, Nieuwhoven, 12/5/1997, leg. & coll. L. De Bruyn, slides ADK4489 (De Kesel & Hanssens 2008).

109. Stigmatomyces platensis Speg., *Anal. Mus. nac. Hist. nat. B. Aires* **29**: 676 (1917) **Plate 78. f-h**
Paralimosina fucata (Rondani, 1880) [Diptera, Sphaeroceridae]
BELGIUM, Hainaut, Enghien, Bos Ter Rijst/Risoir, 19/6/1997, leg. L. De Bruyn, coll. L. De Bruyn, slides ADK4484(a,b,c,d,e,f,g) (De Kesel & Hanssens 2008); ibid., 5/6/1997, leg. & coll. B. Engelen, slides ADK4510 (De Kesel & Hanssens 2008).
Paralimosina subcribrata (Rohacek, 1977) [Diptera, Sphaeroceridae]
BELGIUM, Antwerpen, Ranst, Muizenbos, 08-26/09/1997, leg. & coll. B. Engelen, slides ADK4521 (De Kesel & Hanssens 2008); ibid., 05-18/06/1997, leg. & coll. B. Engelen, slides ADK4522 (De Kesel & Hanssens 2008); ibid., 18/07/1997-06/08/1997, leg. & coll. B. Engelen, slides ADK4523 (De Kesel & Hanssens 2008); ibid., 18/04/1997-05/06/1997, leg. & coll. B. Engelen, slides ADK4524(a,b) (De Kesel & Hanssens 2008); ibid., 18/04/1997-05/06/1997, leg. & coll. B. Engelen, slides ADK4525 (De Kesel & Hanssens 2008); ibid., 18/06/1997-02/07/1997, leg. & coll. B. Engelen, slides ADK4526(a,b) (De Kesel & Hanssens 2008).

110. Symplectromyces vulgaris (Thaxt.) Thaxt., *Mem. Am. Acad. Arts Sci.*, ser. 2 **13**(6): 315 (1908) **Plate 80. a-e**
Philonthus sp. [Coleoptera, Staphylinidae]
BELGIUM, Namur, Spy (Onoz), 7/6/1942, leg. & coll. A. Collart, slides L9 (De Kesel 1997b).

Quedius curtipennis Bernhauer, 1908 [Coleoptera, Staphylinidae]

BELGIUM, Oost-Vlaanderen, Neigem, Neigembos, 9/6/1977, leg. G. Haghebaert, coll. A. De Kesel, slides ADK421 (De Kesel 1997b; De Kesel & Haghebaert 1991).

Quedius fuliginosus (Gravenhorst, 1802) [Coleoptera, Staphylinidae]

BELGIUM, Vlaams-Brabant, Meise, Domein van Bouchout, 2/5/1992, slides ADK646 (De Kesel 1997b; De Kesel & Gerstmans 2011).

Quedius fumatus (Stephens, 1833) [Coleoptera, Staphylinidae]

BELGIUM, Vlaams-Brabant, Meise, Domein van Bouchout, 2/6/1992, slides ADK649 (De Kesel 1997b; De Kesel & Gerstmans 2011).

Quedius mesomelinus (Marsham, 1802) [Coleoptera, Staphylinidae]

BELGIUM, Liège, Lovegnée (-lez-Huy), 23/7/1936, leg. A. Collart, coll. A. Collart, slides L135(a,b,c,d) (De Kesel 1997b; De Kesel & Rammeloo 1992); ibid., Tilff (Méry), 23/4/1933, leg. R. Leruth, coll. A. Collart, slides L186 (De Kesel 1997b; De Kesel & Rammeloo 1992); ibid., 8/12/1929, leg. R. Leruth, coll. A. Collart, slides L187 (De Kesel 1997b; De Kesel & Rammeloo 1992); ibid., Verlaine, 13/3/1932, leg. R. Leruth, coll. A. Collart, slides L185(a,b) (De Kesel 1997b; De Kesel & Rammeloo 1992).

Quedius sp. [Coleoptera, Staphylinidae]

BELGIUM, Vlaams-Brabant, Meise, Domein van Bouchout, 24/2/1993, slides ADK652 (De Kesel 1997b; De Kesel & Gerstmans 2011); ibid., 20/4/1993, slides ADK4687(a,b,c,d); ibid., 20/9/1993, slides ADK4697, ADK4698 (De Kesel & Gerstmans 2011); ibid., 10/3/1993, slides ADK4717 (De Kesel & Gerstmans 2011).

Quedius tristis (Brullé, 1832) [Coleoptera, Staphylinidae]

BELGIUM, West-Vlaanderen, Raversijde, duin Prins Karel, --/05/1985, leg. G. Haghebaert, coll. A. De Kesel, slides ADK340(a,b,c) (De Kesel 1997b; De Kesel & Haghebaert 1991).

111. Teratomyces actobii Thaxt. *Proc. Amer. Acad. Arts & Sci. 29: 98 (1894)* **Plate 81. a-b**

Gabrius nigritulus (Gravenhorst, 1802) [Coleoptera, Staphylinidae]

BELGIUM, Antwerpen, Bornem-Hingene, Schellandpolder, 13/4/1992, slides ADK629 (De Kesel 1997b, *ut T. philonthi*); Oost-Vlaanderen, Drongen (Bourgoyen), 17/8/1973, leg. F. Dhondt, coll. J. Rammeloo, slides JR3690 (De Kesel 1997b; De Kesel & Rammeloo 1992, *ut T. philonthi*).

Gabrius sp. [Coleoptera, Staphylinidae]

BELGIUM, Vlaams-Brabant, Meise, Domein van Bouchout, 23/9/1993, slides ADK4674 (De Kesel & Gerstmans 2011, *ut T. philonthi*).

112. Teratomyces philonthi Thaxt., *Proc. Amer. Acad. Arts & Sci.* 35: 432 (1901) **Plate 82. a-c**

Gabrius nigritulus (Gravenhorst, 1802) [Coleoptera, Staphylinidae]

BELGIUM, Vlaams-Brabant, Meise, Bouchout, 18/4/2019, slide ADK6440; ibid. 03/02/2020, slide ADK6513.

Gabrius sp. [Coleoptera, Staphylinidae]

BELGIUM, Hainaut, Thuin, Bois de l'abbaye d'Aulne, 30/4/2017, slide CG421.

Quedius nitipennis (Stephens, 1833) [Coleoptera, Staphylinidae]

BELGIUM, West-Vlaanderen, Koksijde, 23/2/1974, leg. E. Deconinck & R. Bosmans, coll. J. Rammeloo, slides JR5052(a,b) (De Kesel 1997b; De Kesel & Rammeloo 1992, *ut Symplectromyces vulgaris*).

Quedius sp. [Coleoptera, Staphylinidae]

BELGIUM, Vlaams-Brabant, Meise, Domein van Bouchout, 2/6/1993, slides ADK1692 (De Kesel 1997b; De Kesel & Gerstmans 2011, *ut Symplectromyces vulgaris*).

113. Troglomyces manfrediae S. Colla [as '*manfredii*'], *Nuovo G. bot. ital.* 39: 451 (1932) **Plate 83. a-d**

Undet. Julid [Julida]

BELGIUM, Vlaams-Brabant, Meise, Domein van Bouchout, 20/3/2012, leg. C. Gerstmans, coll. A. De Kesel, slides ADK5142(a-d); ibid., 27/4/2012, leg. C. Gerstmans, coll. A. De Kesel, slides ADK5149; ibid., 14/03/2018, slides CG382d.

114. Troglomyces triandrus Santam. & Enghoff, *Organ. Divers. Evol.* 15: 253 (2015) **Plate 83. e-g**

Archiboreoiulus pallidus (Bradebirks, 1920) [Julida, Blaniulidae]

BELGIUM, no loc., no date, Belgian records are mentioned in Enghoff & Santamaria (2015)

115. Zodiomyces vorticellarius Thaxt., *Proc. Amer. Acad. Arts & Sci.* 25: 263 (1891) **Plate 84. a-b**

Helochares sp. [Coleoptera, Hydrophilidae]

BELGIUM, Antwerpen, Niel, Walenhoek, 10/7/2013, leg. De Kesel, Haelewaters & Gerstmans, coll. A. De Kesel, slides ADK6139.

12. Hosts with Laboulbeniomycetes in Belgium

HOST	FUNGUS
Blattodea, Blattidae	
Periplaneta americana	*Herpomyces periplanetae (2)*
Blattodea, Ectobiidae	
Blatta orientalis	*Herpomyces periplanetae (2)*
Blatta orientalis	*Herpomyces stylopygae (3)*
Blattella germanica	*Herpomyces ectobiae (1)*
Coleoptera, Byrrhidae	
Simplocaria semistriata	*Phaulomyces simplocariae (87)*
Coleoptera, Carabidae	
Acupalpus dubius	*Laboulbenia inflata (56)*
	Rhachomyces lasiophorus (90)
Acupalpus exiguus	*Laboulbenia inflata (56)*
	Rhachomyces lasiophorus (90)
Agonum emarginatum	*Laboulbenia flagellata (52)*
Agonum fuliginosum	*Laboulbenia flagellata (52)*
Agonum marginatum	*Laboulbenia flagellata (52)*
Agonum micans	*Laboulbenia collae (43)*
	Laboulbenia flagellata (52)
Agonum moestum	*Laboulbenia flagellata (52)*
Agonum muelleri	*Laboulbenia flagellata (52)*
	Laboulbenia leisti (59)
Agonum nigrum	*Laboulbenia flagellata (52)*
Agonum thoreyi	*Laboulbenia flagellata (52)*
Agonum viridicupreum	*Laboulbenia flagellata (52)*
Anisodactylus binotatus	*Laboulbenia flagellata (52)*
Asaphidion flavipes	*Laboulbenia thaxteri (71)*
Badister bullatus	*Laboulbenia benjaminii (40)*
Badister lacertosus	*Laboulbenia benjaminii (40)*
Badister sodalis	*Laboulbenia benjaminii (40)*
Badister unipustulatus	*Laboulbenia benjaminii (40)*
Bembidion aeneum	*Laboulbenia pedicellata (65)*
Bembidion articulatum	*Laboulbenia pedicellata (65)*
Bembidion assimile	*Laboulbenia murmanica (62)*
Bembidion biguttatum	*Laboulbenia vulgaris (72)*
Bembidion dentellum	*Laboulbenia vulgaris (72)*
Bembidion elongatum	*Laboulbenia vulgaris (72)*
Bembidion femoratum	*Laboulbenia vulgaris (72)*
Bembidion gilvipes	*Laboulbenia pedicellata (65)*
Bembidion guttula	*Laboulbenia pedicellata (65)*
Bembidion iricolor	*Laboulbenia pedicellata (65)*
Bembidion lunulatum	*Laboulbenia pedicellata (65)*
Bembidion mannerheimi	*Laboulbenia vulgaris (72)*
Bembidion minimum	*Laboulbenia pedicellata (65)*
Bembidion normannum	*Laboulbenia pedicellata (65)*
Bembidion obtusum	*Laboulbenia pedicellata (65)*
Bembidion properans	*Laboulbenia vulgaris (72)*
Bembidion quadrimaculatum	*Laboulbenia pedicellata (65)*
Bembidion stephensii	*Laboulbenia vulgaris (72)*
Bembidion tetracolum	*Laboulbenia vulgaris (72)*
Bembidion tibiale	*Laboulbenia vulgaris (72)*
Bembidion varium	*Laboulbenia pedicellata (65)*
Brachinus crepitans	*Laboulbenia rougetii (68)*
Bradycellus harpalinus	*Laboulbenia eubradycelli (49)*
Bradycellus ruficollis	*Laboulbenia eubradycelli (49)*
Bradycellus verbasci	*Laboulbenia eubradycelli (49)*
Calathus erratus	*Laboulbenia calathi (41)*
Calathus melanocephalus	*Eucantharomyces stammeri (27)*
	Laboulbenia calathi (41)
Clivina collaris	*Laboulbenia clivinalis (42)*
Clivina fossor	*Laboulbenia clivinalis (42)*
Demetrias atricapillus	*Laboulbenia notiophili (63)*
Demetrias imperialis	*Laboulbenia notiophili (63)*
Demetrias monostigma	*Laboulbenia notiophili (63)*
Dicheirotrichus gustavii	*Laboulbenia giardii (53)*
Dicheirotrichus obsoletus	*Laboulbenia giardii (53)*
Dyschirius aeneus	*Misgomyces dyschirii (73)*
Dyschirius globosus	*Misgomyces dyschirii (73)*
Dyschirius intermedius	*Misgomyces dyschirii (73)*
Dyschirius tristis	*Laboulbenia pedicellata (65)*
	Misgomyces dyschirii (73)
Elaphropus parvulus	*Laboulbenia egens (47)*
Elaphrus cupreus	*Laboulbenia elaphri (48)*
Elaphrus riparius	*Laboulbenia elaphri (48)*
Harpalus affinis	*Laboulbenia coneglianensis (44)*
Harpalus atratus	*Laboulbenia coneglianensis (44)*
Harpalus attenuatus	*Laboulbenia coneglianensis (44)*
Harpalus griseus	*Laboulbenia coneglianensis (44)*
Harpalus rubripes	*Laboulbenia ophoni (64)*
Harpalus rufipes	*Laboulbenia coneglianensis (44)*
Harpalus tardus	*Laboulbenia coneglianensis (44)*
Laemostenus terricola	*Laboulbenia flagellata (52)*
Leistus ferrugineus	*Laboulbenia leisti (59)*
Limodromus assimilis	*Laboulbenia flagellata (52)*
Loricera pilicornis	*Laboulbenia flagellata (52)*
	Laboulbenia pseudomasei (67)
Nebria brevicollis	*Laboulbenia fasciculata (50)*
	Laboulbenia flagellata (52)
	Laboulbenia pseudomasei (67)
Notiophilus biguttatus	*Laboulbenia notiophili (63)*
Notiophilus rufipes	*Laboulbenia notiophili (63)*
Ocys harpaloides	*Laboulbenia vulgaris (72)*
Ophonus rufibarbis	*Laboulbenia coneglianensis (44)*
	Laboulbenia ophoni (64)
Oxypselaphus obscurus	*Laboulbenia flagellata (52)*
Paradromius linearis	*Laboulbenia hyalopoda (55)*
	Laboulbenia notiophili (63)
Paranchus albipes	*Laboulbenia collae (43)*
	Laboulbenia flagellata (52)
Paratachys micros	*Laboulbenia egens (47)*
Parophonus maculicornis	*Laboulbenia flagellata (52)*
Patrobus atrorufus	*Euzodiomyces lathrobii (28)*
	Laboulbenia fasciculata (50)
Pogonus chalceus	*Laboulbenia pedicellata (65)*
	Laboulbenia slackensis (69)
Pterostichus anthracinus	*Laboulbenia pseudomasei (67)*
Pterostichus diligens	*Laboulbenia argutoris (38)*
	Laboulbenia kajanensis (57)
Pterostichus minor	*Laboulbenia pseudomasei (67)*
Pterostichus nigrita	*Laboulbenia fasciculata (50)*
	Laboulbenia pseudomasei (67)
Pterostichus strenuus	*Euzodiomyces lathrobii (28)*
	Laboulbenia argutoris (38)
	Laboulbenia kajanensis (57)
	Laboulbenia pseudomasei (67)
Pterostichus vernalis	*Laboulbenia flagellata (52)*

HOST	FUNGUS
Coleoptera, Carabidae (continued)	
Stenolophus mixtus	*Laboulbenia anoplogenii (37)*
	Laboulbenia inflata (56)
Stenolophus teutonus	*Laboulbenia anoplogenii (37)*
Stomis pumicatus	*Laboulbenia pseudomasei (67)*
Syntomus foveatus	*Laboulbenia metableti (61)*
	Rhachomyces sciakyi (93)
Syntomus truncatellus	*Laboulbenia metableti (61)*
Thalassophilus longicornis	*Rhachomyces tenenbaumii (94)*
Trechoblemus micros	*Laboulbenia lecoareri (58)*
Trechus obtusus	*Rhachomyces canariensis (88)*
Trechus quadristriatus	*Laboulbenia vulgaris (72)*
	Rhachomyces canariensis (88)
Trechus rubens	*Laboulbenia vulgaris (72)*
Trichocellus placidus	*Laboulbenia eubradycelli (49)*
Trichotichnus laevicollis	*Laboulbenia flagellata (52)*
Coleoptera, Coccinellidae	
Tytthaspis sedecimpunctata	*Hesperomyces virescens (31)*
Stethorus punctillum	*Hesperomyces coccinelloides (30)*
Halyzia sedecimguttata	*Hesperomyces virescens (31)*
Harmonia axyridis	*Hesperomyces virescens (31)*
Coleoptera, Dryopidae	
Dryops luridus	*Cantharomyces denigratus (7)*
	Cantharomyces italicus (8)
	Helodiomyces elegans (29)
Coleoptera, Dytiscidae	
Graptodytes pictus	*Chitonomyces aculeifer (12)*
Laccophilus hyalinus	*Chitonomyces italicus (13)*
	Chitonomyces melanurus (14)
	Chitonomyces paradoxus (15)
Coleoptera, Gyrinidae	
Gyrinus marinus	*Laboulbenia gyrinicola (54)*
Gyrinus natator	*Laboulbenia gyrinicola (54)*
Gyrinus substriatus	*Laboulbenia fennica (51)*
Coleoptera, Haliplidae	
Haliplus immaculatus	*Hydraeomyces halipli (32)*
Haliplus lineatocollis	*Hydraeomyces halipli (32)*
Haliplus lineolatus	*Hydraeomyces halipli (32)*
Haliplus ruficollis	*Hydraeomyces halipli (32)*
Haliplus sp.	*Chitonomyces aculeifer (12)*
Coleoptera, Heteroceridae	
Heterocerus fenestratus	*Botryandromyces heteroceri (6)*
Heterocerus flexuosus	*Botryandromyces heteroceri (6)*
Heterocerus hispidulus	*Botryandromyces heteroceri (6)*
Coleoptera, Hydrophilidae	
Anacaena lutescens	*Rhynchophoromyces anacaenae (96)*
Cercyon marinus	*Hydrophilomyces cf. gracilis (33)*
	Hydrophilomyces cf. hamatus (34)
Helochares sp.	*Zodiomyces vorticellarius (115)*
Coleoptera, Kateretidae	
Brachypterus urticae	*Aphanandromyces audisioi (4)*

HOST	FUNGUS
Coleoptera, Leiodidae	
Catops fuscus	*Asaphomyces tubanticus (5)*
Catops longulus	*Asaphomyces tubanticus (5)*
Catops nigricans	*Asaphomyces tubanticus (5)*
Choleva cisteloides	*Corethromyces henrotii (18)*
	Diphymyces kaaistoepi (24)
Coleoptera, Pselaphidae	
Brachygluta xanthoptera	*Cryptandromyces elegans (21)*
undet. Pselaphid	*Cryptandromyces bibloplecti (20)*
Coleoptera, Ptiliidae	
Acrotrichis fascicularis	*Ecteinomyces trichopterophilus (26)*
Acrotrichis intermedia	*Ecteinomyces trichopterophilus (26)*
Acrotrichis sp.	*Kainomyces rehmanii (36)*
Ptenidium sp.	*Siemaszkoa ptenidii (102)*
Coleoptera, Staphylinidae	
Anotylus insecatus	*Peyritschiella protea (86)*
Anotylus rugosus	*Peyritschiella protea (86)*
Anotylus sculpturatus	*Monoicomyces californicus (76)*
	Monoicomyces invisibilis (79)
Atheta (Actophylla) marina	*Monoicomyces nigrescens (81)*
Atheta (Mocyta) fungi	*Monoicomyces britannicus (75)*
Atheta (Mocyta) orbata	*Monoicomyces britannicus (75)*
Atheta (ss.) triangulum	*Monoicomyces homalotae (78)*
Atheta (Thinobaena) vestita	*Monoicomyces homalotae (78)*
Atheta longicornis	*Monoicomyces homalotae (78)*
Bisnius cephalotes	*Peyritschiella princeps (85)*
Bisnius fimetarius	*Rhachomyces philonthinus (91)*
Bisnius sordidus	*Peyritschiella princeps (85)*
Bolitochara obliqua	*Monoicomyces bolitocharae (74)*
Cafius xantholoma	*Laboulbenia littoralis (60)*
Carpelimus bilineatus	*Cantharomyces robustus (11)*
Carpelimus corticinus	*Cantharomyces orientalis (9)*
	Cantharomyces robustus (11)
Carpelimus foveolatus	*Cantharomyces orientalis (9)*
Carpelimus rivularis	*Cantharomyces robustus (11)*
Deleaster dichrous	*Idiomyces peyritschii (35)*
Diglotta mersa	*Cantharomyces orientalis (9)*
Euplectus sanguineus	*Cryptandromyces euplecti (22)*
Gabrius nigritulus	*Teratomyces actobii (111)*
	Teratomyces philonthi (112)
Gnypeta rubrior	*Cantharomyces robustus (11)*
	Dimorphomyces myrmedoniae (23)
Lathrobium brunnipes	*Euzodiomyces lathrobii (28)*
	Rhadinomyces cristatus (95)
Lathrobium castaneipenne	*Rhadinomyces cristatus (95)*
Lathrobium elongatum	*Euzodiomyces lathrobii (28)*
	Rhadinomyces cristatus (95)
Lathrobium fulvipenne	*Rhachomyces pilosellus (92)*
	Rhadinomyces cristatus (95)
Lathrobium geminum	*Euzodiomyces lathrobii (28)*
	Rhachomyces pilosellus (92)
	Rhadinomyces cristatus (95)
Lesteva longoelytrata	*Compsomyces lestevae (16)*
Lesteva pubescens	*Compsomyces lestevae (16)*
Lesteva sicula subsp. Heeri	*Compsomyces lestevae (16)*

HOST	FUNGUS
Coleoptera, Staphylinidae (continued)	
Lobrathium multipunctum	*Euzodiomyces lathrobii (28)*
	Laboulbenia atlantica (39)
Ocalea picata	*Monoicomyces fragilis (77)*
Othius myrmecophilus	*Rhachomyces furcatus (89)*
Othius punctulatus	*Rhachomyces furcatus (89)*
Oxytelus laqueatus	*Monoicomyces invisibilis (79)*
Paederus littoralis	*Laboulbenia cristata (45)*
Paederus riparius	*Laboulbenia cristata (45)*
Philonthus cognatus	*Laboulbenia dubia (46)*
Philonthus fumarius	*Rhachomyces philonthinus (91)*
Philonthus marginatus	*Rhachomyces philonthinus (91)*
Philonthus politus	*Peyritschiella dubia (83)*
	Peyritschiella princeps (85)
Philonthus rectangulus	*Rhachomyces philonthinus (91)*
Philonthus rubripennis	*Laboulbenia philonthi (66)*
Philonthus sp.	*Symplectromyces vulgaris (110)*
Philonthus umbratilis	*Peyritschiella biformis (82)*
Philonthus varians	*Rhachomyces philonthinus (91)*
Platystethus sp.	*Cantharomyces platystethi (10)*
Platystethus arenarius	*Monoicomyces invisibilis (79)*
Platystethus cf. arenarius	*Monoicomyces matthiatis (80)*
Proteinus sp.	*Rickia proteini (100)*
Quedius curtipennis	*Symplectromyces vulgaris (110)*
Quedius fuliginosus	*Symplectromyces vulgaris (110)*
Quedius fumatus	*Symplectromyces vulgaris (110)*
Quedius mesomelinus	*Symplectromyces vulgaris (110)*
Quedius nitipennis	*Teratomyces philonthi (112)*
Quedius tristis	*Symplectromyces vulgaris (110)*
Rugilus orbiculatus	*Laboulbenia stilicicola (70)*
Rugilus rufipes	*Corethromyces stilici (19)*
	Laboulbenia stilicicola (70)
Rugilus similis	*Corethromyces stilici (19)*
Scaphisoma sp.	*Rickia peyerimhoffii (99)*
Sepedophilus marshami	*Stichomyces conosomatis (103)*
Sepedophilus nigripennis	*Stichomyces conosomatis (103)*
Sepedophilus pedicularius	*Stichomyces conosomatis (103)*
Xantholinus longiventris	*Peyritschiella heinemanniana (84)*
Dermaptera, Forficulidae	
Forficula auricularia	*Distolomyces forficulae (25)*
Diptera, Sphaeroceridae	
Apteromyia claviventris	*Stigmatomyces divergatus (106)*
Copromyza stercoraria	*Stigmatomyces burdigalensis (104)*
Crumomyia pedestris	*Stigmatomyces burdigalensis (104)*
Leptocera caenosa	*Stigmatomyces crassicollis (105)*
Leptocera fontinalis	*Stigmatomyces crassicollis (105)*
Leptocera lutosoidea	*Stigmatomyces crassicollis (105)*
Minilimosina parvula	*Stigmatomyces minilimosinae (108)*
Opacifrons humida	*Stigmatomyces crassicollis (105)*
Paralimosina fucata	*Stigmatomyces platensis (109)*
Paralimosina subcribrata	*Stigmatomyces platensis (109)*
Spelobia clunipes	*Stigmatomyces limosinae (107)*
Spelobia parapusio	*Stigmatomyces divergatus (106)*
Spelobia rufilabris	*Stigmatomyces crassicollis (105)*
Hemiptera, Corixidae	
Sigara striata	*Coreomyces arcuatus (17)*
Hymenoptera, Formicidae	
Myrmica sabuleti	*Rickia wasmannii (101)*
Julida, Blaniulidae	
Archiboreoiulus pallidus	*Troglomyces triandrus (114)*
Cylindroiulus latestriatus	*Rickia laboulbenioides (98)*
Cylindroiulus punctatus	*Rickia laboulbenioides (98)*
undet. Julid	*Rickia dendroiuli (97)*
undet. Julid	*Troglomyces manfrediae (113)*

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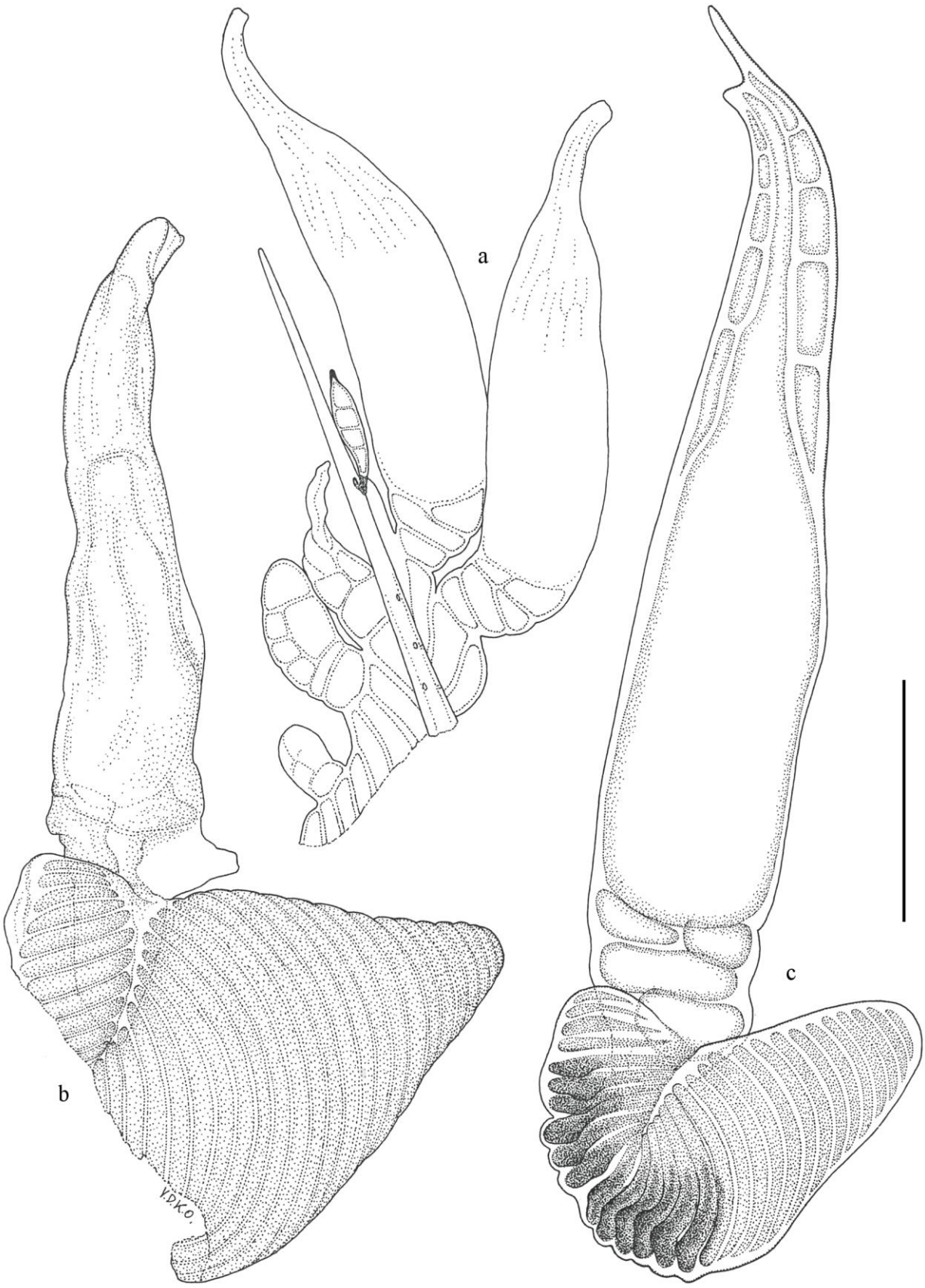

Plate 1. *Herpomyces*. **a.** ***Herpomyces ectobiae*** Thaxt., mature thallus (L259: on setum of leg of *Blatella germanica* (Linnaeus, 1767)); **b.** ***Herpomyces periplanetae*** Thaxt., mature thallus (L253: on antenna of *Periplaneta americana* (Linnaeus, 1758)); **c.** ***Herpomyces stylopygae*** Speg., mature thallus (L256: on antenna of *Blatta orientalis* Linnaeus, 1758). Scale bar = 50 µm.

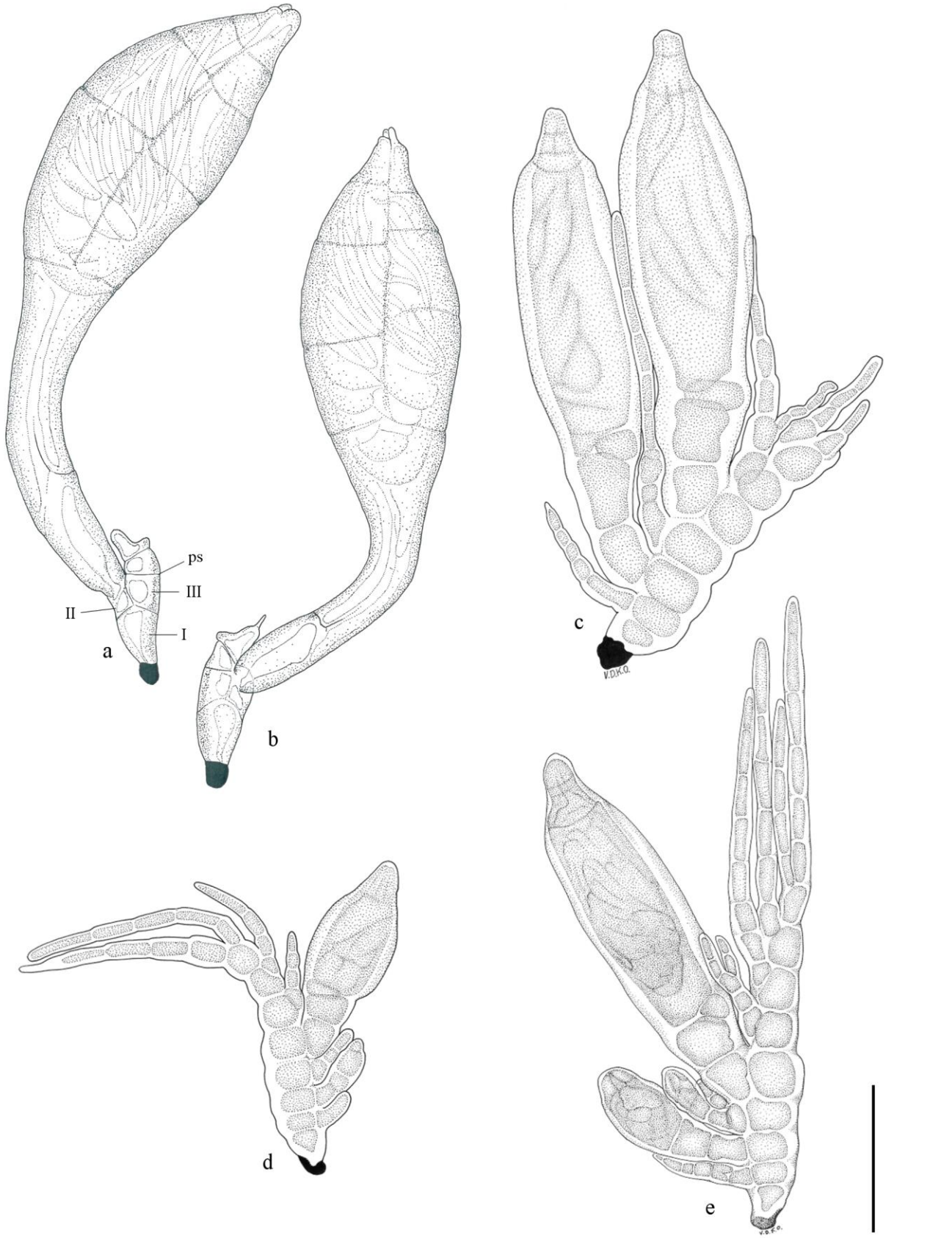

Plate 2. a-b. *Aphanandromyces audisioi* W. Rossi. from *Brachypterus urticae* (Fabricius, 1792), with: a. mature thallus with turned perithecium (ADK4672b); b. mature thallus with normal orientation of the perithecium (ADK4672a), antheridial branch missing in both thalli. c-e. *Asaphomyces tubanticus* (Middelh. & Boelens in Middelh.) Scheloske; c. mature thallus with two perithecia (JR5058: on pronotum of *Catops fuscus* (Panzer, 1794)); d. thallus with young perithecium and perithecium primordium (JR5058: ibidem); e. mature thallus (JR3681a: on elytron of *Catops nigricans* (Spence, 1813)). Scale bar = 50 µm.

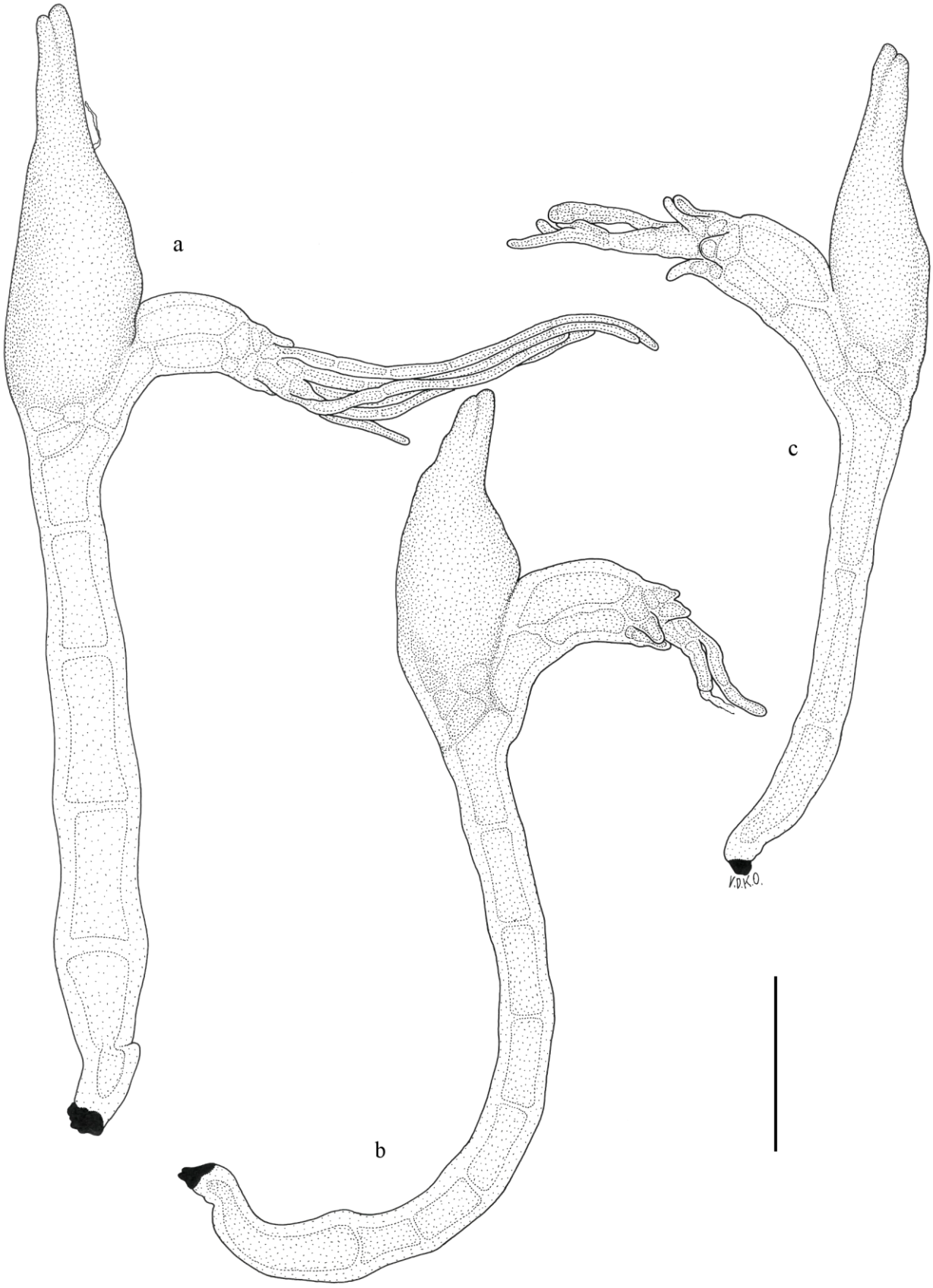

Plate 3. a-c. *Botryandromyces heteroceri* (Thaxt.) I.I. Tav. & T. Majewski from *Heterocerus hispidulus* Kiesenwetter, 1843, with: **a.** mature thallus with intact appendages (ADK902a, on pronotum); **b.** mature thallus with damaged appendages (ADK902a: ibidem); **c.** mature thallus with reduced receptaculum (ADK902a: ibidem). Scale bar = 50 µm.

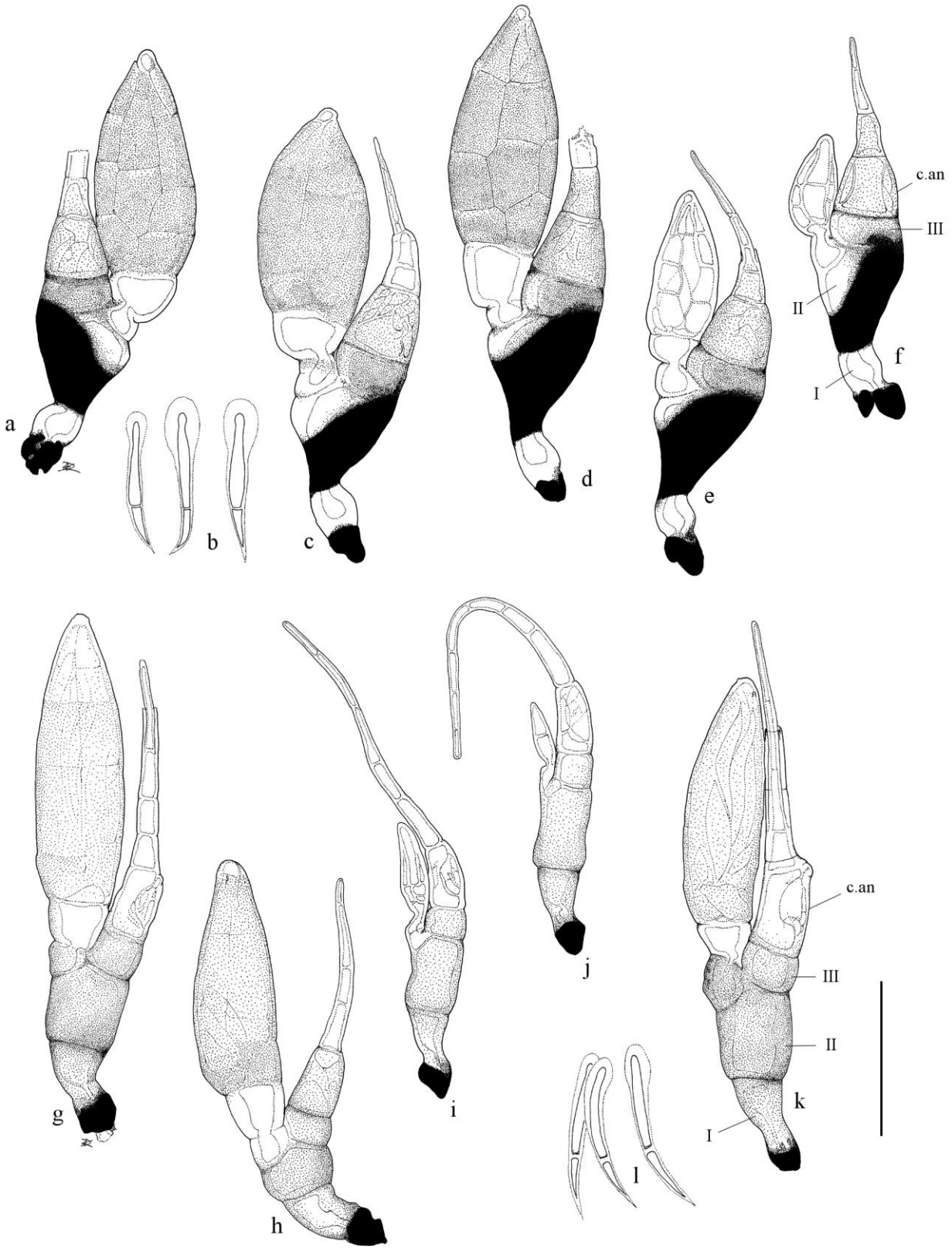

Plate 4. *Cantharomyces*. a-f. ***Cantharomyces denigratus*** Thaxt. from *Dryops luridus* (Erichson, 1847), with: a. mature thallus from antenna (ADK6138b); b. spores with slime sheath (ADK6138b); c-d. mature thalli from abdominal sternite (ADK6154); e. young thallus from abdomen (ADK6149a); f. young thallus from abdomen (ADK6149b). g-l. ***Cantharomyces italicus*** Speg. from *Dryops luridus*, g. mature thallus from elytra (ADK6142); h. mature thallus from elytra (ADK6140); i-j. young thalli from pronotum (ADK6150); k. mature thallus from pronotum (ADK6150); l. spores with slime sheath (ADK6142). Scale bar = 50 µm.

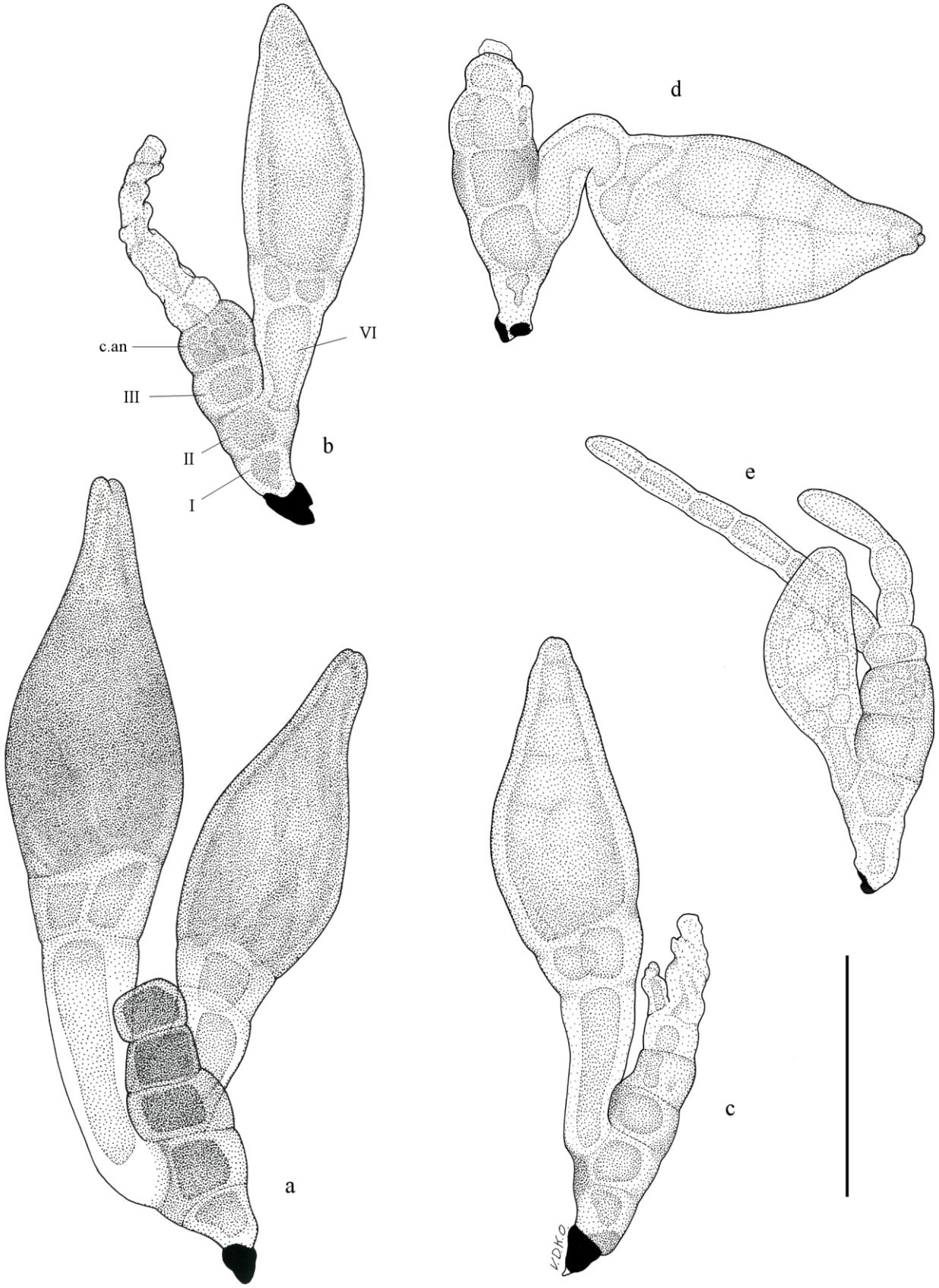

Plate 5. a-e. *Cantharomyces orientalis* Speg. **a.** mature thallus with two perithecia (ADK317a: on cephalon of *Carpelimus corticinus* (Gravenhorst, 1806)); **b-c.** mature thalli (ADK404: on pronotum of *Carpelimus foveolatus* (Sahlberg, 1832)); **d.** mature thallus (ADK513b: on elytron of *Diglotta mersa* (Haliday, 1837)); **e.** immature thallus with intact appendage (ADK513b: ibidem). Scale bar = 50 µm.

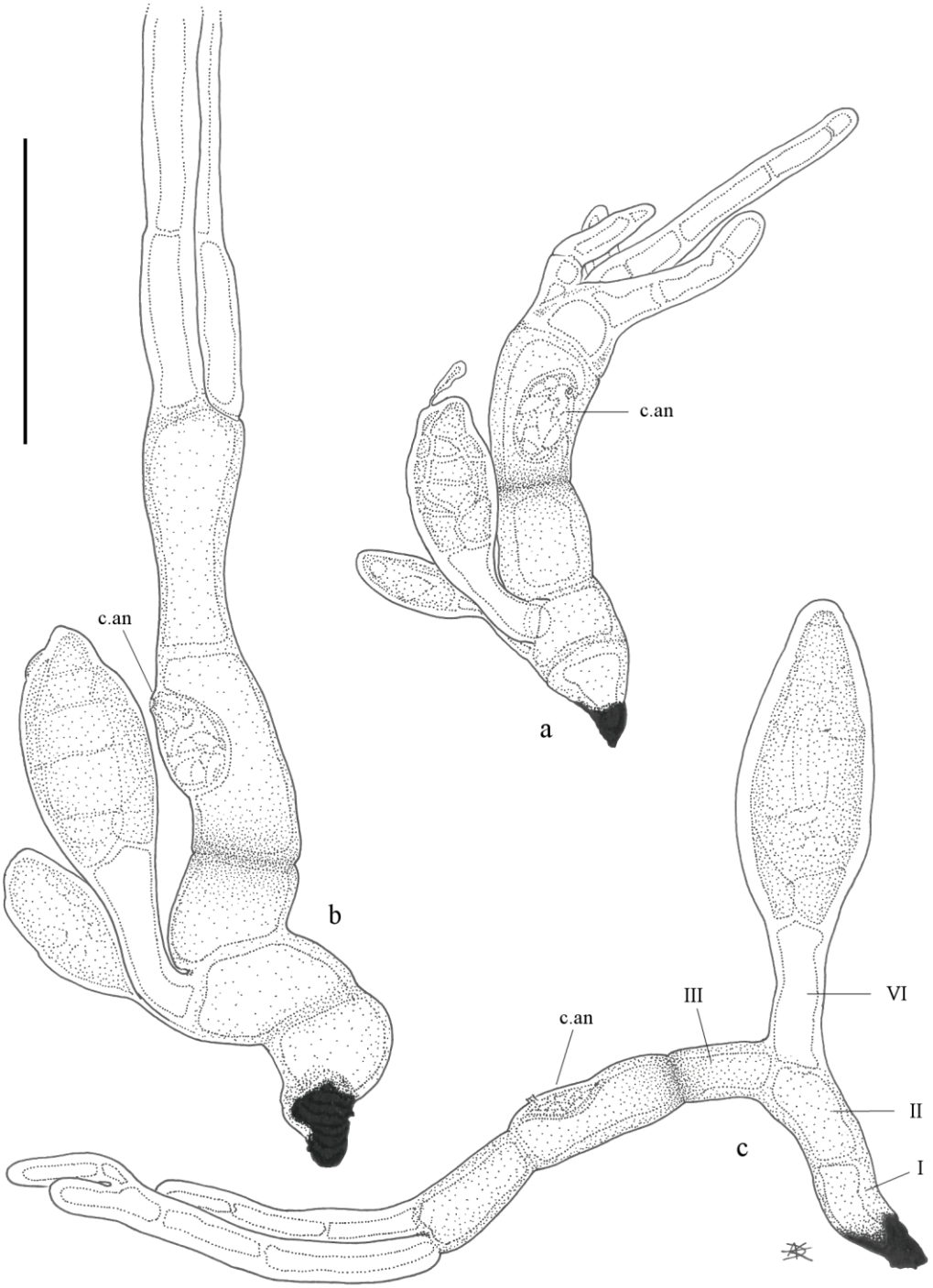

Plate 6. a-c. *Cantharomyces platystethi* Thaxt. from *Platystethus* sp., with: a. juvenile thallus (CG151a); b. juvenile thallus (CG151b); c. nearly mature thallus (CG151c), with compound antheridium (c.an) situated in the middle of the basal cell of the primary appendage. Scale bar = 50 µm.

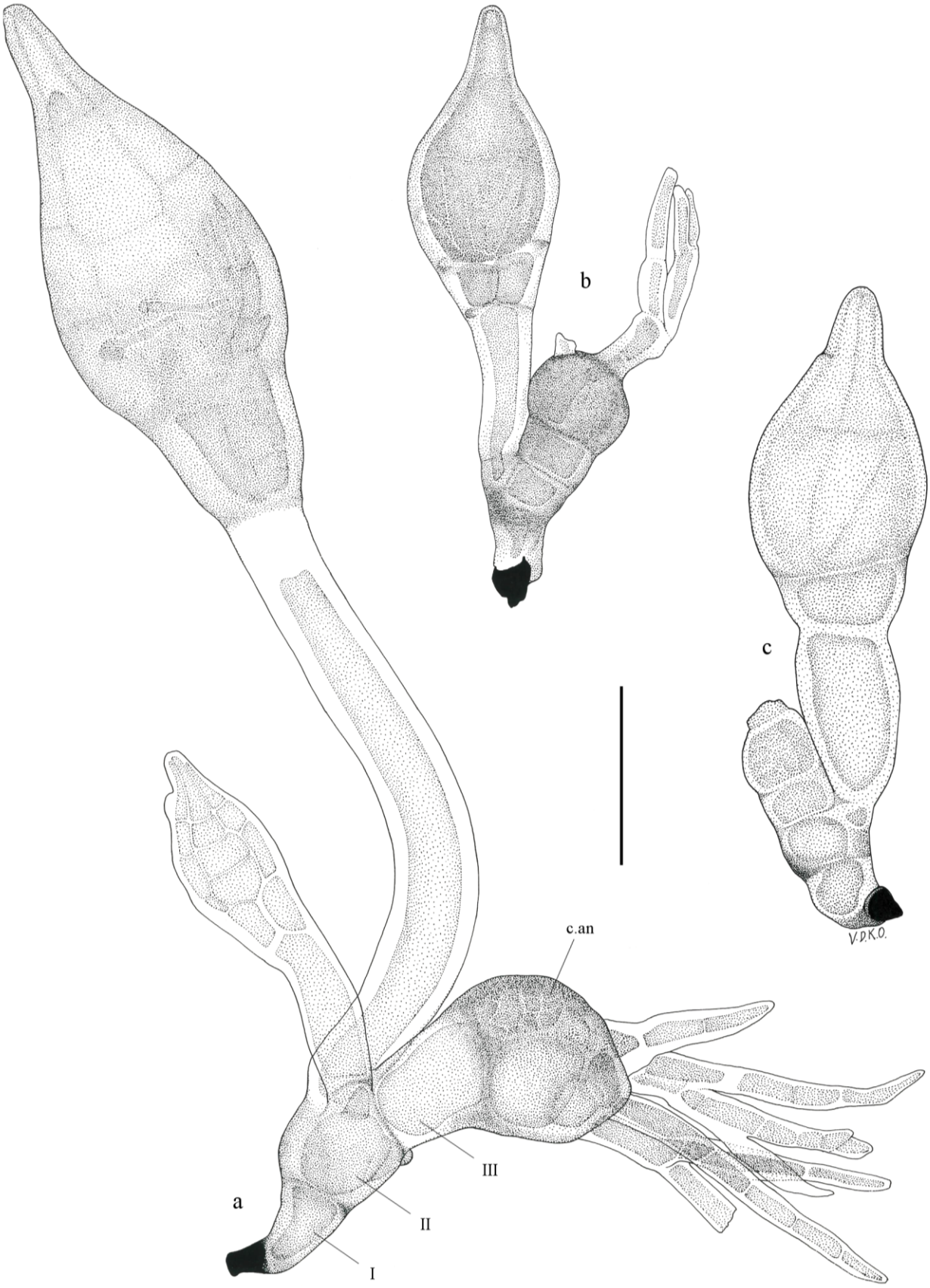

Plate 7. a-c. ***Cantharomyces robustus*** T. Majewski, with: **a.** mature thallus with intact appendage and secondary perithecium (ADK410: on elytron of *Carpelimus rivularis* (Motschulsky, 1860)); **b.** mature thallus (ADK416: on elytron of *Carpelimus bilineatus* (Stephens, 1834)); **c.** mature thallus with relatively small antheridium (ADK511c: on cephalon of *Gnypeta rubrior* Tottenham, 1939). Scale bar = 50 µm.

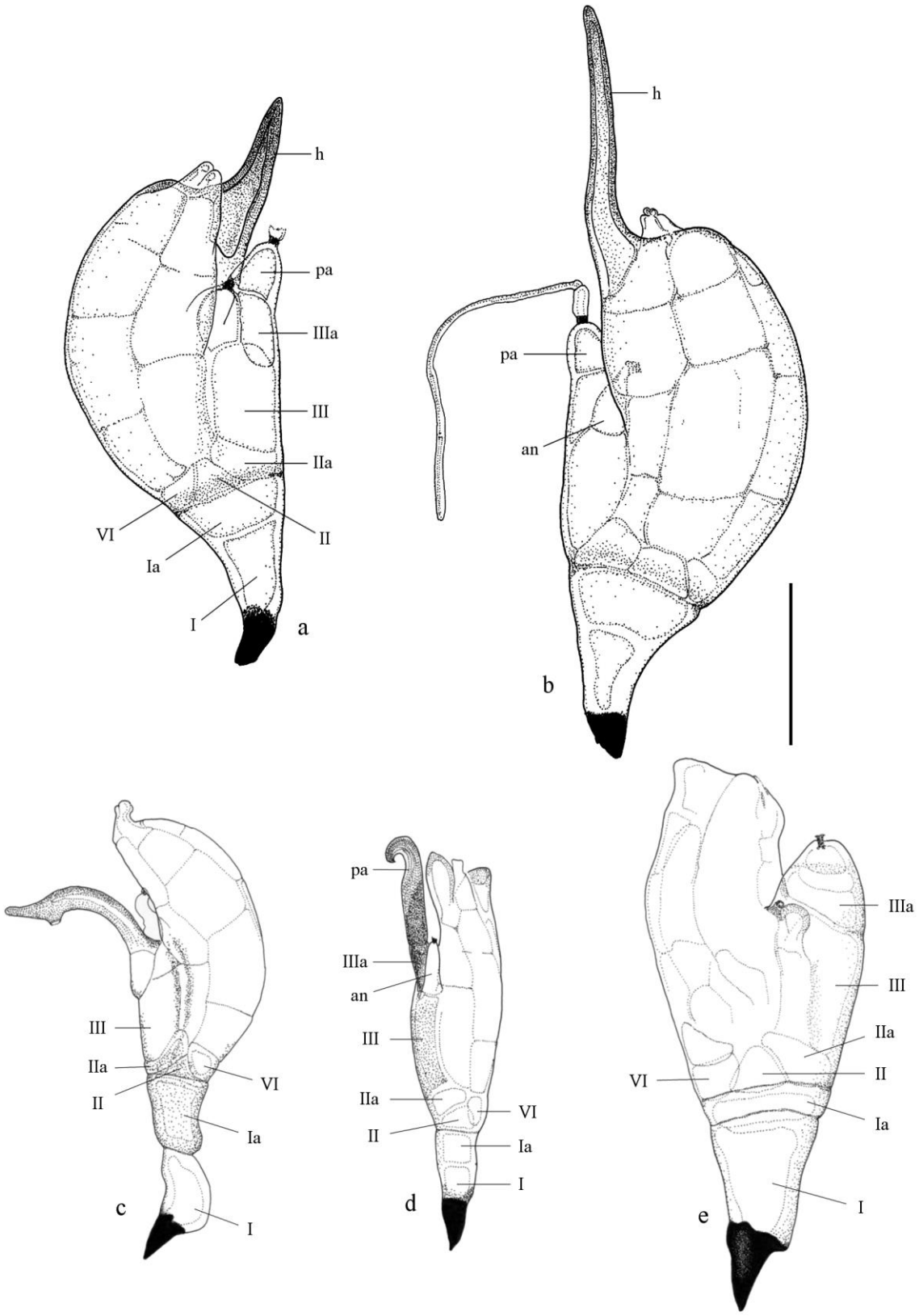

Plate 8. *Chitonomyces.* a-b. ***Chitonomyces aculeifer*** Speg. from pronotum of *Graptodytes pictus* (Fabricius, 1787), with: a. left side of almost mature thallus; b. right side of mature thallus (ADK4996); c. ***Chitonomyces italicus*** Speg., mature thallus from *Laccophilus hyalinus* (De Geer, 1774) (ADK4149c); d. ***Chitonomyces melanurus*** Peyr., mature thallus from above the outer margin of left elytron of *Laccophilus hyalinus* (ADK4149b); e. ***Chitonomyces paradoxus*** (Peyr.) Thaxt., immature thallus from below the outer margin of left elytron of *Laccophilus hyalinus* (ADK4149a). Scale bar = 50 µm.

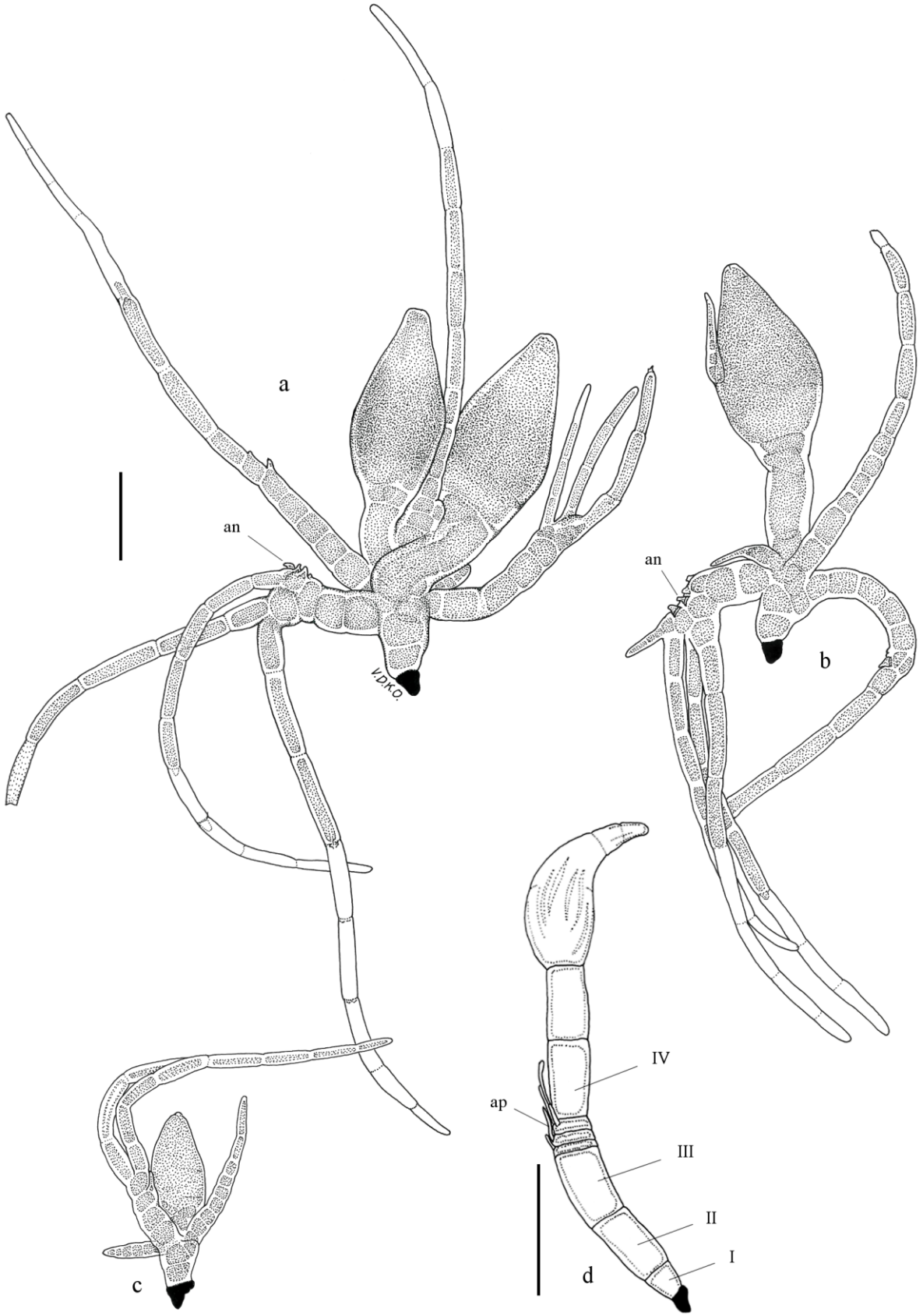

Plate 9. a-c. *Compsomyces lestevae* Thaxter from *Lesteva sicula* subsp. *heeri* Fauvel, 1871, with: a. mature thallus from abdomen (ADK396); b. mature thallus with germinating spore on the outside of the perithecium (ADK396); c. young thallus with short cell VI (ADK645: on elytron); d. *Coreomyces arcuatus* Thaxt., thallus from *Sigara striata* (Linnaeus, 1758) (T. Werbrouck 171). Scale bar = 50 µm.

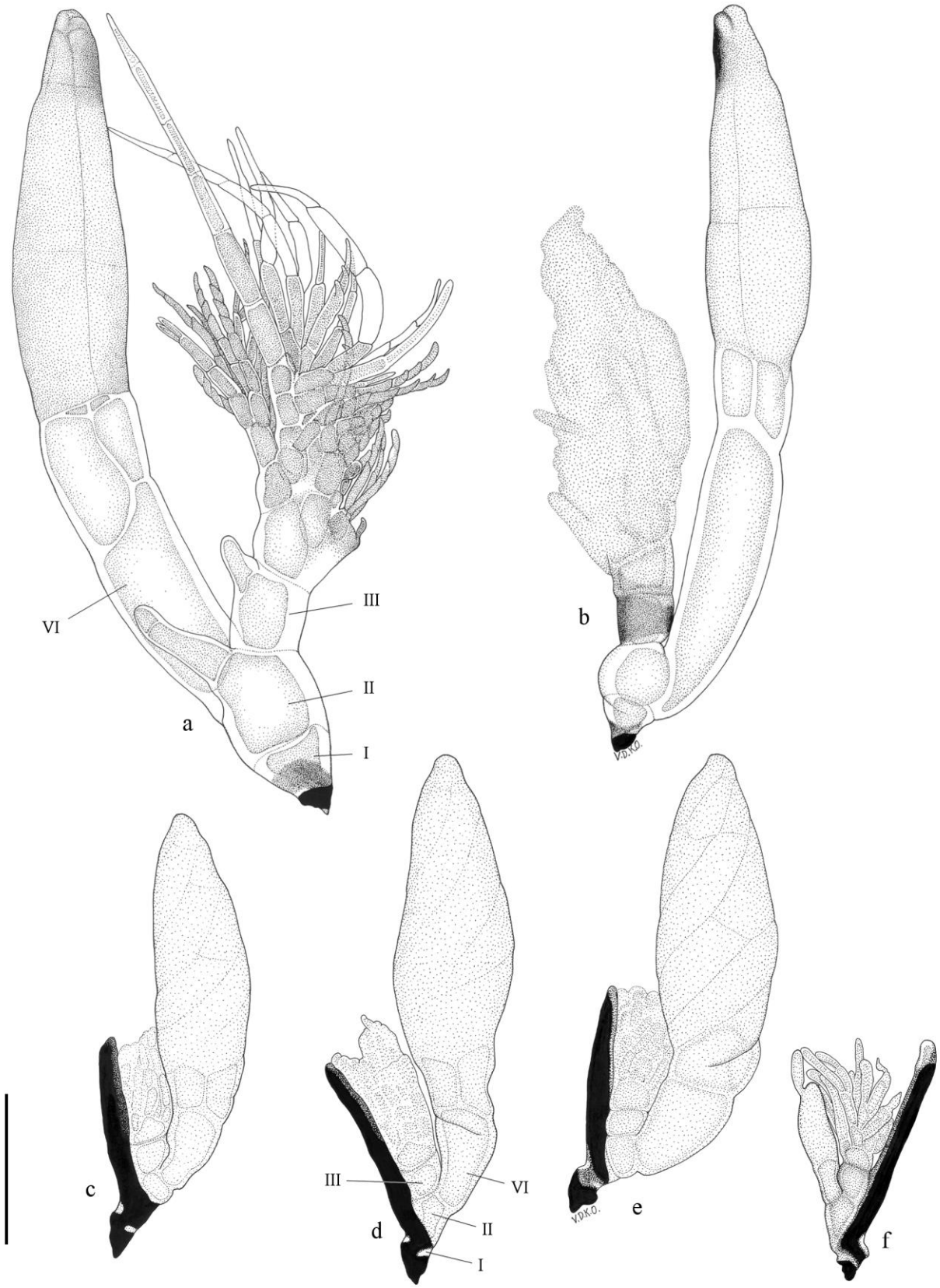

Plate 10. *Corethromyces.* **a-b.** ***Corethromyces henrotii*** Balazuc from *Choleva cisteloides* (Frölich, 1799), with: **a.** mature thallus (JR5056, from elytron); **b.** older thallus with pigmented cell III (L12, from elytron). **c-f.** ***Corethromyces stilici*** Thaxt., with: **c-d.** mature thalli with spiralled wall cells, from *Rugilus rufipes* Germar, 1836 (ADK1680b, from abdomen); **e.** mature thallus from *Rugilus similis* (Erichson, 1839) (ADK419, from abdomen); **f.** young thallus with intact appendage (ADK994, mesothorax from a *Rugilus* sp.). Scale bar = 50 µm.

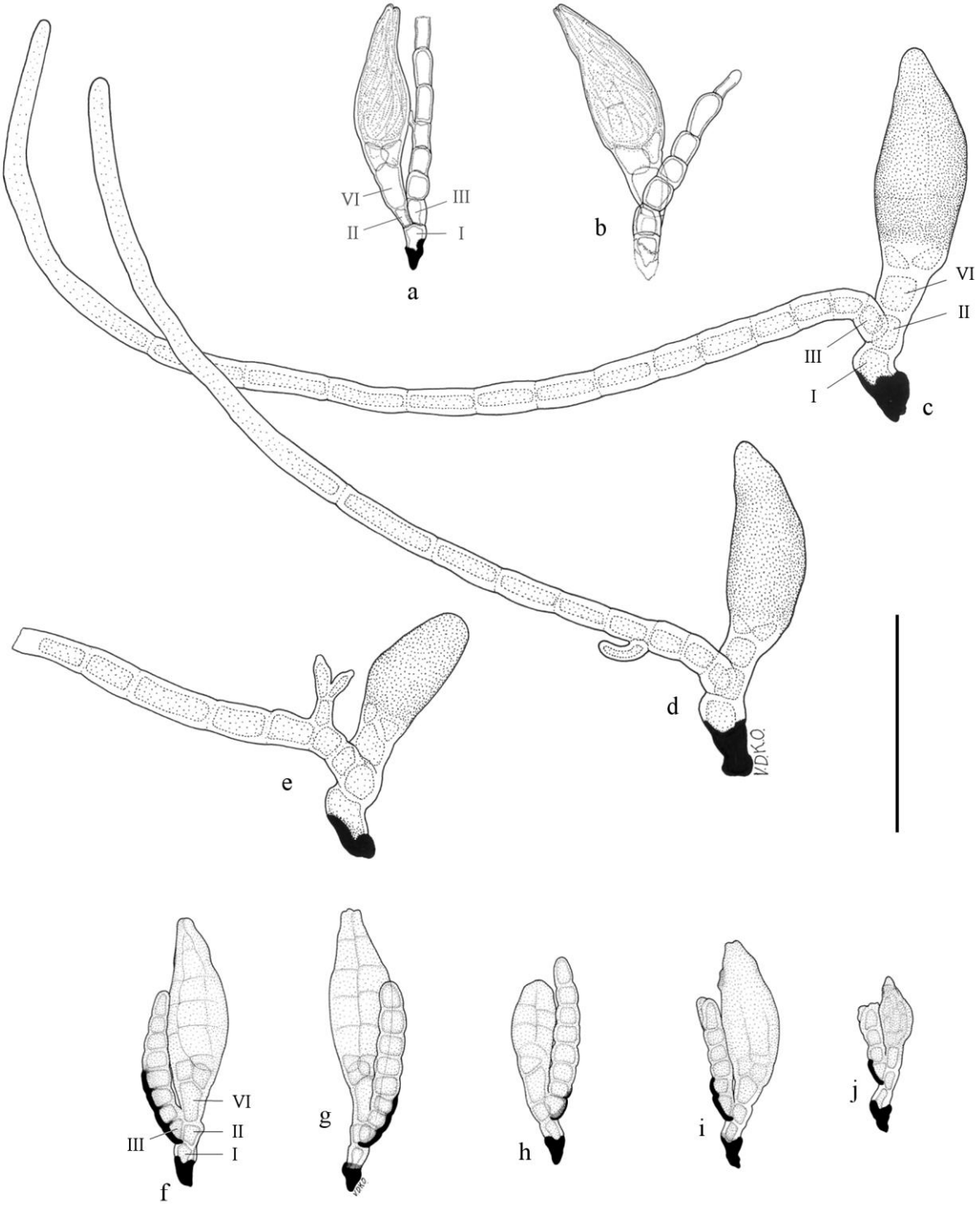

Plate 11. *Cryptandromyces*. **a-b.** ***Cryptandromyces bibloplecti*** T. Majewski from a pselaphine beetle, with: **a.** mature thallus showing both cells II & III on cell I (CG476); **b.** mature thallus in dorsal view (CG476). **c-e.** ***Cryptandromyces elegans*** (Maire) W. Rossi & D. Castaldo from *Brachygluta xanthoptera* Reichenbach, 1816, with: **c.** mature thallus without antheridial branchlet (L272, from abdomen); **d.** mature thallus (L272: ibidem); **e.** semi-mature thallus with antheridial branch (L266, from elytron). **f-j.** ***Cryptandromyces euplecti*** Santam. from *Euplectus sanguineus* Denny, 1825, with: **f-h.** mature thalli from femur of hind leg (ADK542a); **i-j.** mature and juvenile thallus (ADK542b, antenna). Scale bar = 50 µm.

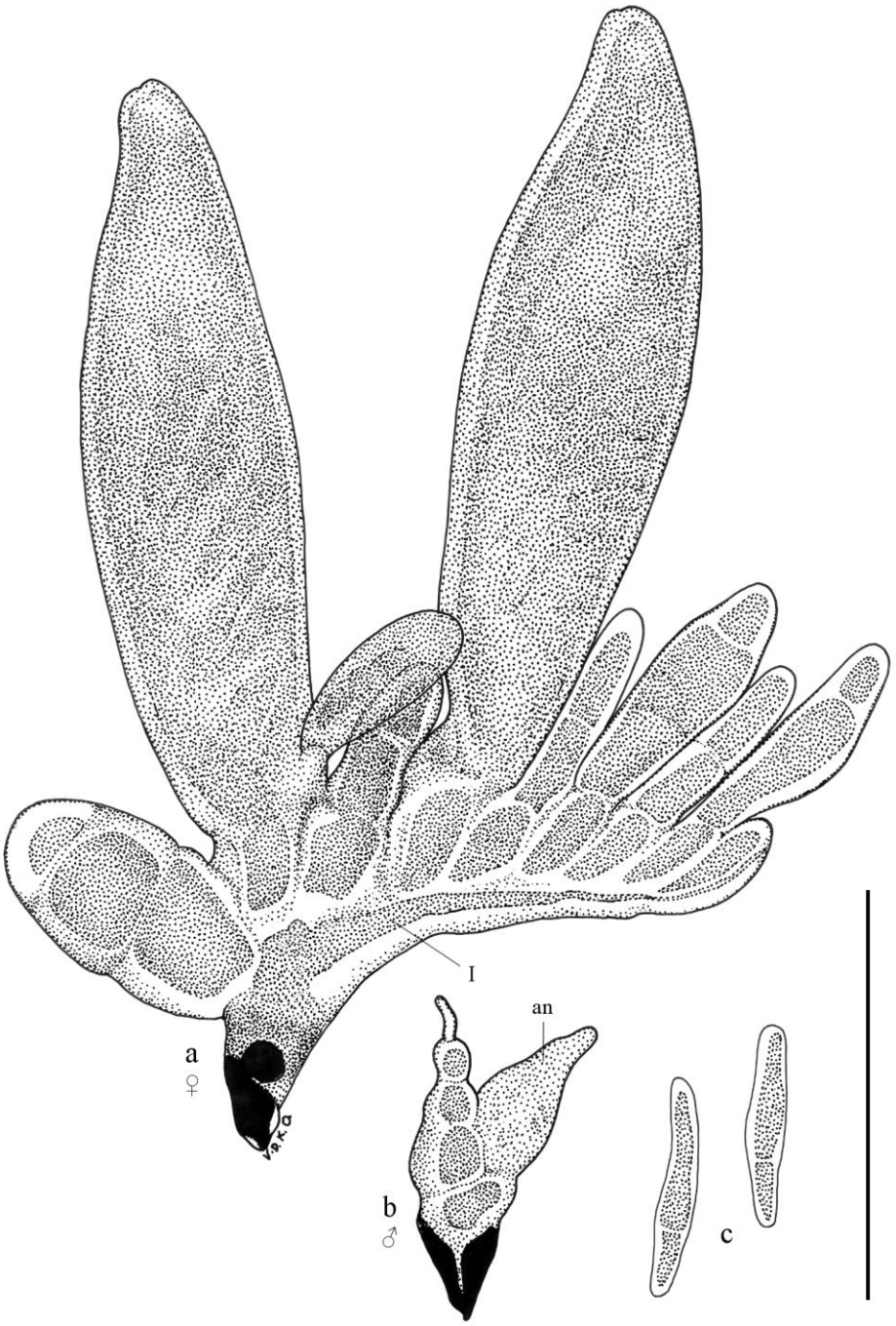

Plate 12. a-c. ***Dimorphomyces myrmedoniae*** Thaxt. from *Gnypeta rubrior* Tottenham, 1939 (ADK511b), with **a.** mature female thallus from abdomen; **b.** male thallus from abdomen; **c.** ascospores. Scale bar = 50 µm.

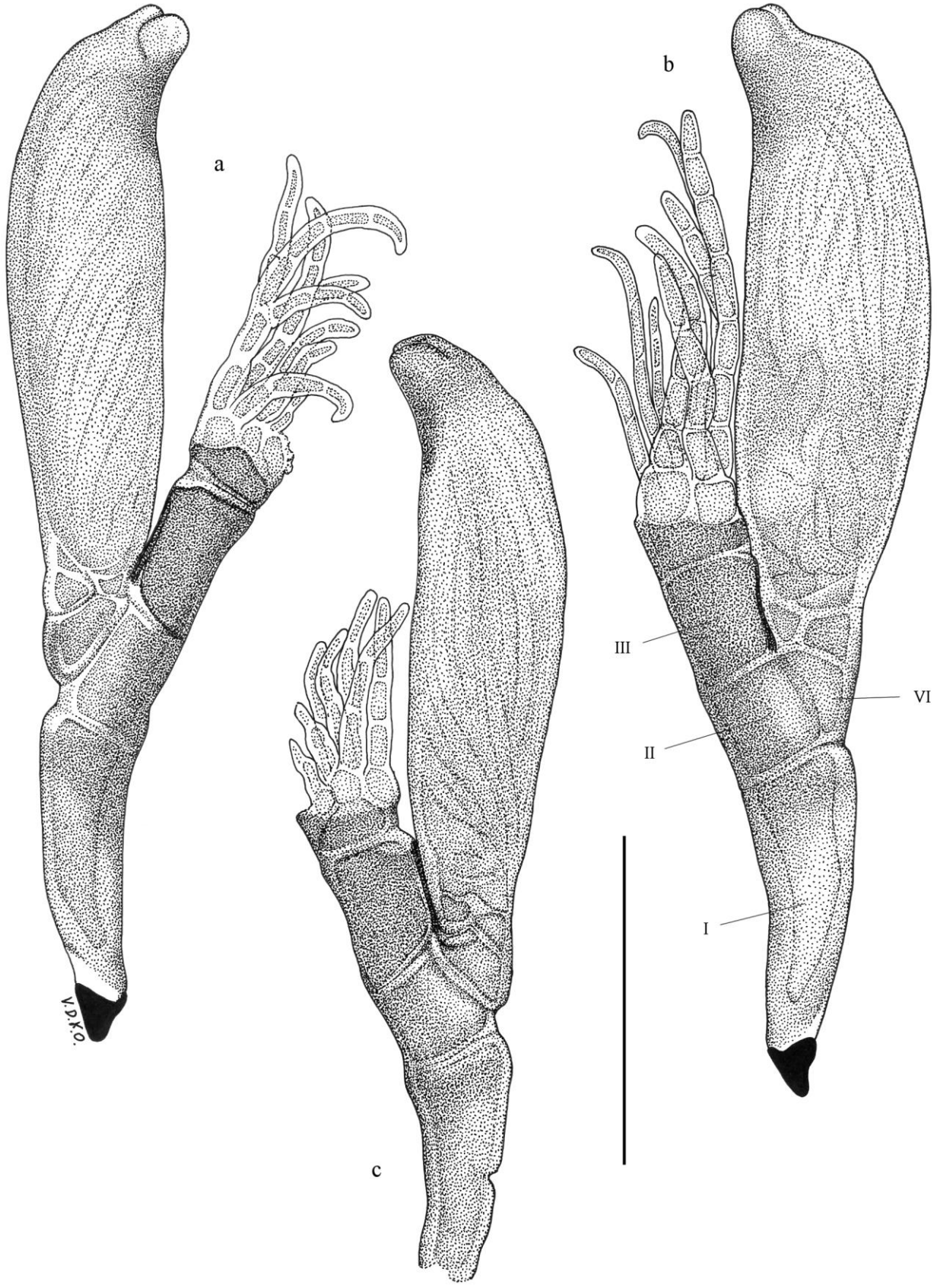

Plate 13. a-c. *Diphymyces kaaistoepi* Haelew. & De Kesel, mature thalli from elytra of *Choleva cisteloides* (Frölich, 1799) (JR5056). Scale bar = 50 µm.

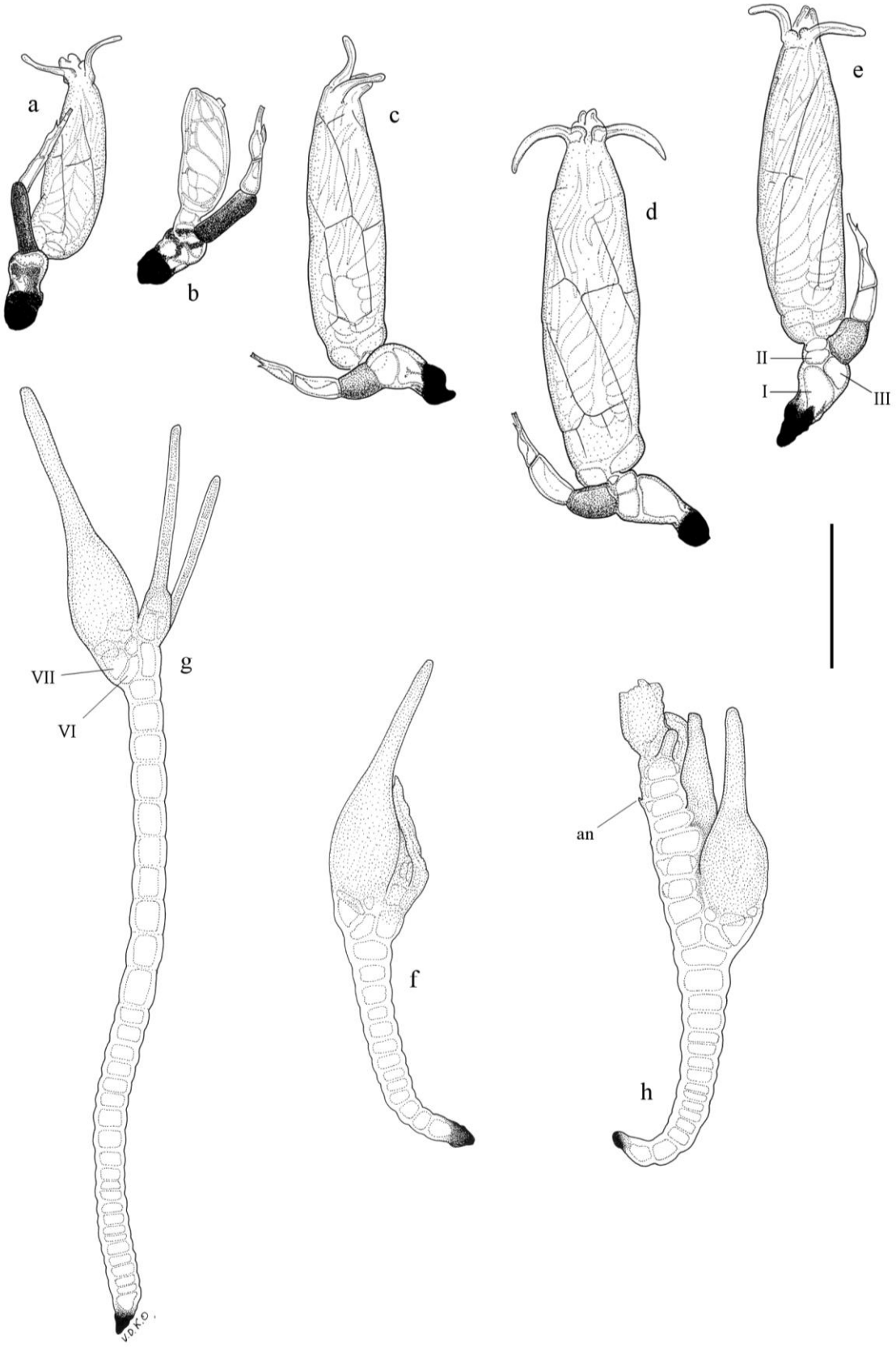

Plate 14. a-e. ***Distolomyces forficulae*** (T. Majewski) I.I. Tav. from *Forficula auricularia* Linnaeus, 1758. **a.** mature thallus from antenna, with long black basal cell of primary appendage (ADK5139), **b.** young thallus from antenna (GC190); **c-e.** typical thalli from forceps showing much paler and shorter basal cell of primary appendage (ADK5135). **f-g.** ***Ecteinomyces trichopterophilus*** Thaxt. **f.** mature thallus (JR3689: on elytron of *Acrotrichis fascicularis* (Herbst, 1793)); **g.** mature thallus with very long receptaculum and terminal perithecium (ADK660, on elytron of *Acrotrichis* sp.); **h.** damaged thallus with a secondary perithecium derived from a lower receptacular cell (ADK660). Scale bar = 50 µm.

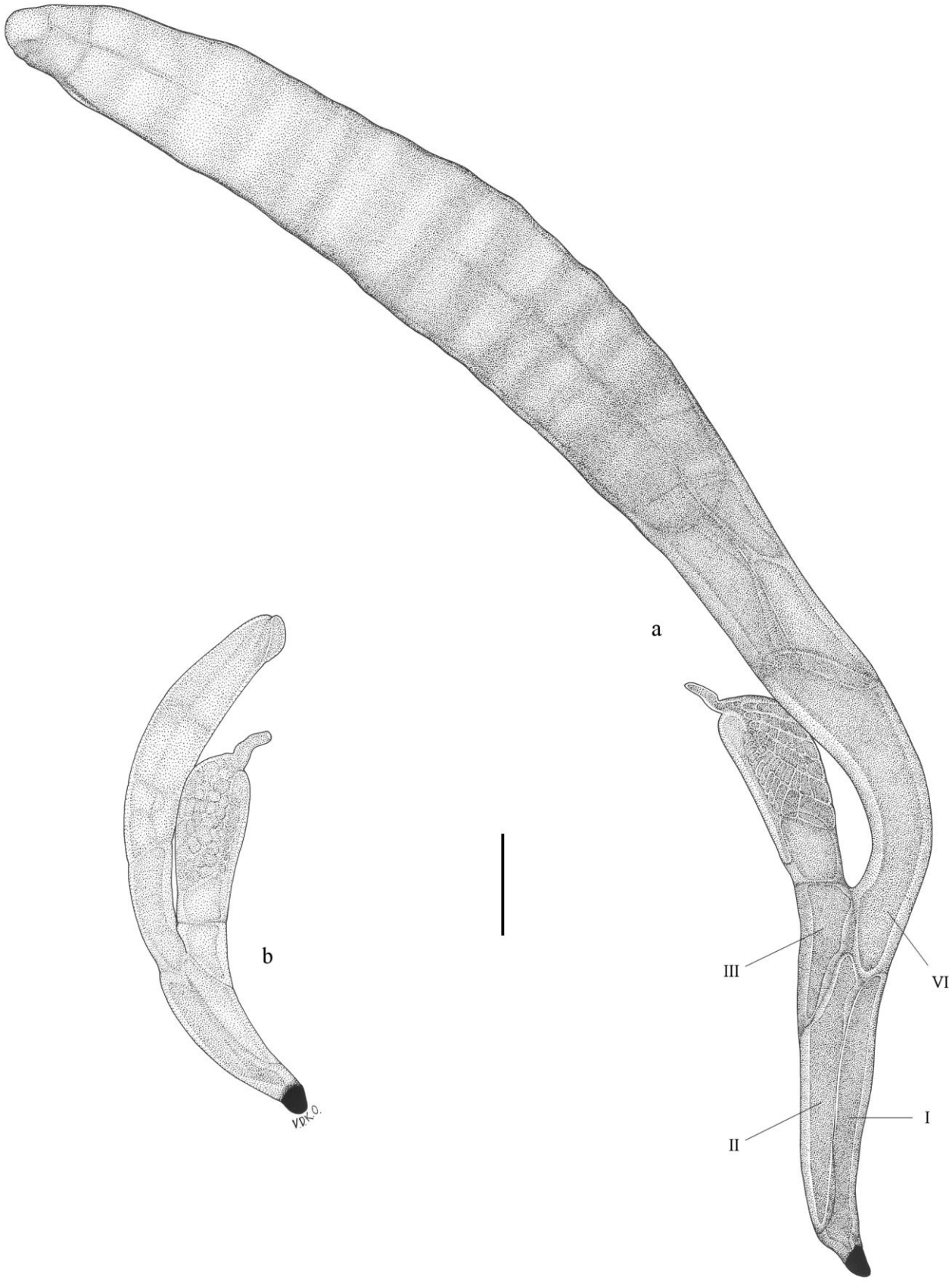

Plate 15. a-b. ***Eucantharomyces stammeri*** Scheloske from *Calathus melanocephalus* (Linnaeus, 1758). **a.** mature thallus from femur of second pair of legs (ADK885); **b.** thallus with immature perithecium (ADK610b, elytra). Scale bar = 50 µm.

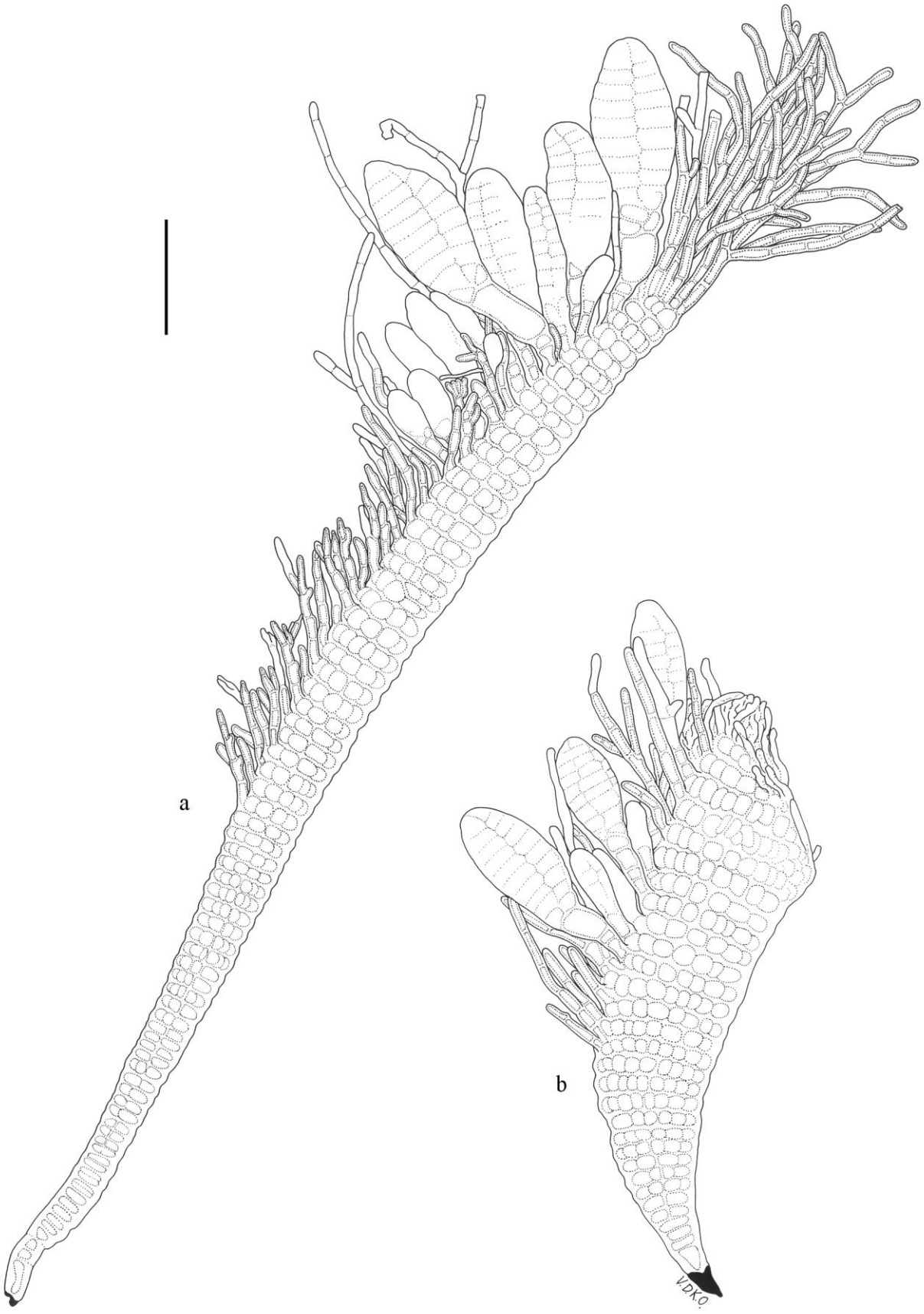

Plate 16. a-b. ***Euzodiomyces lathrobii*** Thaxt. a. mature thallus from *Lathrobium elongatum* (Linnaeus, 1767) (ADK362, from abdomen); b. mature thallus from *Patrobus atrorufus* (Stroem, 1768) (ADK692, from elytron). Scale bar = 50 µm.

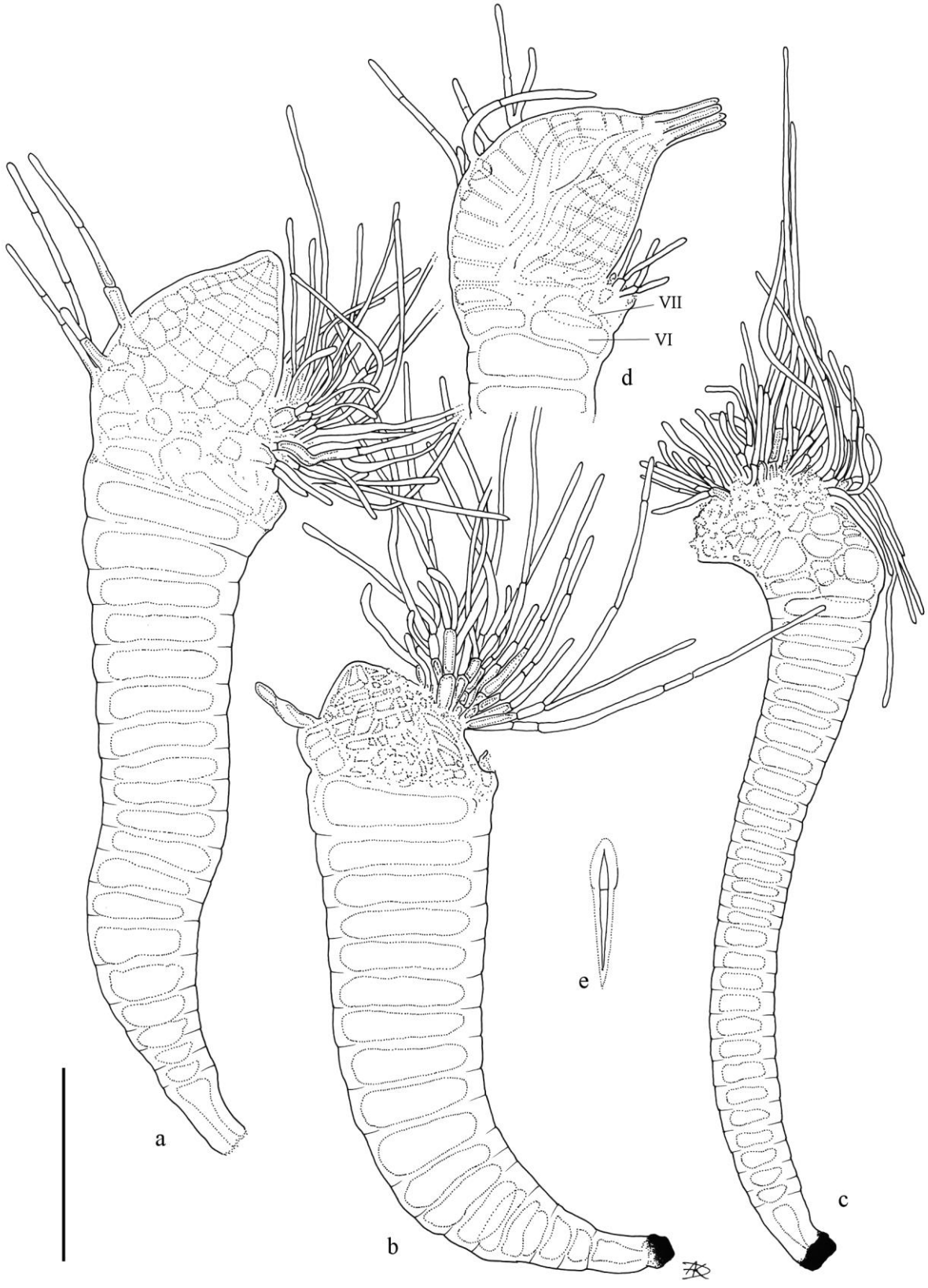

Plate 17. a-e. ***Helodiomyces elegans*** F. Picard, taken from *Dryops luridus* (Erichson, 1847). **a.** mature thallus from right metafemur (ADK6156); **b.** mature regenerating thallus from right metafemur (ADK6156); **c.** young thallus from left elytron (ADK6155); **d.** detail of a fully mature perithecium with ostiolar prolongations, specimen taken from right mesocoxa (ADK6152d); **e.** spore with the basal cell smaller (ADK6152d). Scale bar = 100 µm.

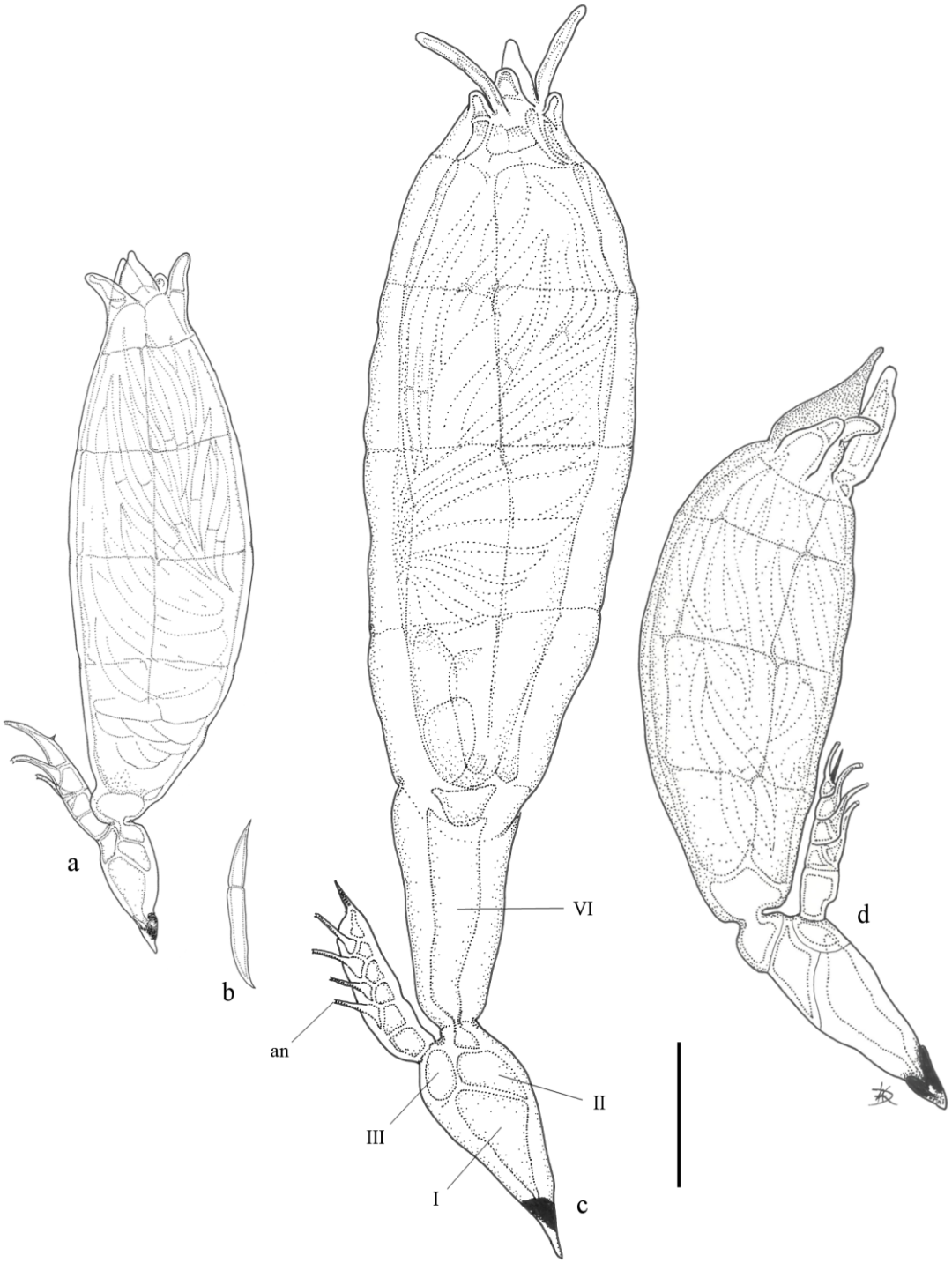

Plate 18. *Hesperomyces*. **a-b.** ***Hesperomyces coccinelloides*** Thaxt. from *Stethorus punctillum* (Weise, 1891), **a.** mature thallus (ADK4867a); **b.** spore (ADK4867a). **c-d.** ***Hesperomyces virescens*** Thaxt. *s.l.*, with: **c.** mature thallus from *Tytthaspis sedecimpunctata* (Linnaeus, 1761) (ADK763b, with fully developed apical lobes); **d.** mature thallus from *Halyzia sedecimguttata* (Linnaeus, 1758) (CG441, from elytra). Scale bar = 50 µm.

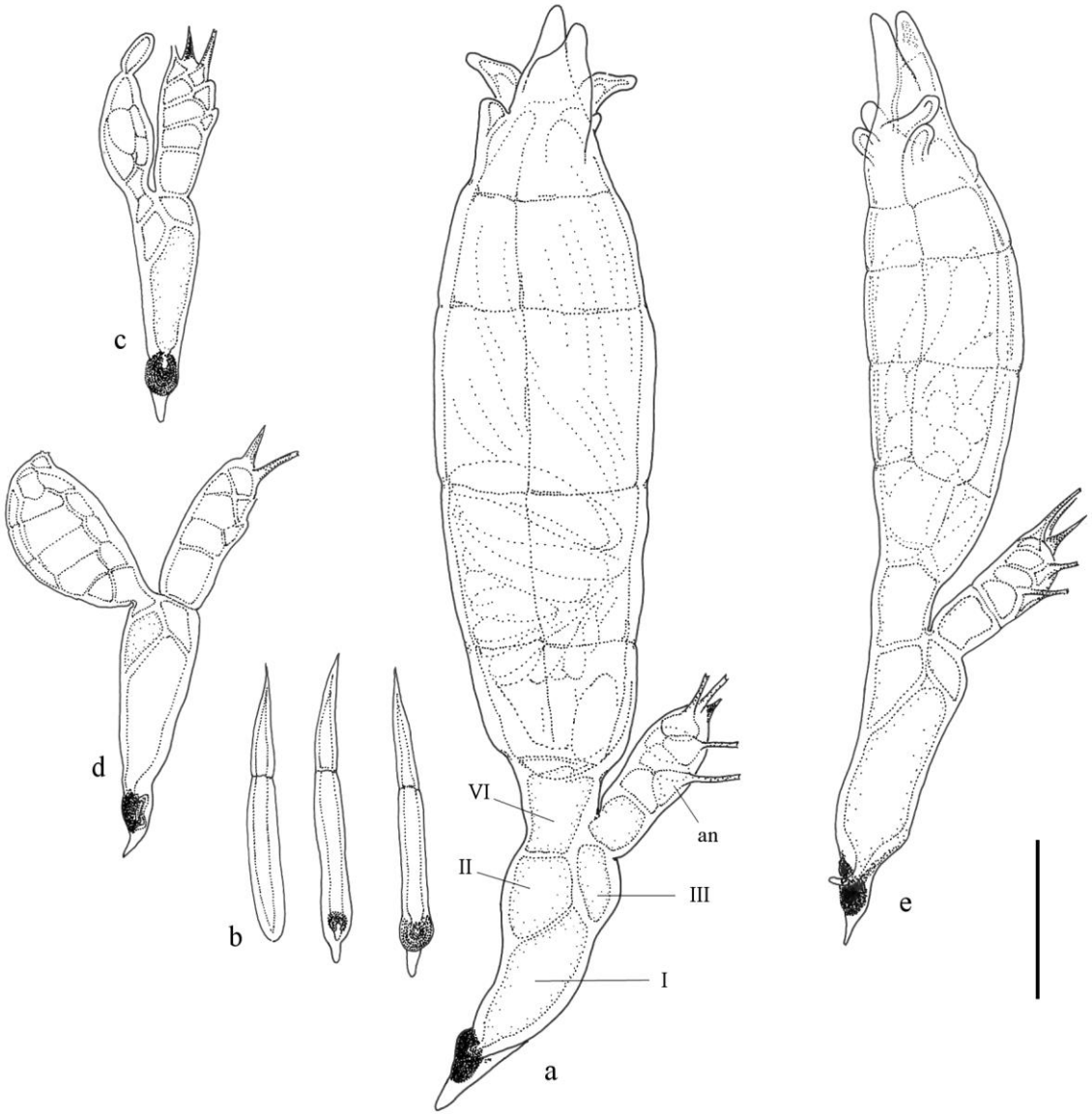

Plate 19. a-e. ***Hesperomyces virescens*** Thaxt. *s.l.* from *Harmonia axyridis* (Pallas, 1773), with: **a.** mature thallus; **b.** spores and early development of foot and haustorium; **c.** young thallus with trichogyne; **d.** young thallus with maturing perithecium; **e.** young thallus, perithecial apex with developing lobes. All from ADK4877. Scale bar = 50 µm.

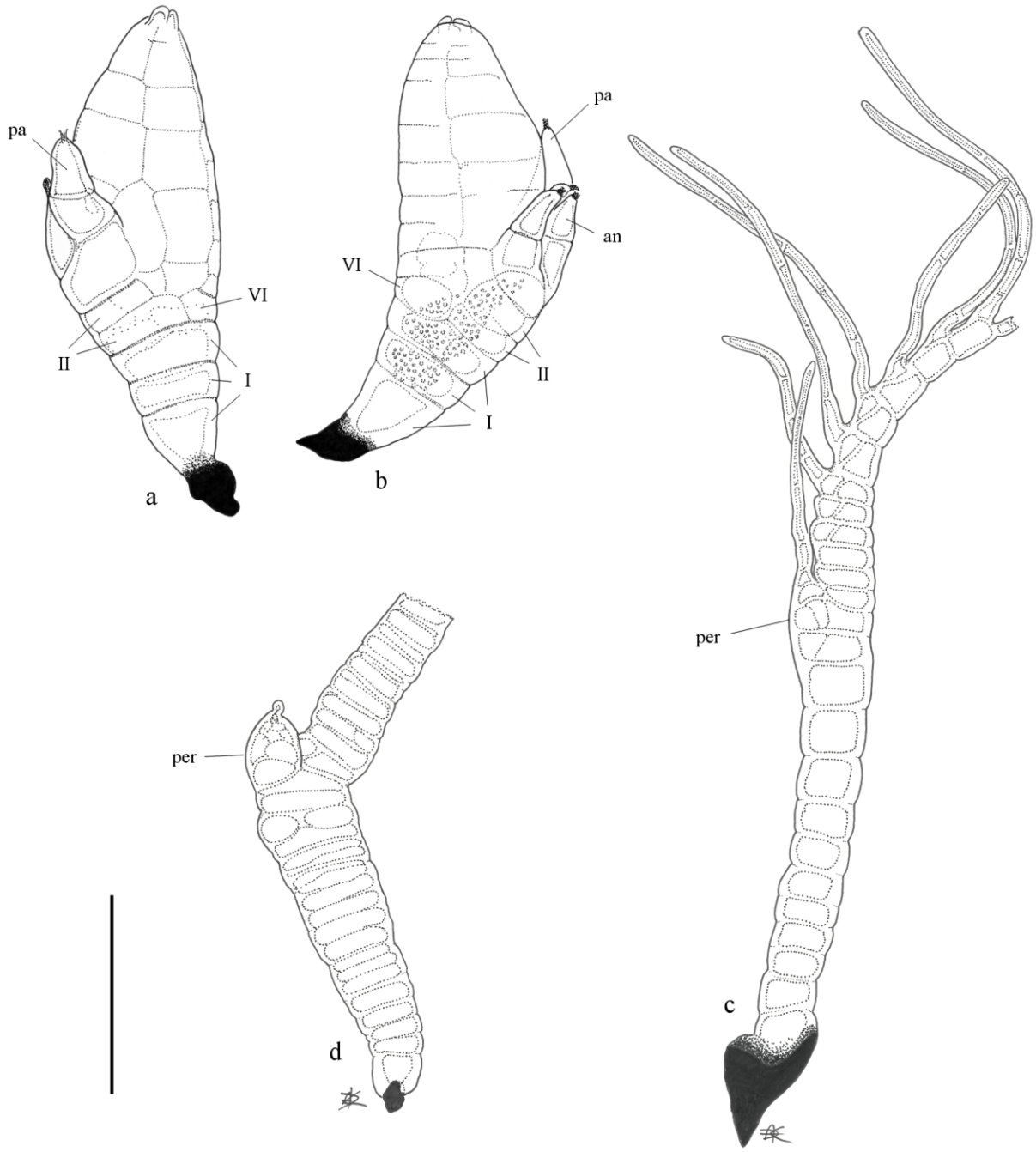

Plate 20. a-b. ***Hydraeomyces halipli*** (Thaxt.) Thaxt. from *Haliplus lineolatus* Mannerheim, 1844, **a.** right side of a mature thallus (ADK4147); **b.** left side of a mature thallus (ADK4147). **c.** ***Hydrophilomyces*** cf. ***gracilis*** T. Majewski, immature thallus from *Cercyon* sp. (ADK4770). **d.** ***Hydrophilomyces*** cf. ***hamatus*** T. Majewski, immature thallus from *Cercyon marinus* Thomson, 1853 (ADK5150a). Scale bar = 50 µm.

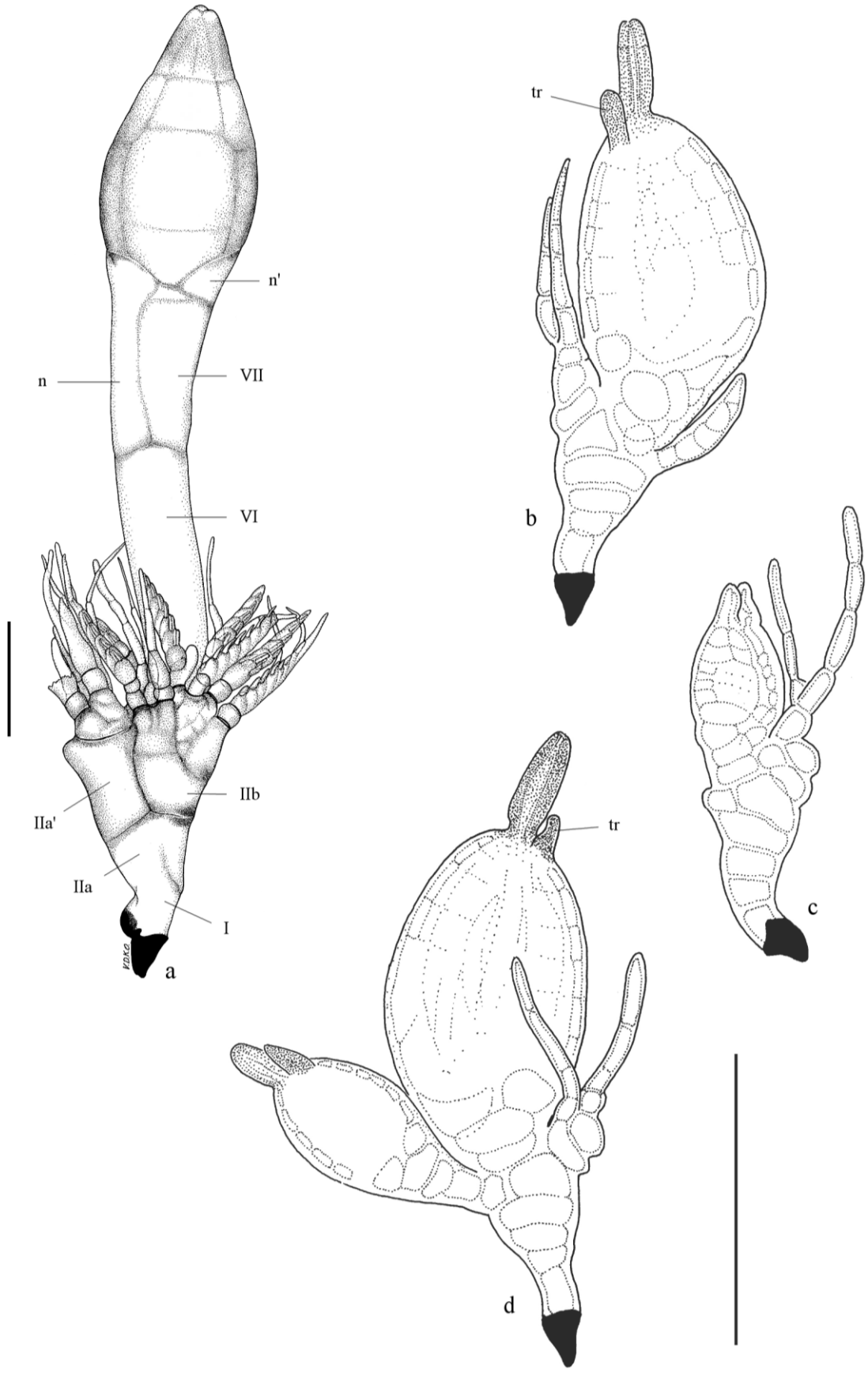

Plate 21. a. ***Idiomyces peyritschii*** Thaxt., mature thallus from *Deleaster dichrous* Gravenhorst, 1802 (L238a: from elytron). **b-d.** ***Kainomyces rehmanii*** T. Majewski from *Acrotrichis sp.* **b.** mature thallus from scutellum of *Acrotrichis sp*. (ADK4736); **c.** young thallus from upper side of abdomen of *Acrotrichis sp.* (ADK4735a); **d.** mature thallus with two perithecia, from left elytron of *Acrotrichis sp*. (ADK4735b). Scale bars = 50 µm.

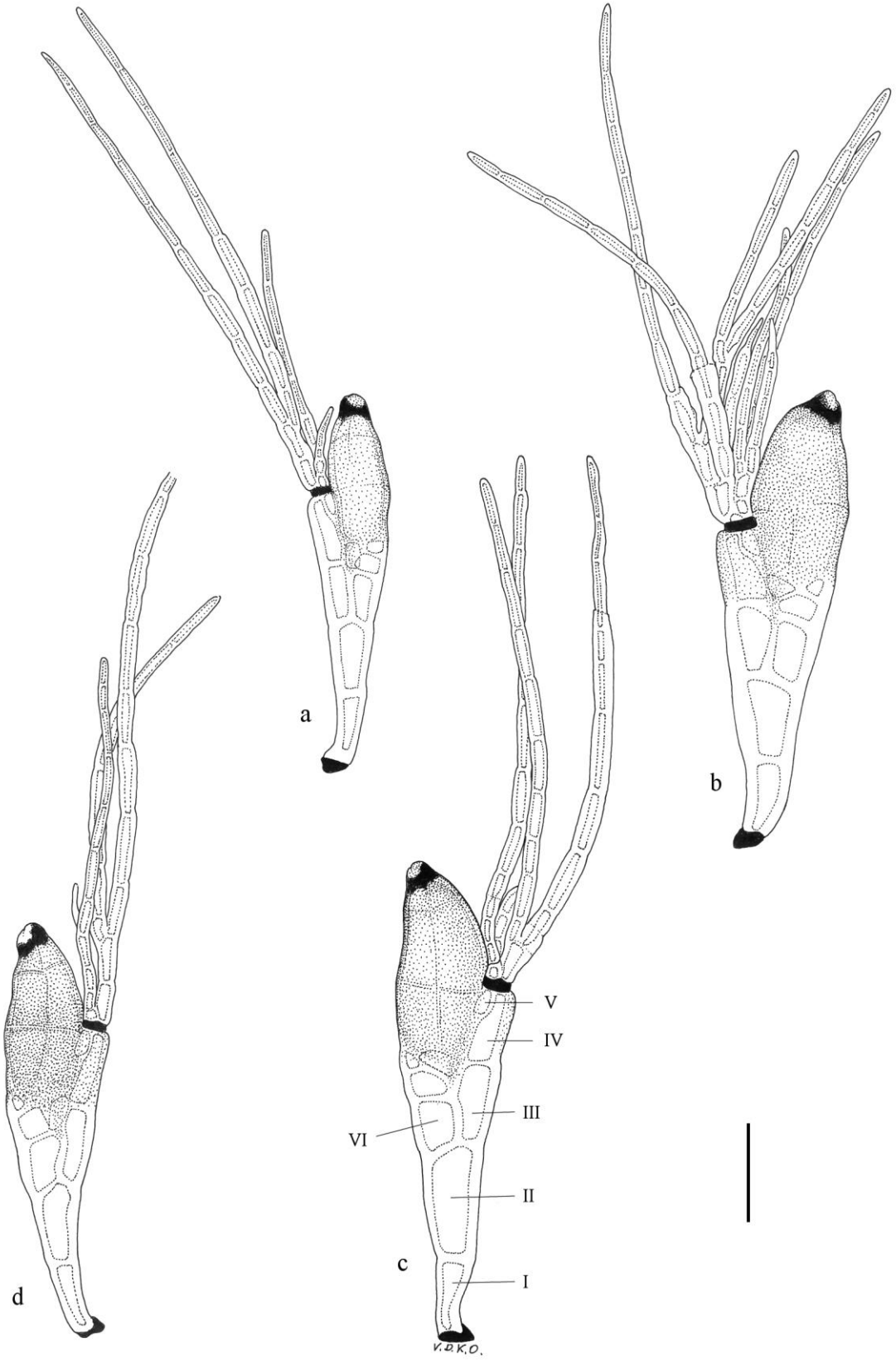

Plate 22. a-d. ***Laboulbenia anoplogenii*** Thaxt., with: **a-c.** mature thalli from *Stenolophus mixtus* (Herbst, 1784) (ADK966, from elytra); **d.** mature thallus from *Stenolophus teutonus* (Schrank, 1781) (ADK544, from elytra). Scale bar = 50 µm.

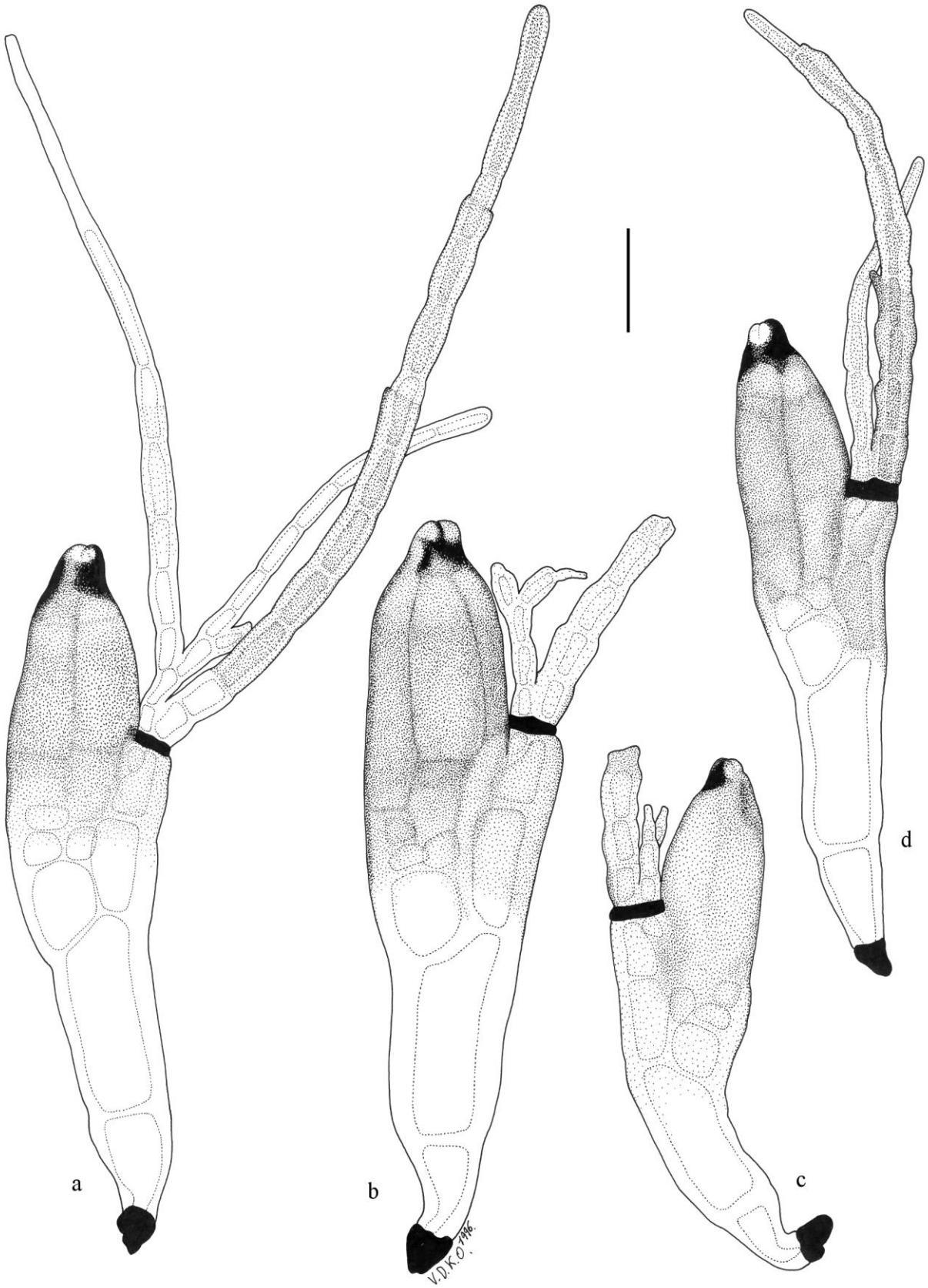

Plate 23. a-d. *Laboulbenia argutoris* Cépède & F. Picard. **a.** mature thallus from *Pterostichus diligens* (Sturm, 1824), with abnormally proliferated inner appendage (ADK553, from prothorax); **b.** mature thallus from *Pterostichus strenuus* (Panzer, 1796) (JR5064, from elytron); **c.** mature thallus from *P. strenuus* with damaged outer appendage and typical inner appendage (ADK541, from elytron); **d.** mature thallus from *P. strenuus* with abnormally proliferated inner appendage (ADK650, from metathorax). Scale bar = 50 µm.

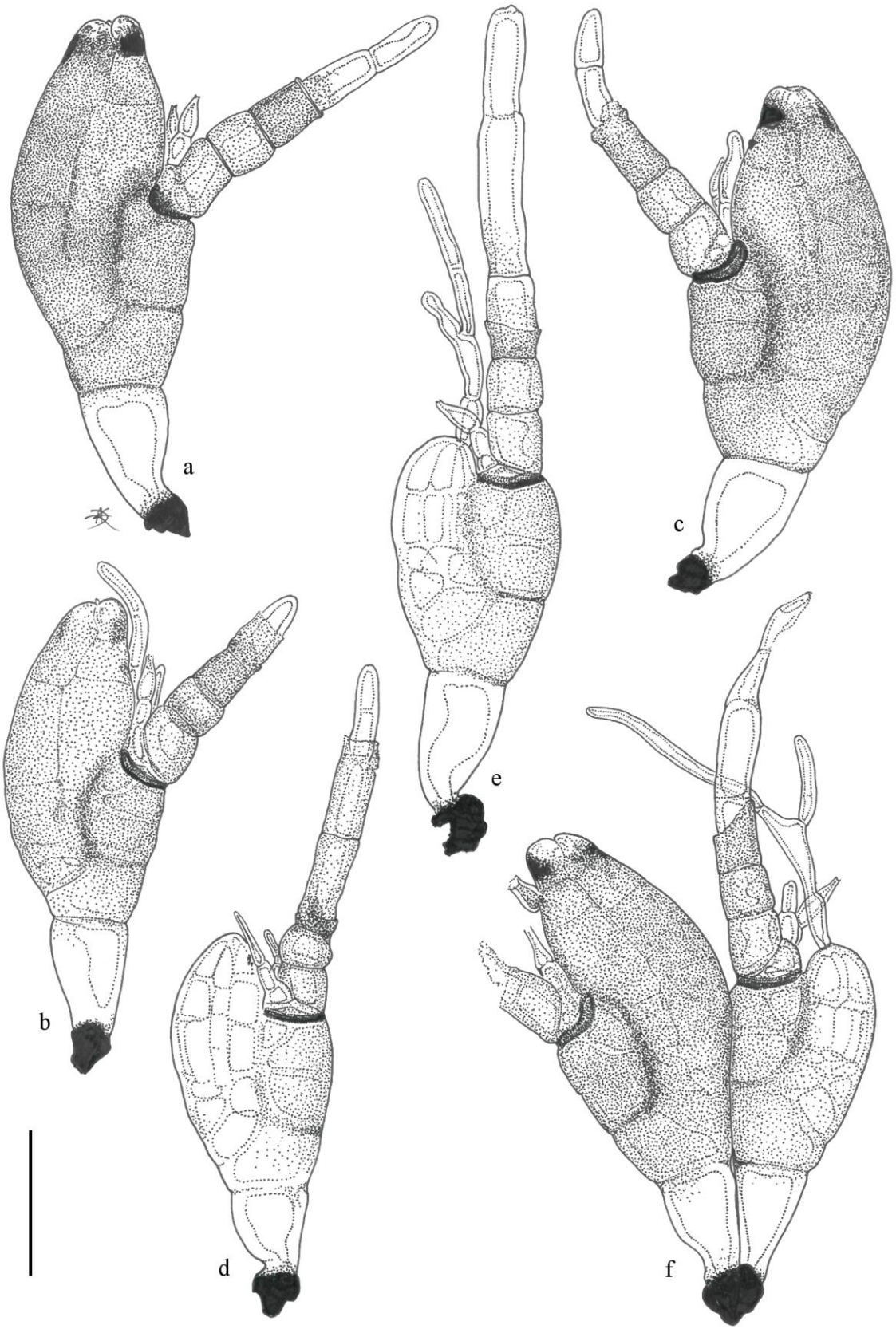

Plate 24. a-f. *Laboulbenia atlantica* Thaxt. from *Lobrathium multipunctum* (Gravenhorst, 1802), with: a-c. mature thalli (CG176a); d. juvenile thallus (CG176a); e. juvenile thallus, perithecium with trichogyne (CG176b); f. pair of thalli, juvenile thallus showing branched trichogyne (CG176b). Scale bar = 50 µm.

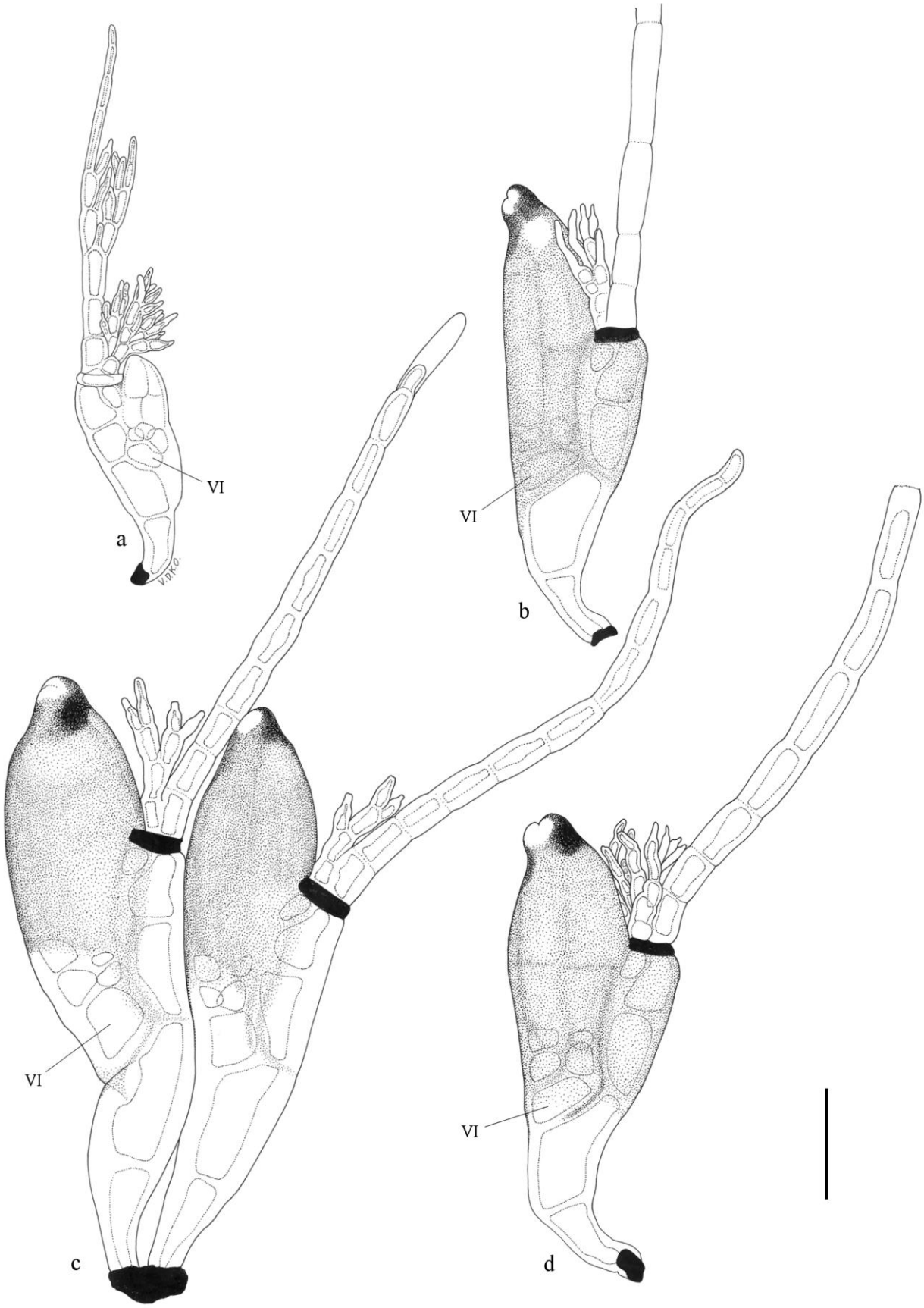

Plate 25. a-d. *Laboulbenia benjaminii* Balazuc ex Santam., with: **a.** juvenile thallus from *Badister sodalis* (Duftschmid, 1812) (JR3693); **b.** mature thallus from *B. sodalis* (L148a, from elytron); **c.** pair of mature thalli with a fairly high cell VI, from elytron of *Badister lacertosus* Sturm, 1815 (ADK698); **d.** typical mature thallus from elytron of *Badister bullatus* (Schrank, 1798) (ADK303). Scale bar = 50 µm.

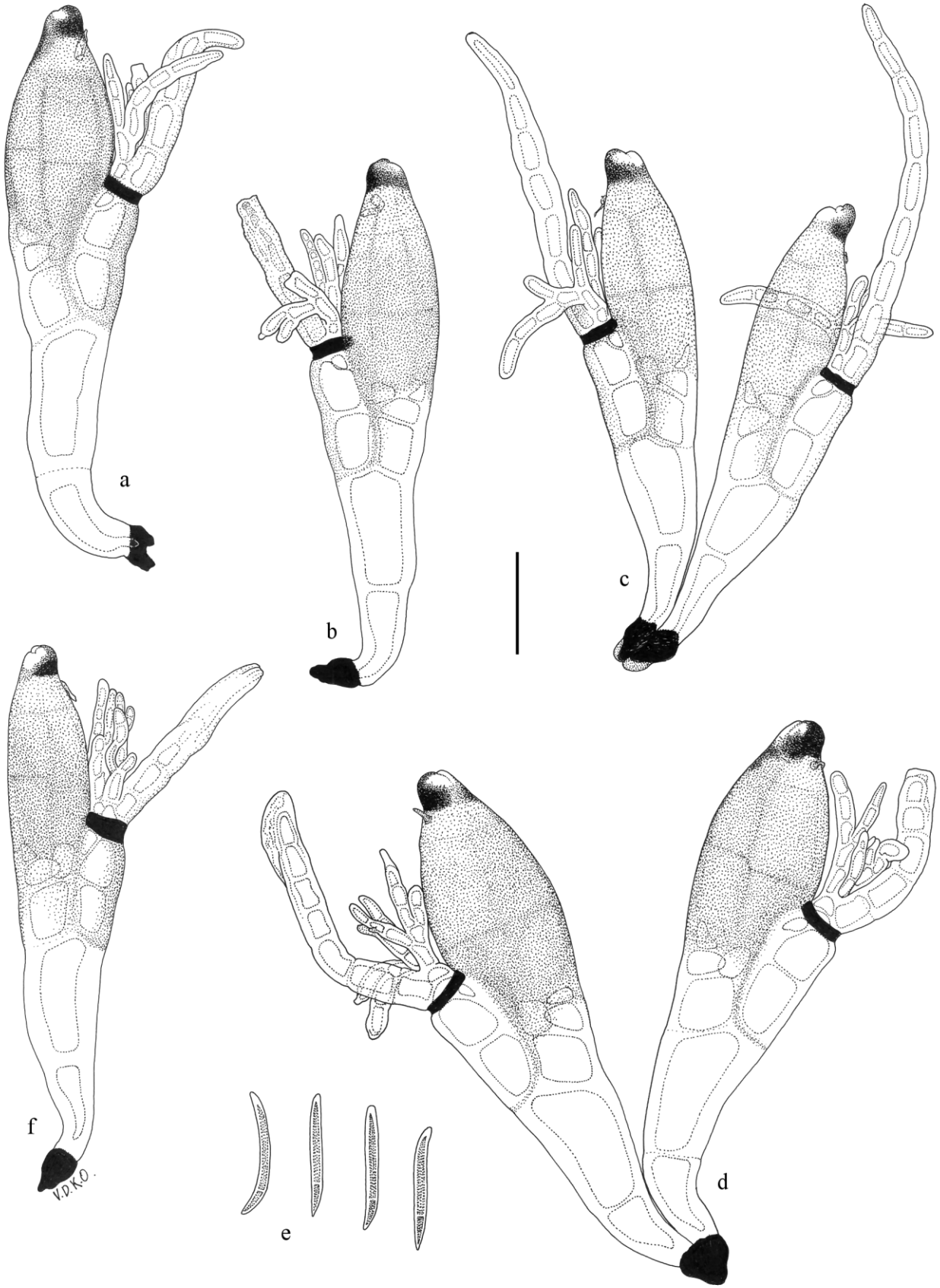

Plate 26. a-f. ***Laboulbenia calathi*** T. Majewski, with: **a-b.** mature thalli from metathorax of *Calathus melanocephalus* (Linnaeus, 1758), with broken appendage (ADK989b); **c.** pair of mature thalli with slightly proliferated inner appendage (ADK988a, elytron of *C. melanocephalus*); **d.** pair of mature thalli from tarsi of *C. melanocephalus* (ADK958a); **e.** ascospores (ADK958a); **f.** mature thallus from elytron of *Calathus erratus* (Sahlberg, 1827) (ADK990). Scale bar = 50 µm.

Plate 27. a-d. *Laboulbenia clivinalis* Thaxt., with: a. mature thallus from *Clivina collaris* (Herbst, 1784), with damaged outer appendage (ADK701, from elytron); b. atypical mature thallus from *C. collaris*, with free cell V (ADK702, from femur); c. typical mature thallus from *Clivina fossor* (Linnaeus, 1758) with damaged outer appendage (ADK335, from mesosternum); d. massive and stout thallus from mandibula of *C. fossor* (ADK739b). Scale bar = 50 µm.

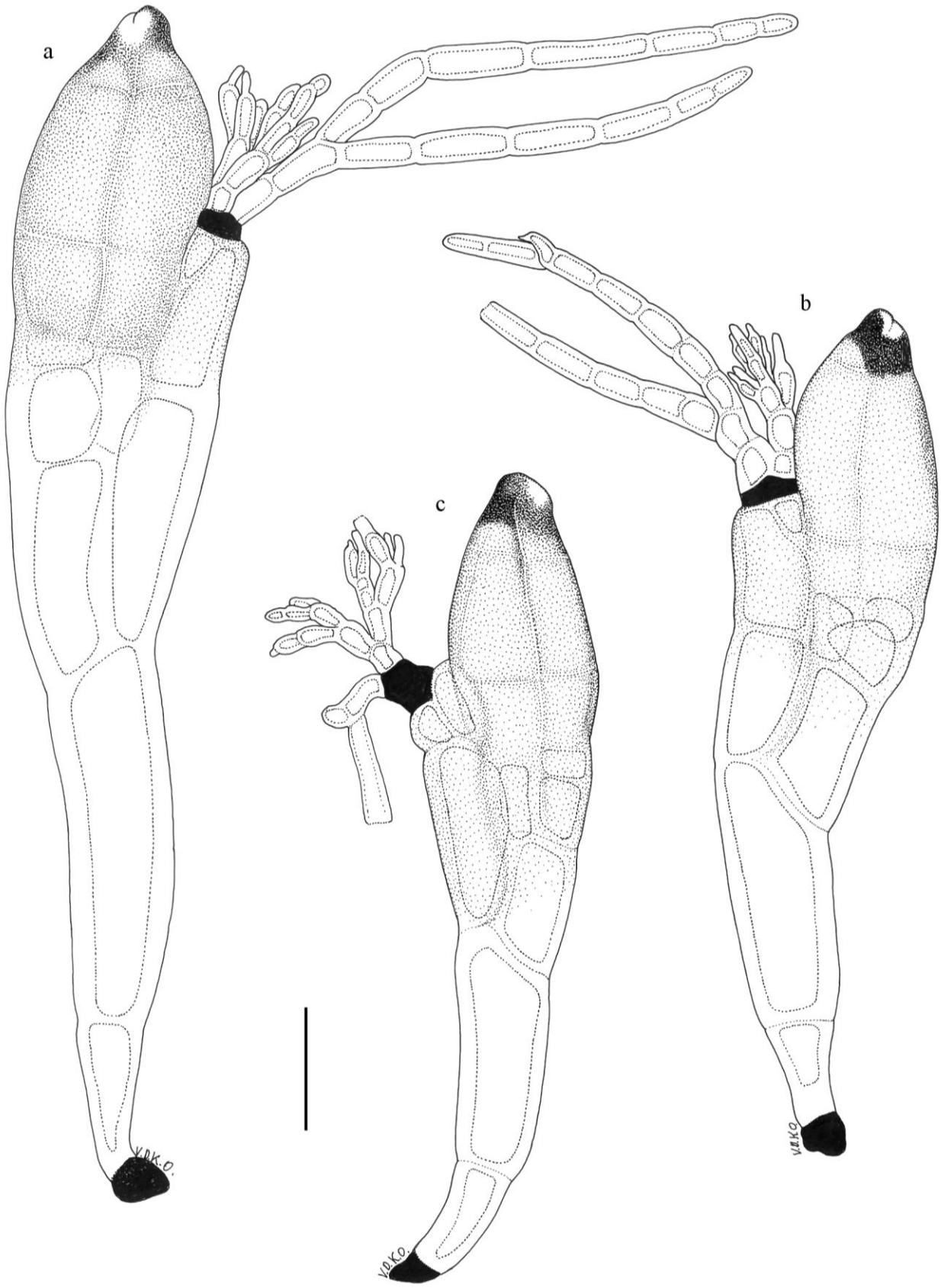

Plate 28. a-c. *Laboulbenia collae* T. Majewski from *Paranchus albipes* (Fabricius, 1796), with: a. mature thallus from elytra (ADK320b); b. mature thallus from pronotum (ADK950a); c. thallus from elytron with a totally aberrant organization of cell IV, V and insertion cell (ADK950f). Scale bar = 50 µm.

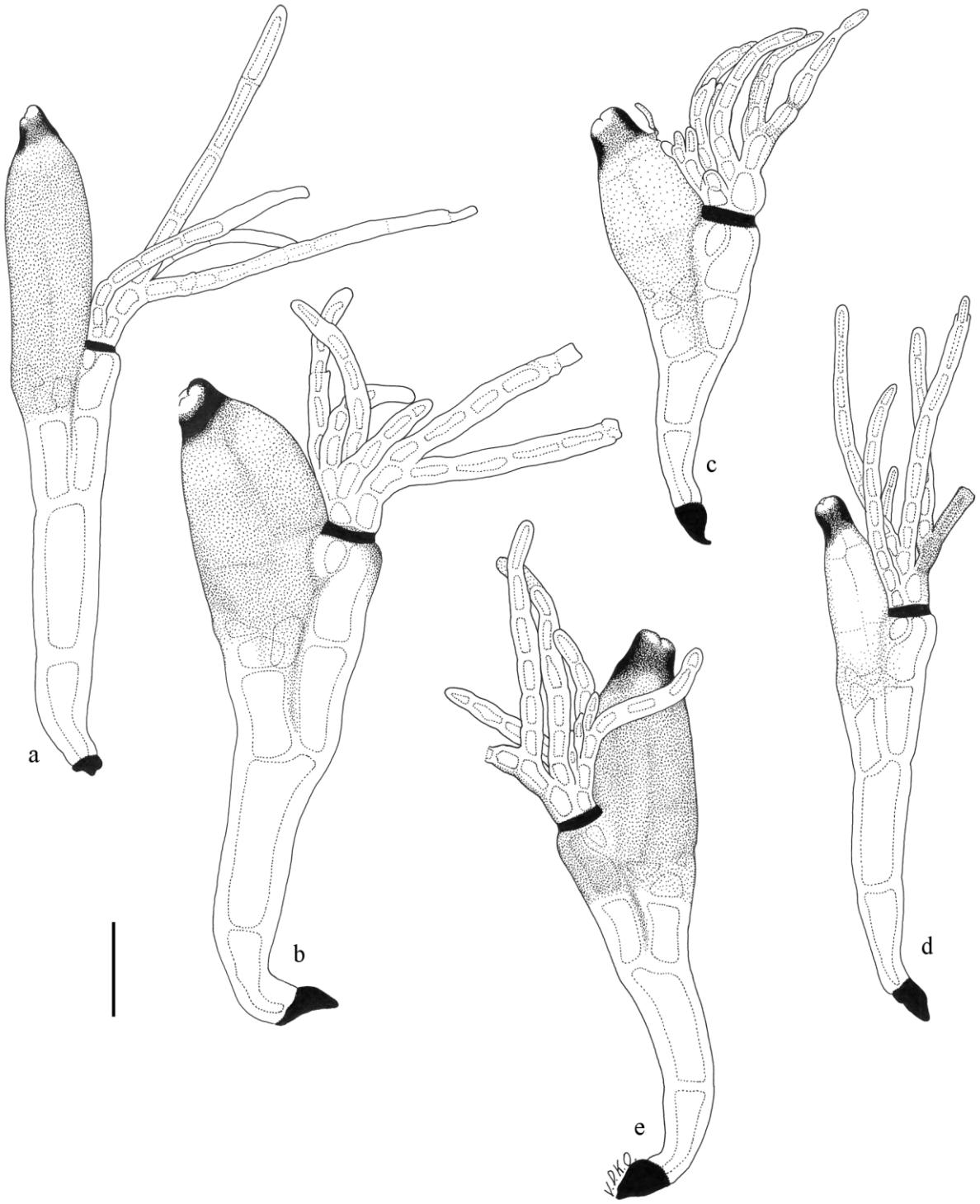

Plate 29. a-e. *Laboulbenia coneglianensis* Speg. *s.l.*, with: **a.** mature thallus from *Harpalus griseus* (Panzer, 1796), with unbranched inner appendage (L63, from elytron); **b.** mature thallus from *Harpalus atratus* Latreille, 1804 (ADK314, from elytron); **c.** mature thallus from *Harpalus attenuatus* Stephens, 1828, with swollen outer appendage basal cell (ADK781b, from prothorax); **d.** mature thallus with slender perithecium from *H. attenuatus* (ADK781a, from epipleuron); **e.** mature and strongly pigmented thallus from *Harpalus tardus* (Panzer, 1796) (ADK792b, from antenna). Scale bar = 50 µm.

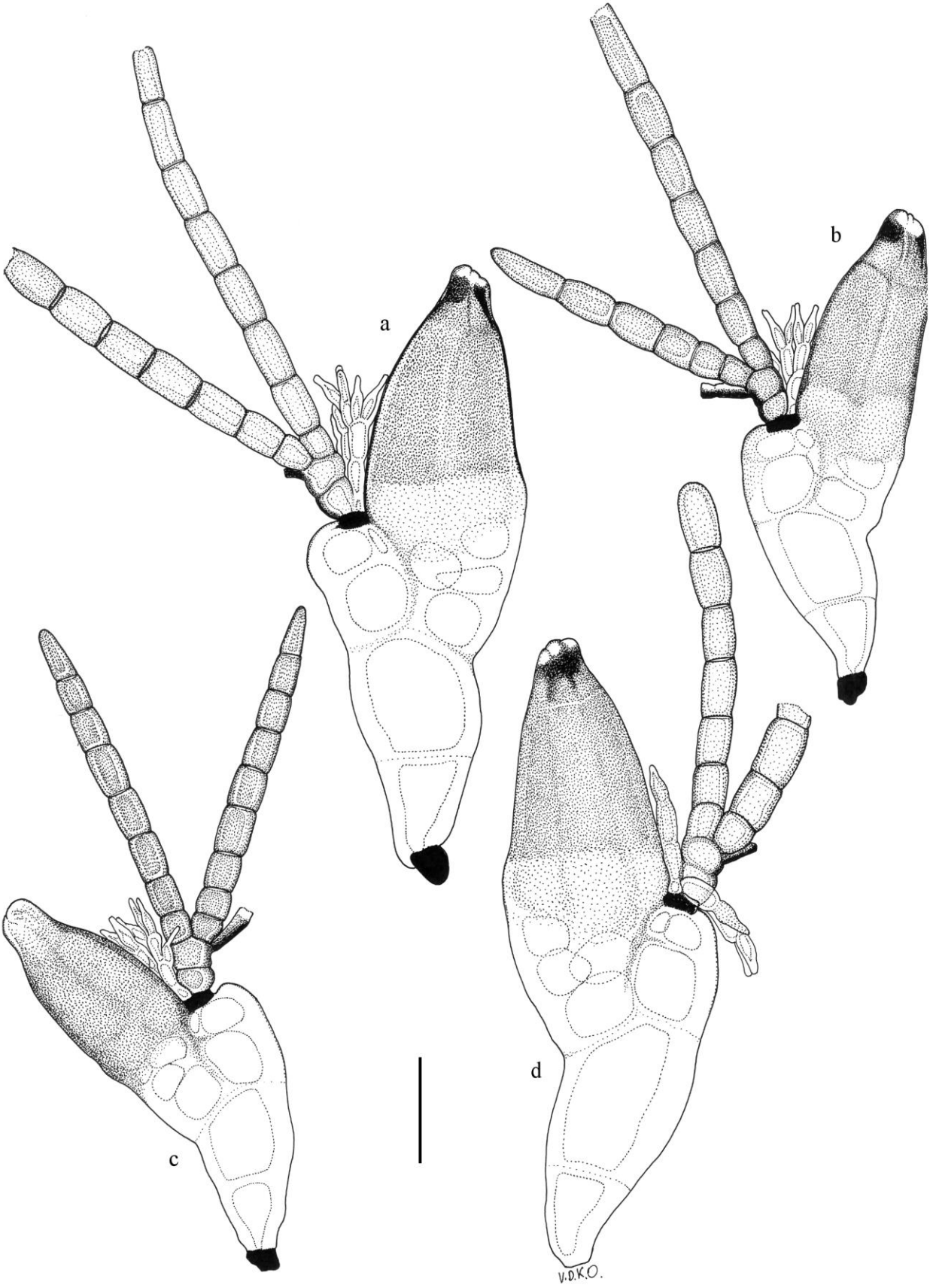

Plate 30. a-d. Laboulbenia cristata Thaxt., with: **a.** mature thallus from *Paederus riparius* (Linnaeus, 1758) (JR3685, from thorax); **b.** mature thallus from *P. riparius* (JR3692, from elytron); **c.** mature thallus from *P. riparius* (JR3684, from elytron); **d.** mature thallus from *P. littoralis* Gravenhorst, 1802 (ADK420, from elytron, foot cell is broken off). Scale bar = 50 µm.

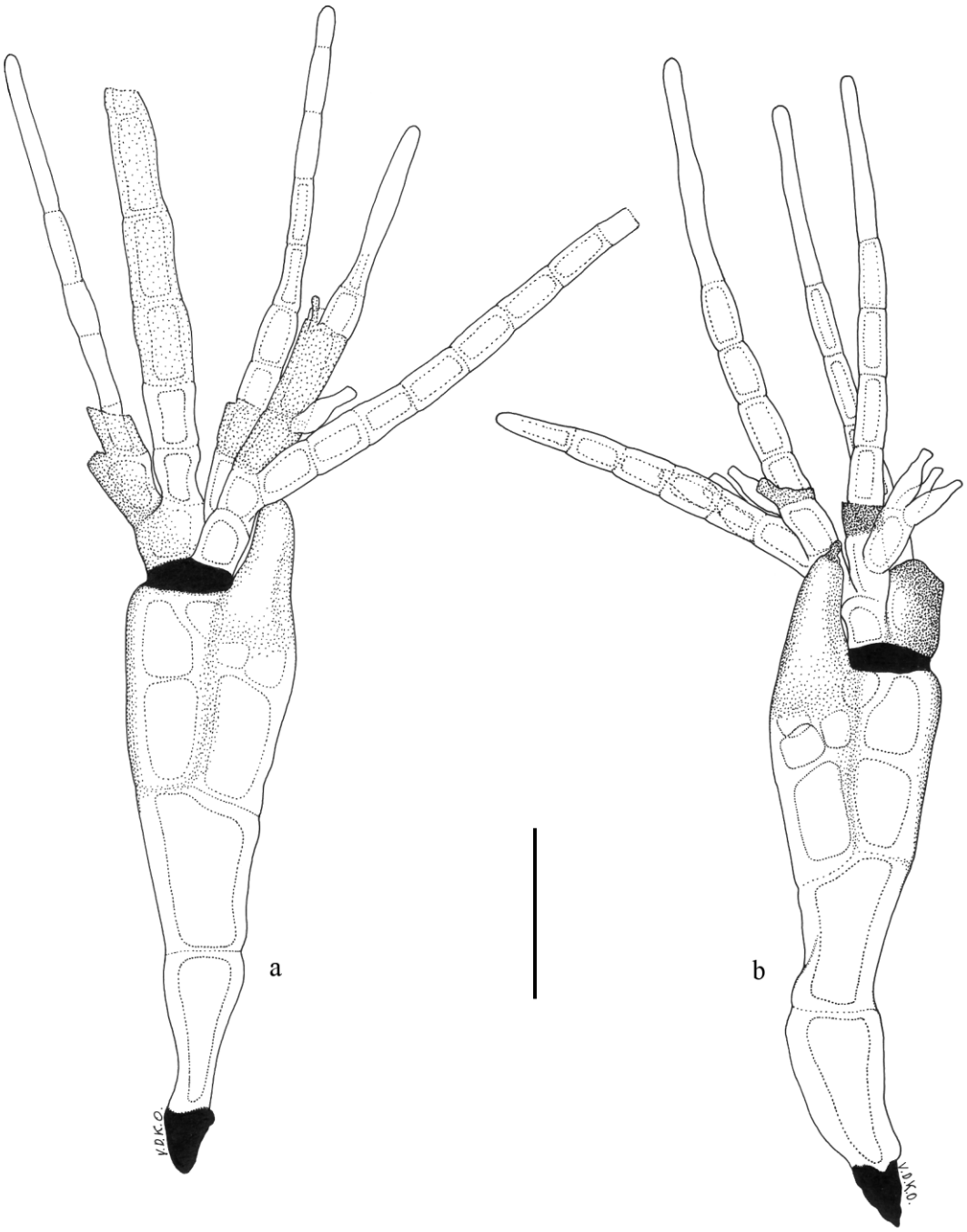

Plate 31. a-b. ***Laboulbenia dubia*** Thaxt. from *Philonthus cognatus* Stephens, 1832, with: **a.** juvenile thallus from abdominal tergite, showing intact appendages (L152); **b.** juvenile thallus with broken outer appendage (L152). Scale bar = 50 µm.

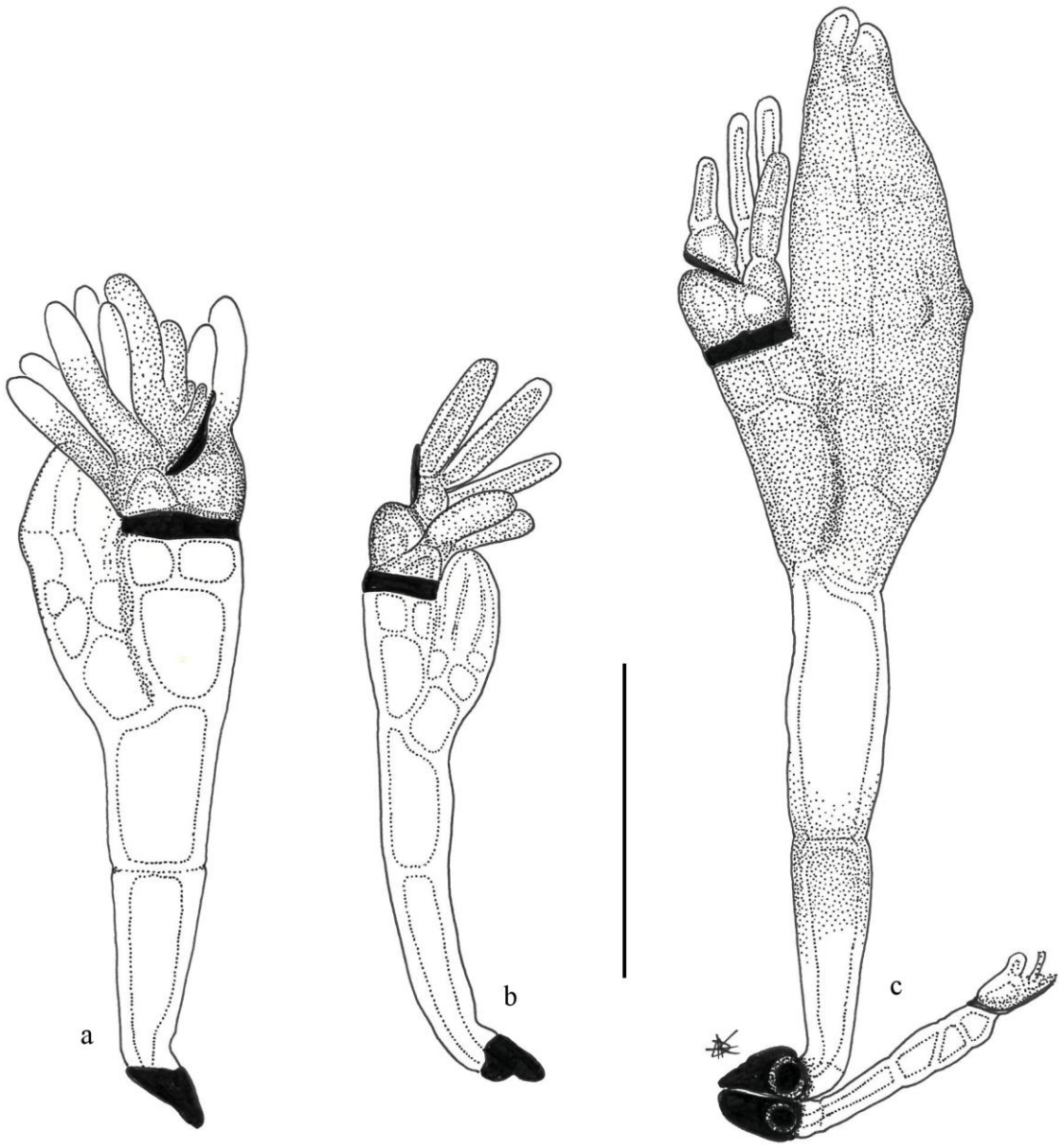

Plate 32. a-c. ***Laboulbenia egens*** Speg., with: **a.** juvenile thallus from *Elaphropus parvulus* (Dejean, 1831) (L265, from elytron); **b.** juvenile thallus from *E. parvulus* (L263, from pronotum); **c.** mature thallus from *Paratachys micros* (Fischr von Waldheim, 1828) (CG213). Scale bar = 50 µm.

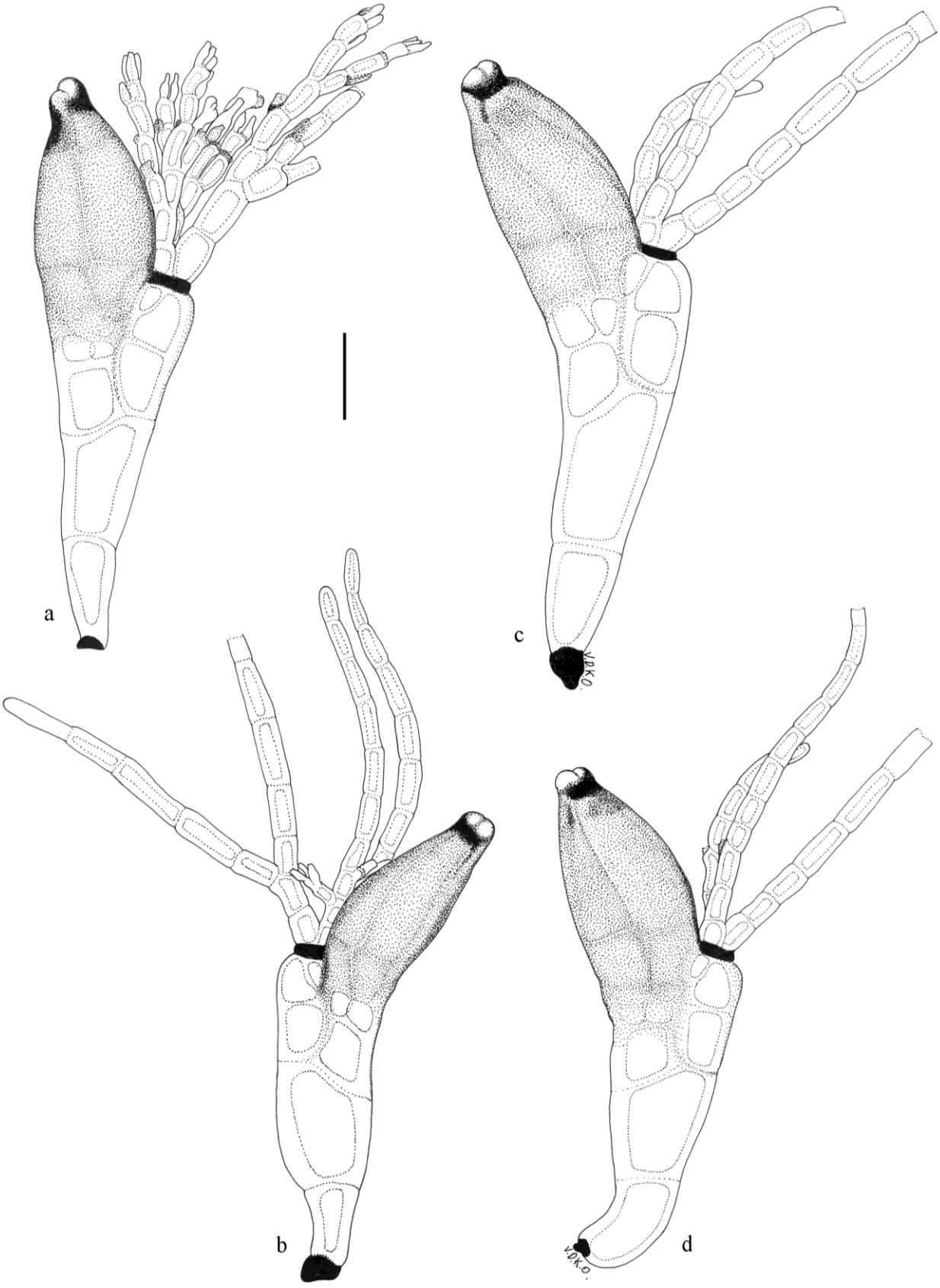

Plate 33. a-d. *Laboulbenia elaphri* Speg. from *Elaphrus cupreus* Duftschmid, 1812, with: a. mature thallus with damaged and partly regenerated appendages (L171b, from cephalon); b. mature thallus with typical set of appendages (L171a, from cephalon); c-d. mature thalli with (atypical) unbranched outer appendage (L175, both pronotum). Scale bar = 50 µm.

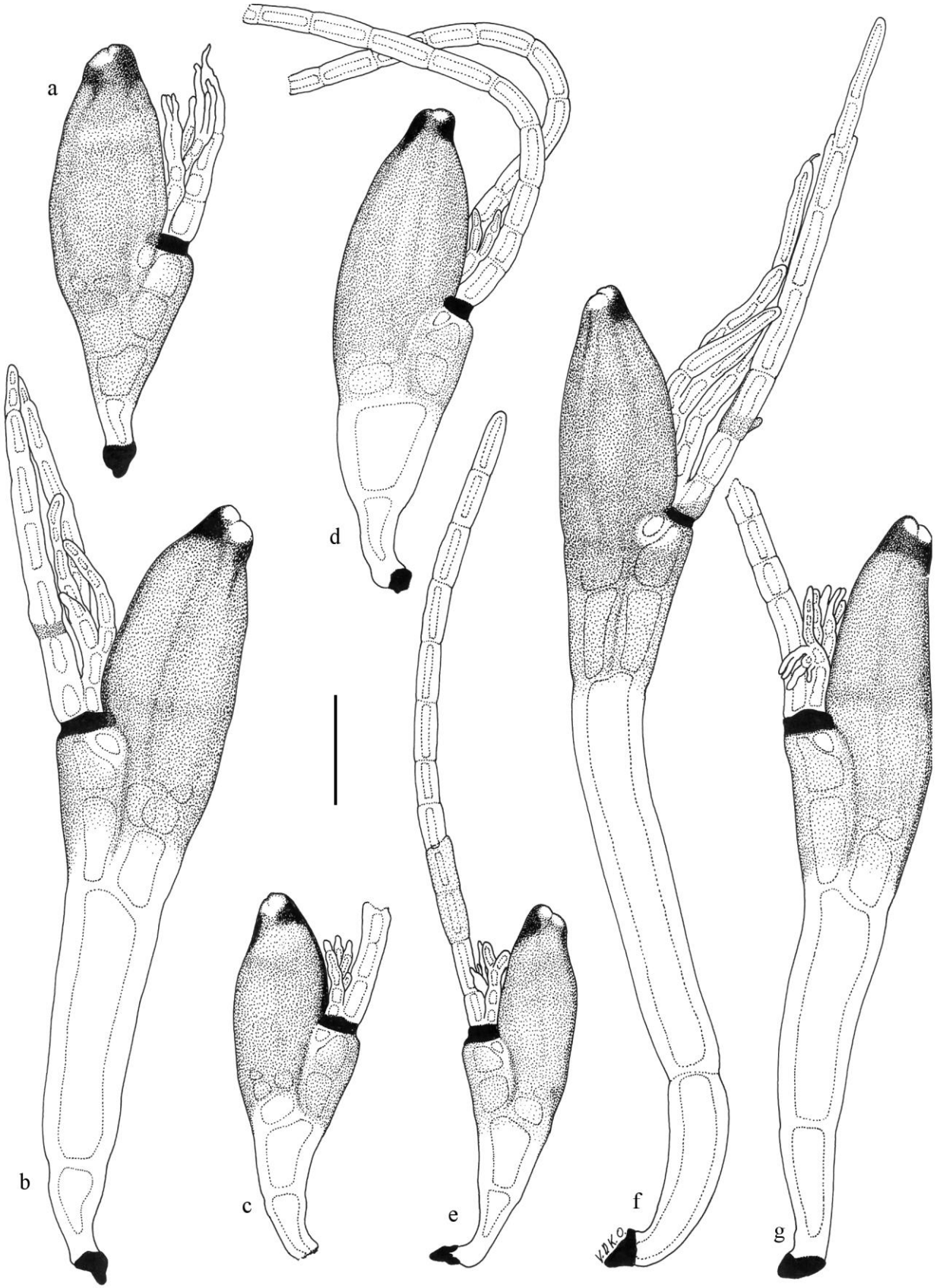

Plate 34. a-g. *Laboulbenia eubradycelli* Huldén. **a.** mature thallus from *Bradycellus verbasci* (Duftschmid, 1812) (ADK339c, from tarsi, with stout appearance); **b.** mature thallus from *B. verbasci* with slender receptaculum and proliferated inner appendage (ADK339c, from femur); **c.** mature thallus from *Trichocellus placidus* (Gyllenhal, 1827), with stout receptaculum (ADK516, from elytron); **d.** mature thallus from *Bradycellus ruficollis* (Stephens, 1828), with proliferated inner appendage (ADK308, from elytron); **e.** mature thallus, stout morph from *B. ruficollis* (ADK291a, from elytron); **f.** mature thallus, slender morph from *Bradycellus harpalinus* (Audinet-Serville, 1821), with proliferated inner appendage (ADK309, from prothorax); **g.** mature thallus from *B. harpalinus* (ADK824, from elytra). Scale bar = 50 µm.

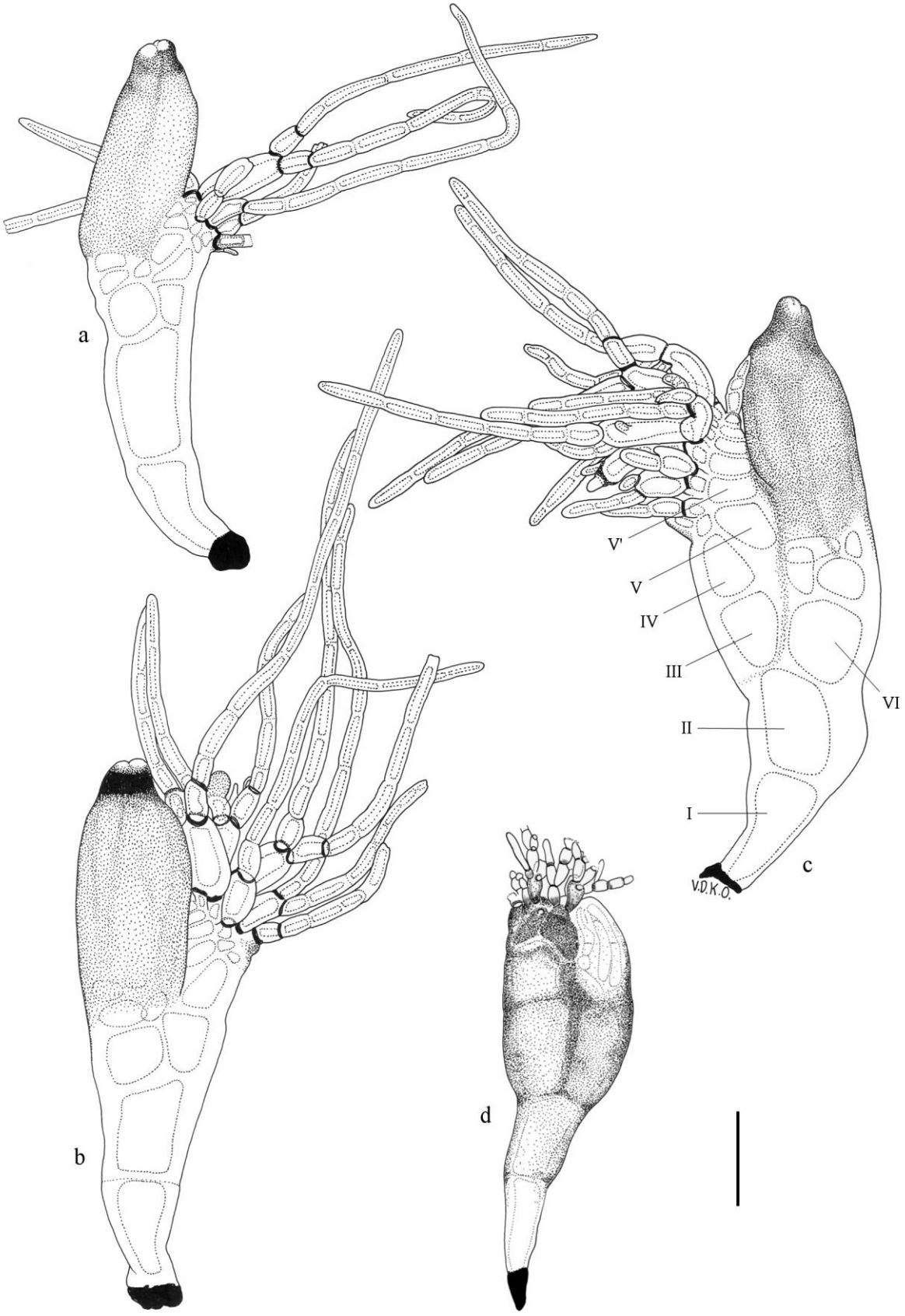

Plate 35. a-c. ***Laboulbenia fasciculata*** Peyr., with: **a.** mature thallus from *Patrobus atrorufus* (Stroem, 1768) (ADK298b, from elytron); **b.** mature thallus from *Pterostichus nigrita* (Paykull,1790) (ADK709, from elytron); **c.** mature thallus with robust receptaculum, taken from the pronotum of *Nebria brevicollis* (Fabricius, 1792) (ADK547); **d.** ***Laboulbenia fennica*** Huldén, immature thallus from *Gyrinus substriatus* Stephens, 1829 (ADK4152b). Scale bar = 50 µm.

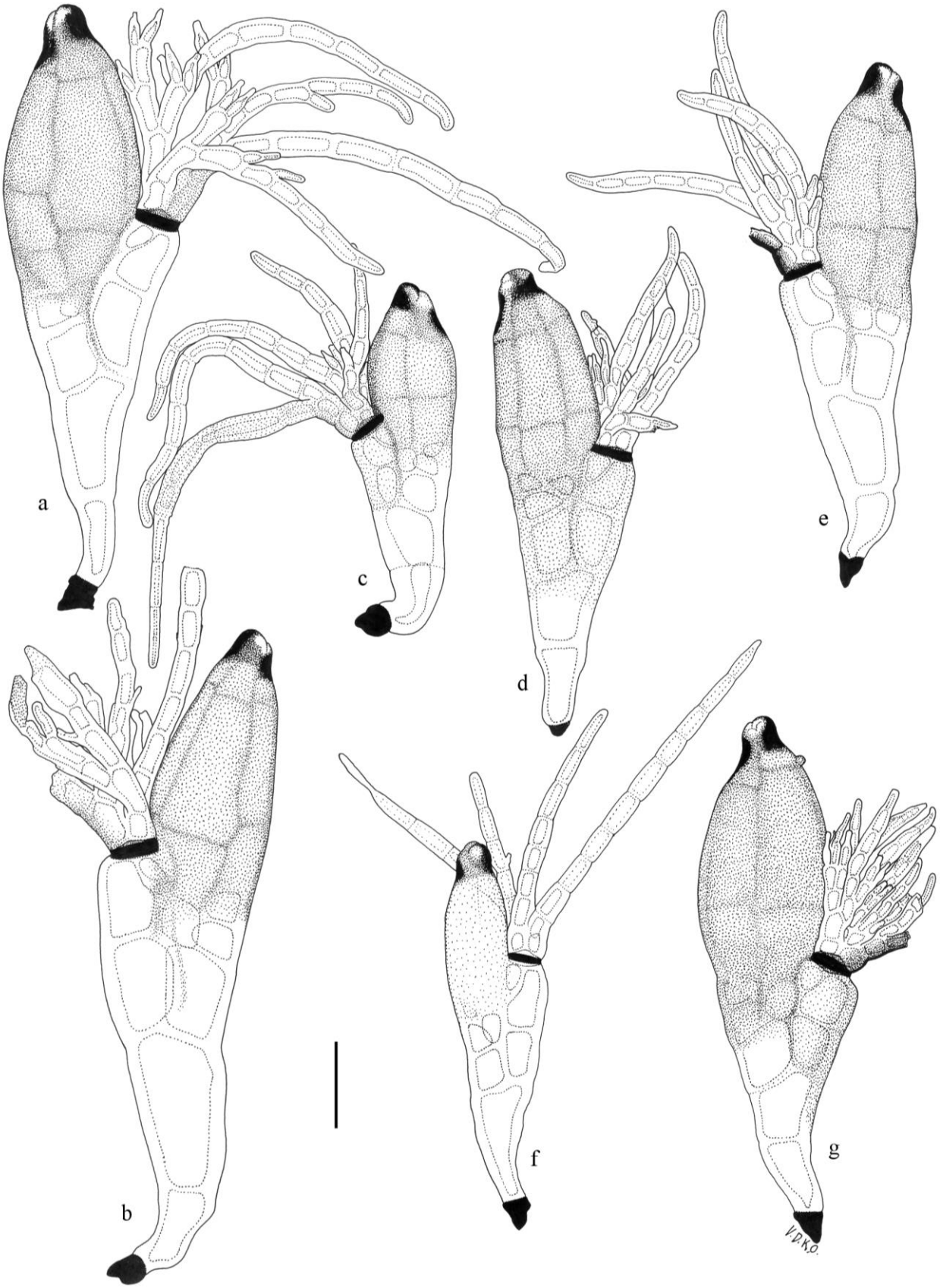

Plate 36. a-g. *Laboulbenia flagellata* Peyr. *s.l.*, with : **a.** mature thallus from *Limodromus assimilis* (Paykull, 1790) (ADK971g, from elytron); **b.** mature thallus from *L. assimilis* (ADK971c, from abdomen); **c.** mature thallus from *Loricera pilicornis* (Fabricius, 1775) (ADK993b, from elytron); **d.** mature thallus from *Agonum micans* (Nicolai, 1822), with relatively dark receptaculum (ADK955b, from pronotum); **e.** mature thallus from *Oxypselaphus obscurus* (Herbst, 1784) (ADK523b, from elytron); **f.** mature thallus from *Laemostenus terricola* (Herbst, 1784), with unbranched outer appendage and little pigmentation (L170b, from thorax); **g.** mature thallus from *Paranchus albipes* (Fabricius, 1796), with regenerated appendages and darkened outer appendage (ADK950c, from tarsi). Scale bar = 50 µm.

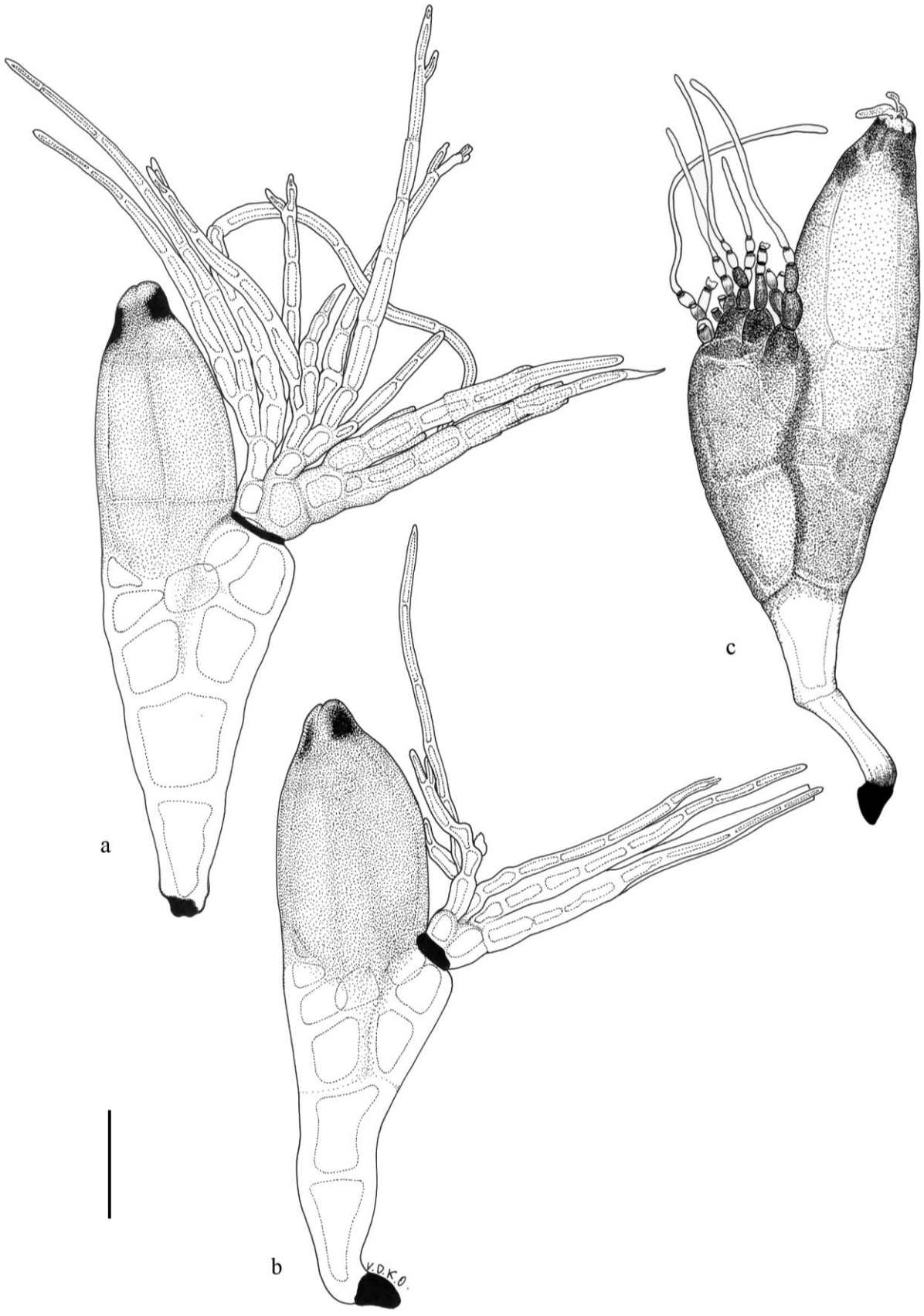

Plate 37. a-b. ***Laboulbenia giardii*** Cépède & F. Picard from *Dicheirotrichus gustavii* Crotch, 1871, with: **a.** mature thallus with pigmented outer appendage (ADK762d, from elytron); **b.** mature thallus with typical appendages (ADK286, from elytron); **c.** ***Laboulbenia gyrinicola*** Speg. from *Gyrinus marinus* Gyllenhal, 1808 (ADK4663). Scale bar = 50 µm.

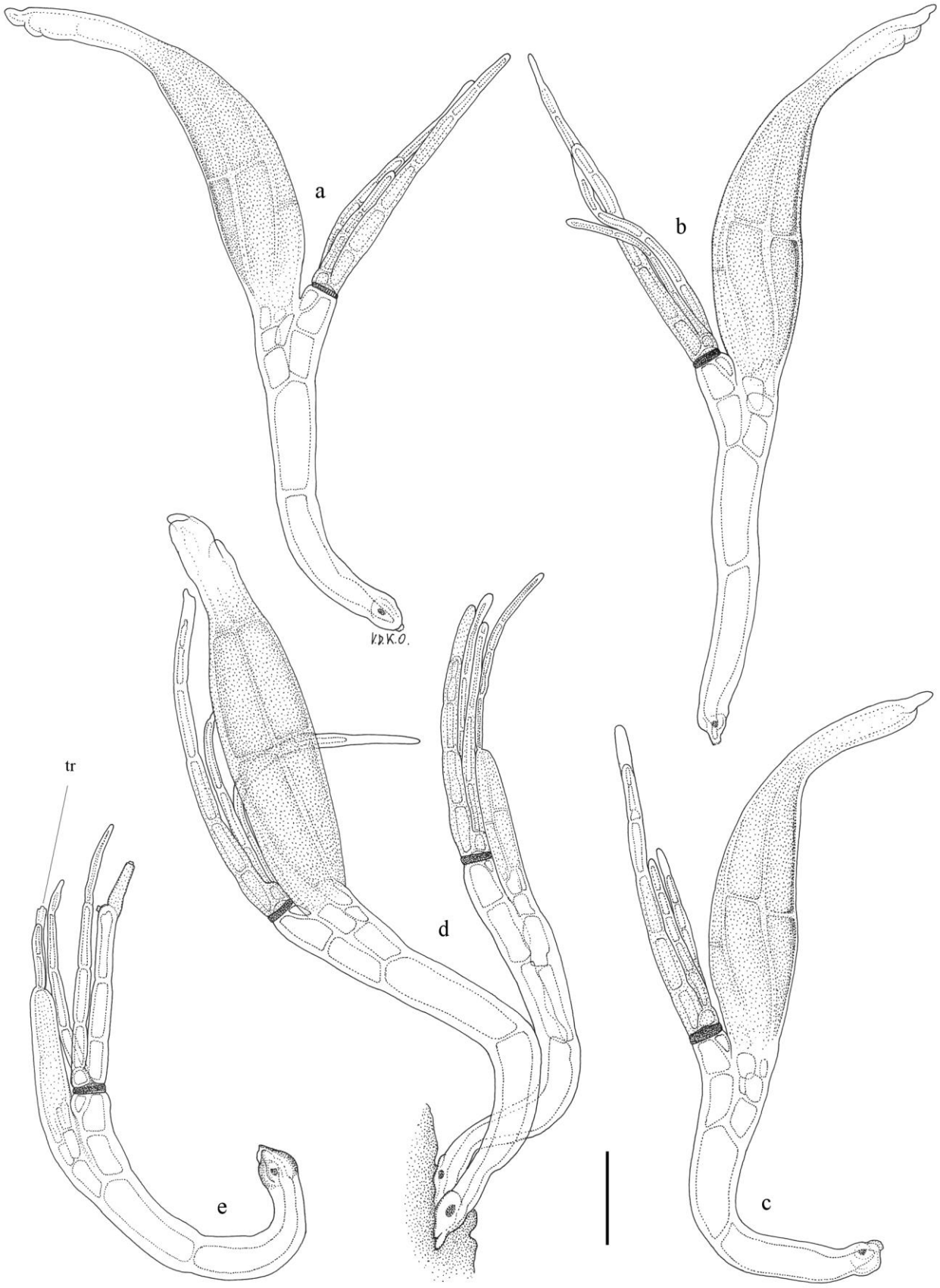

Plate 38. a-e. *Laboulbenia hyalopoda* De Kesel from *Paradromius linearis* (Olivier, 1795), with: a-c. mature thalli (ADK991); d. pair of mature and juvenile thalli, perithecium of young specimen with apical trichogyne (ADK992); e. juvenile thallus with perithecium and trichogyne (ADK991). All thalli from last abdominal sternite. Scale bar = 50 µm.

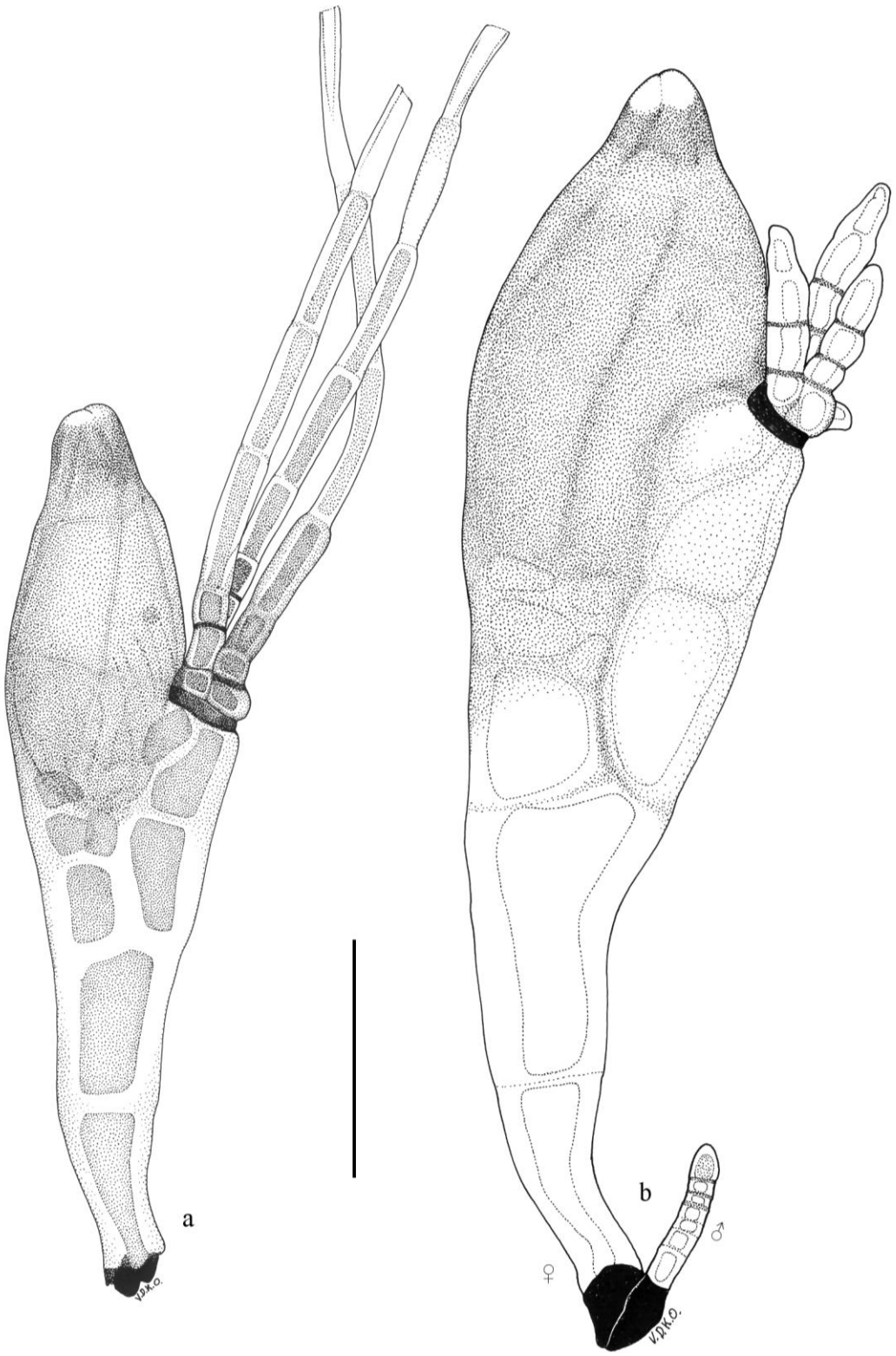

Plate 39. a-b. ***Laboulbenia inflata*** Thaxt., with: a. mature female thallus from *Acupalpus dubius* Schilsky, 1888, with intact appendage (ADK545, from elytron); b. dioecism: mature female thallus with minute male thallus attached to the foot; material from elytra of *Acupalpus exiguus* Dejean, 1829 (ADK633). Scale bar = 50 µm.

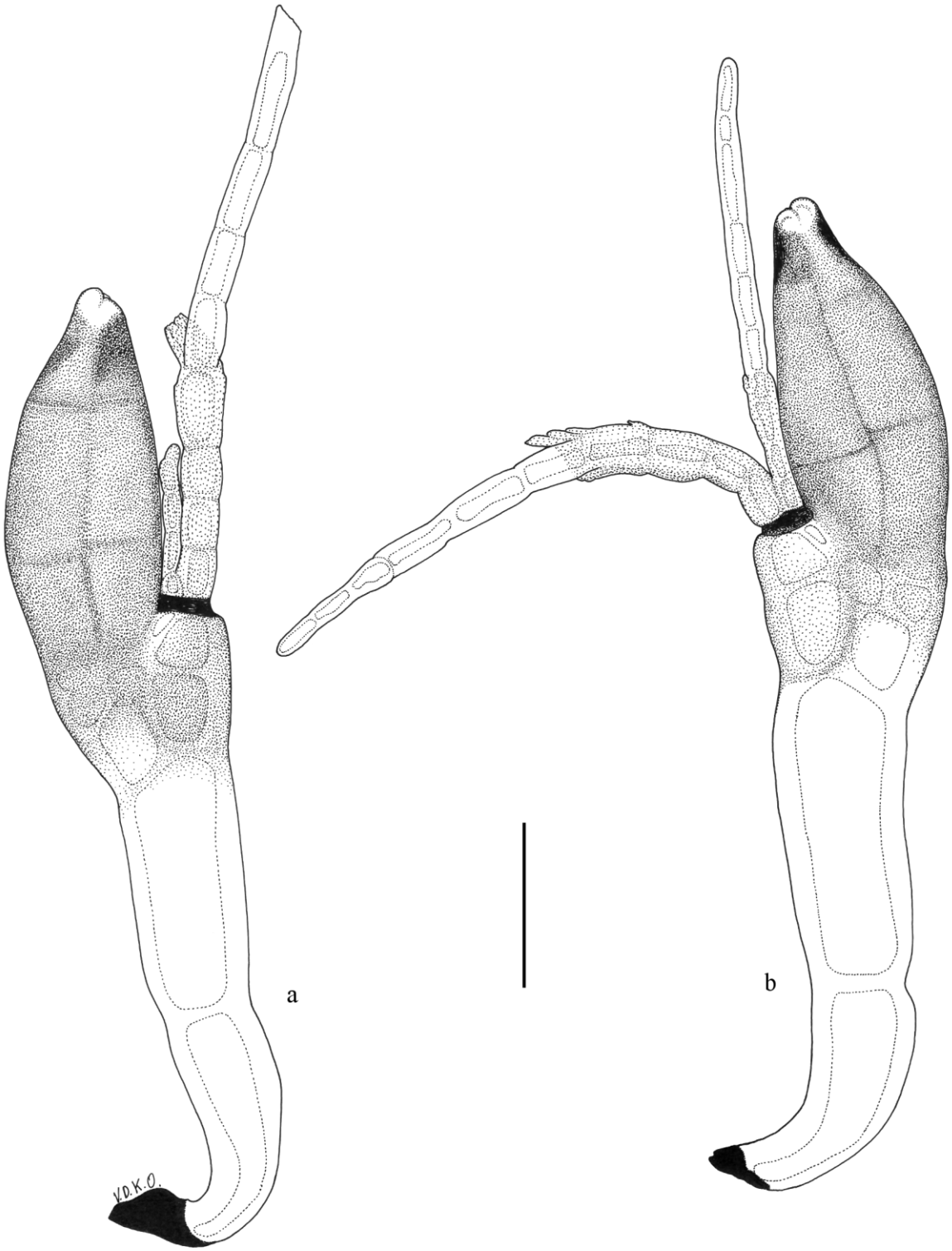

Plate 40. a-b. ***Laboulbenia kajanensis*** Huldén from *Pterostichus diligens* (Sturm, 1824), with: **a.** mature thallus from pronotum (ADK552); **b.** mature thallus from pronotum, with proliferated inner appendage (ADK552). Scale bar = 50 µm.

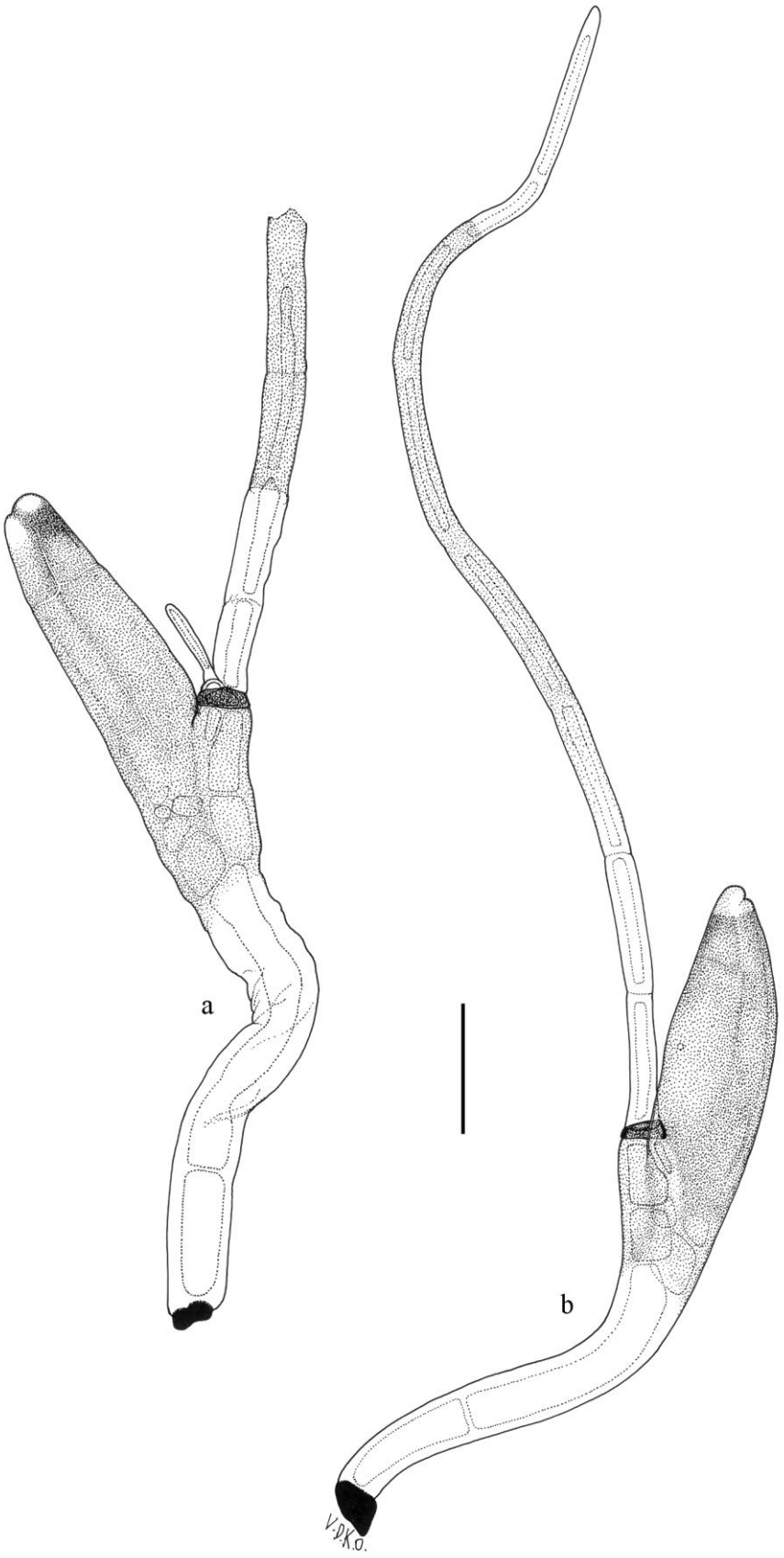

Plate 41. a-b. *Laboulbenia lecoareri* (Balazuc) Huldén from *Trechoblemus micros* (Herbst, 1784), with: a. mature thallus with intact appendage (ADK548, from elytron); b. mature thallus missing an inner appendage (ADK338, from elytron). Scale bar = 50 µm.

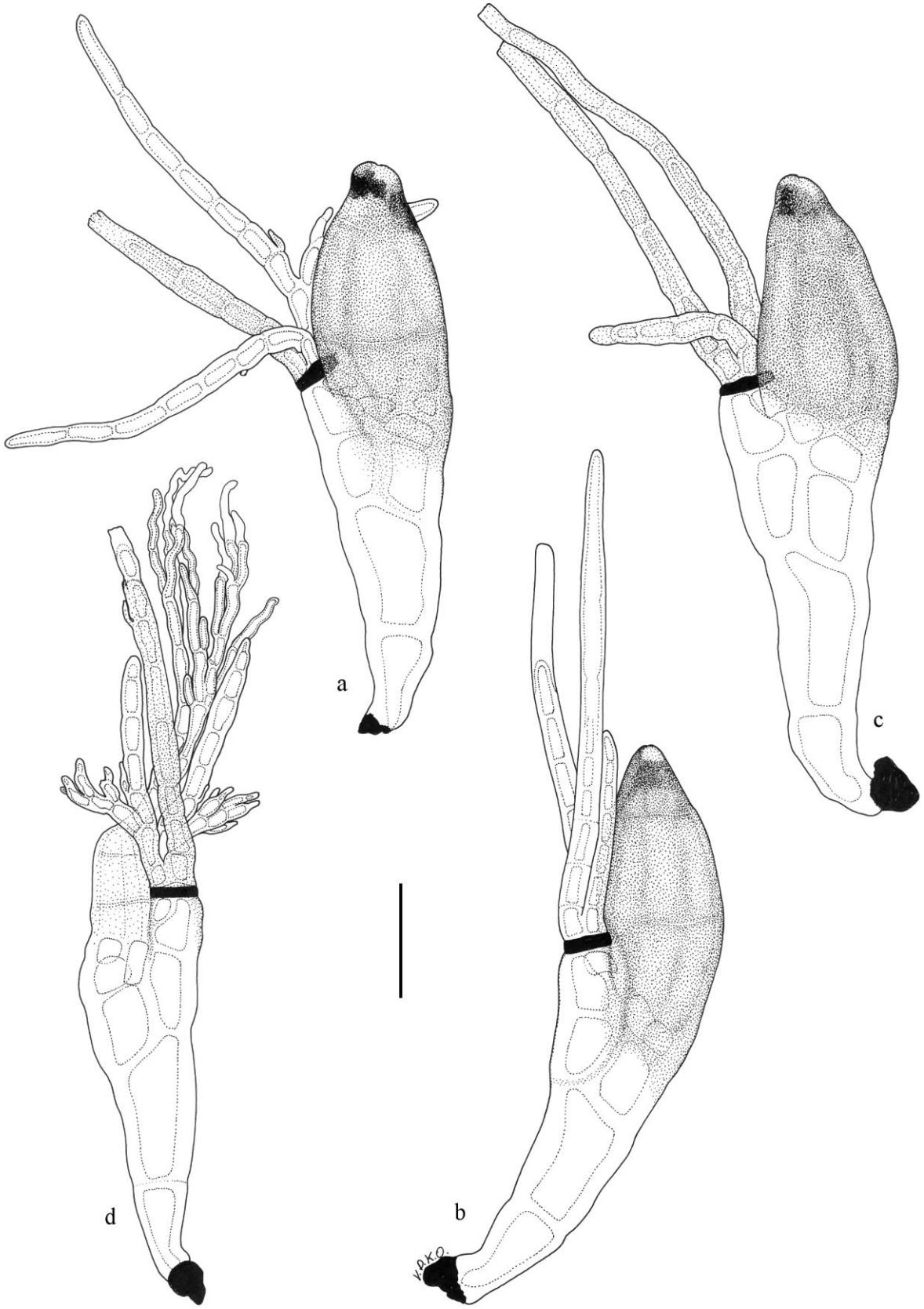

Plate 42. a-d. *Laboulbenia leisti* J. Siemaszko & W. Siemaszko from *Leistus ferrugineus* (Linnaeus, 1758), with: a-b-c. mature thalli from the thorax (ADK360c); d. juvenile thallus with strongly developed inner appendage and multi-branched trichogyne (ADK360c). Scale bar = 50 µm.

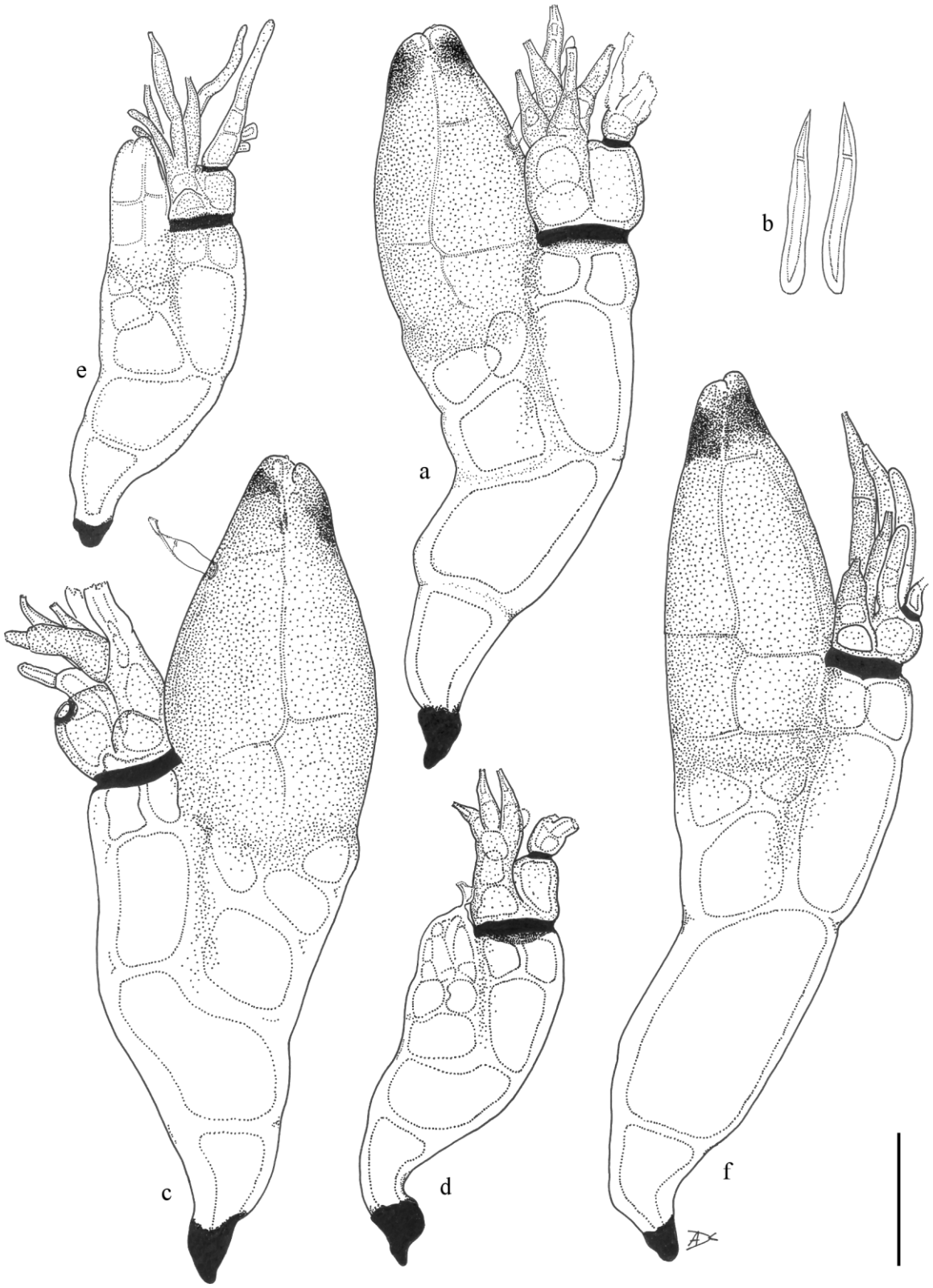

Plate 43. a-f. ***Laboulbenia littoralis*** De Kesel & Haelew. from *Cafius xantholoma* (Gravenhorst, 1806), with: **a.** mature thallus from tibia (ADK5152b); **b.** spores (ADK5152a); **c.** mature thallus from abdominal tergite; **d.** juvenile thallus from right elytron (ADK5161); **e.** juvenile thallus from prothorax (L103); **f.** mature thallus from legs (L106). Scale bar = 50 µm.

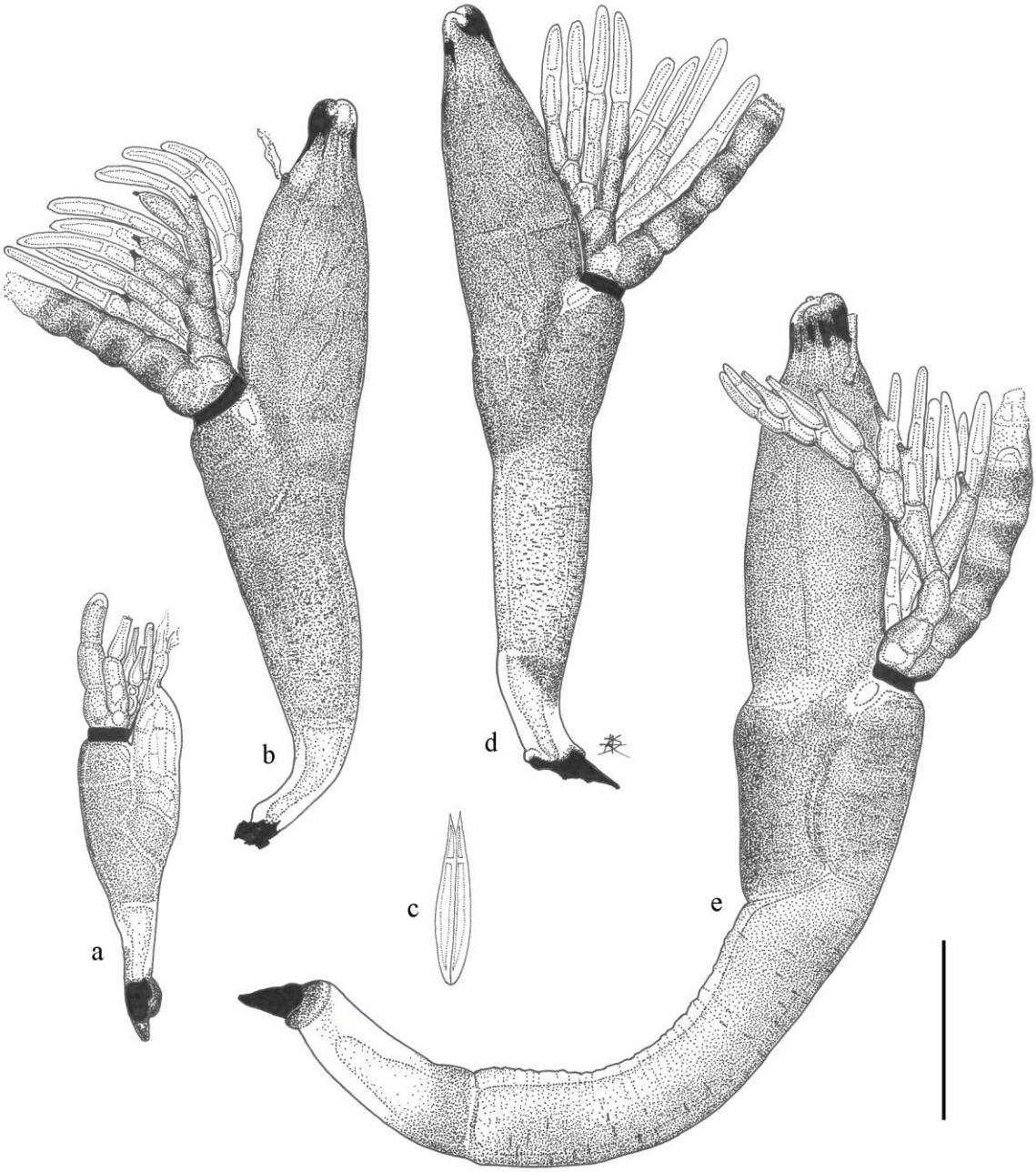

Plate 44. a-e. ***Laboulbenia metableti*** Scheloske from *Syntomus foveatus* (Geoffroy, 1785), with: **a.** juvenile thallus with trichogyne (CG146b); **b.** mature thallus showing typically branched inner appendage (CG146b); **c.** ascospores (CG146b); **d.** mature thallus with mottled lower receptaculum and dark spotted margin of outer appendage (CG146a); **e.** elongated mature thallus showing mottled receptacular cells and simple antheridia formed on each cell of the inner appendage (CG149a). Scale bar = 50 µm.

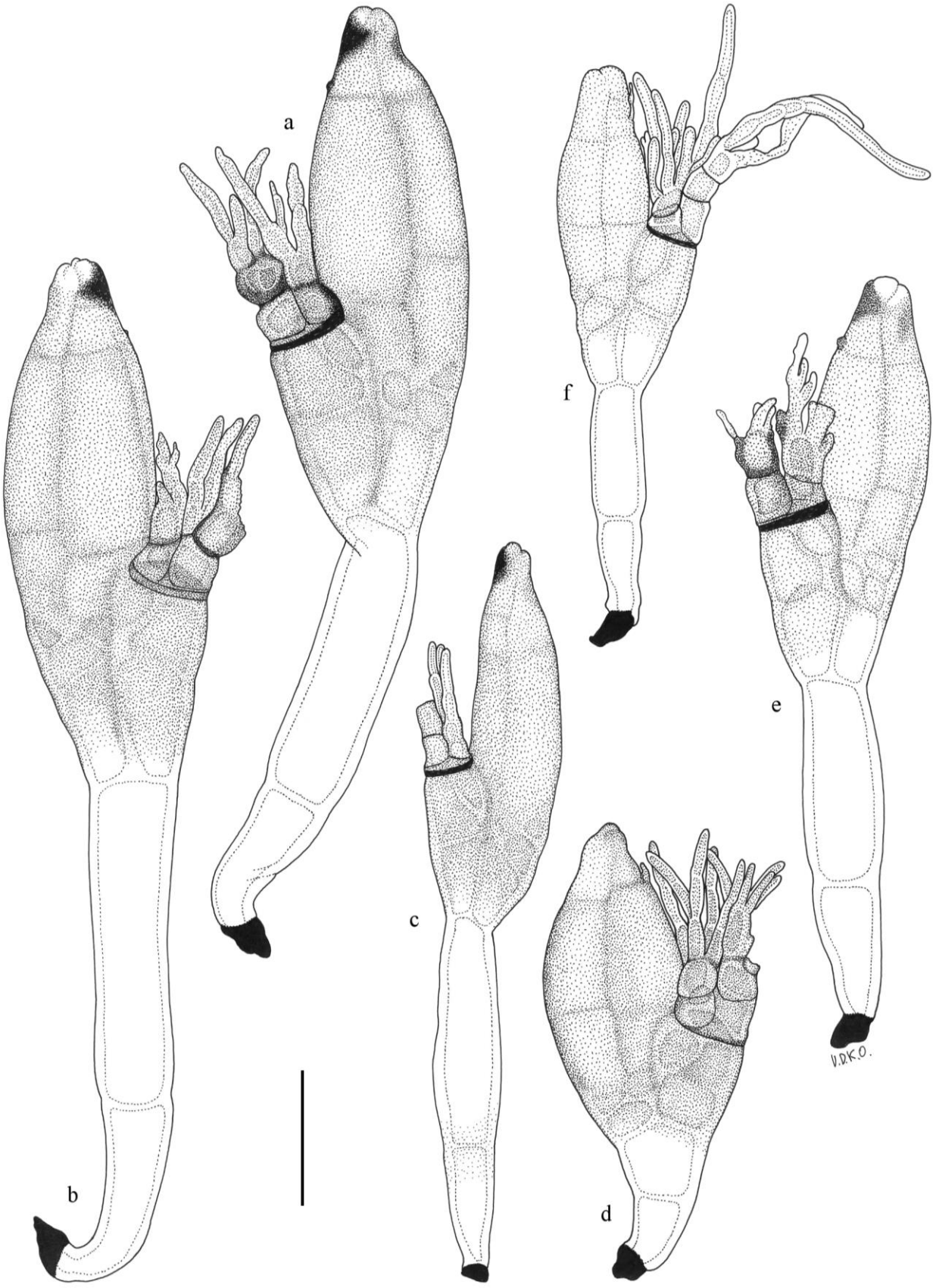

Plate 45. a-f. *Laboulbenia murmanica* Huldén from *Bembidion assimile* Gyllenhall, 1810, with: **a.** mature thallus (ADK1670c, from femur); **b.** mature thallus, slender form with faintly pigmented insertion cell (ADK1670a, from mesothorax); **c.** mature thallus with broken appendage but typical receptaculum (ADK1663a, from pronotum); **d.** mature thallus, stout form with typical appendages (ADK1661a, from tarsi); **e.** mature thallus (ADK1670a, from mesothorax); **f.** submature thallus with intact appendages (ADK1658, from prothorax). Scale bar = 50 µm.

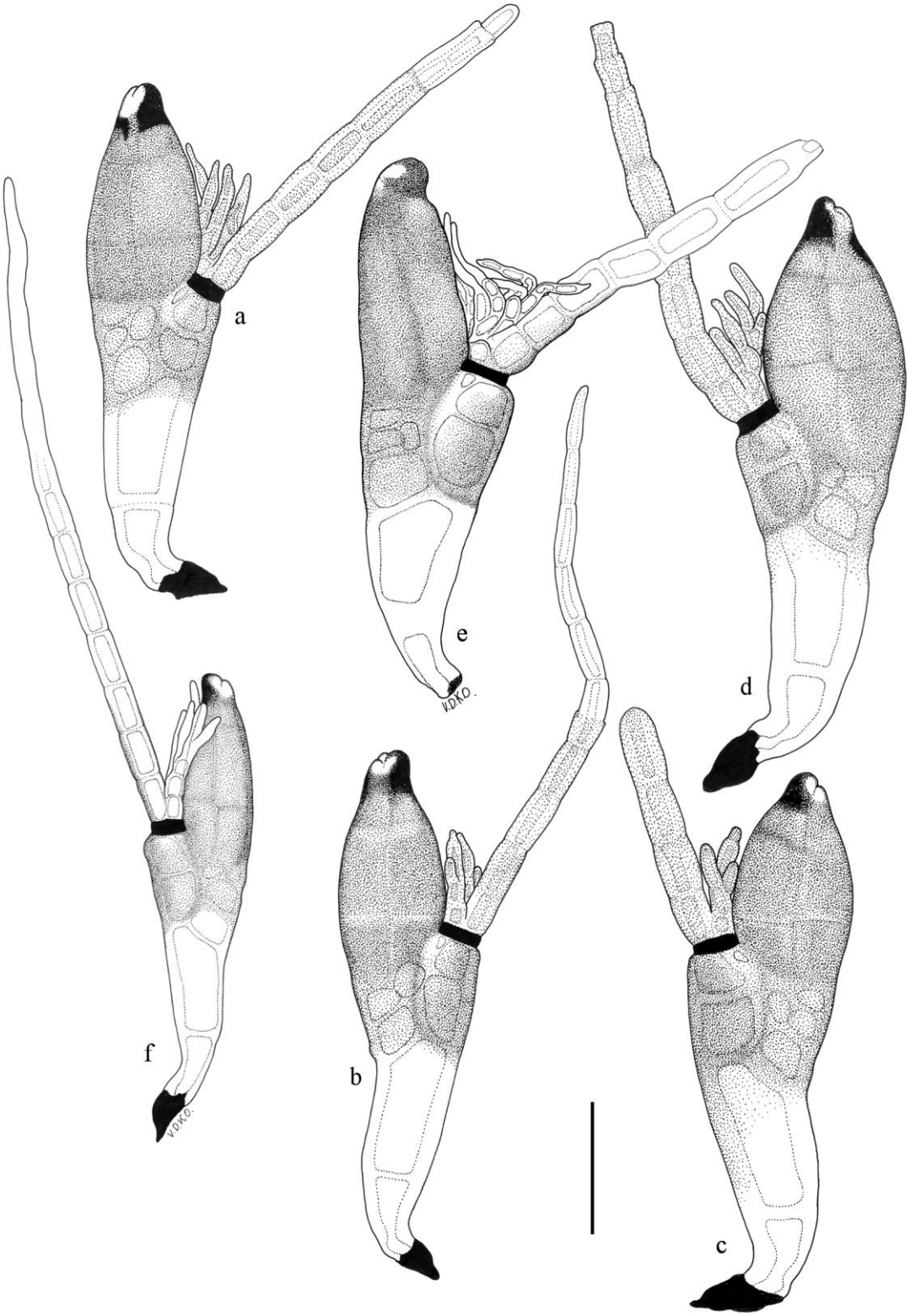

Plate 46. a-f. *Laboulbenia notiophili* Cépède & F. Picard, with: a-b-c. mature thalli from *Notiophilus biguttatus* (Fabricius, 1779) (JR5053bIII, from elytra); d. mature thallus from *Notiophilus rufipes* Curtis, 1829 (JR5071, from elytron); e. mature thallus from *Demetrias imperialis* (Germar, 1824) (ADK334, from elytron); f. mature thallus from *Paradromius linearis* (Olivier, 1795) (L267, from elytron). Scale bar = 50 µm.

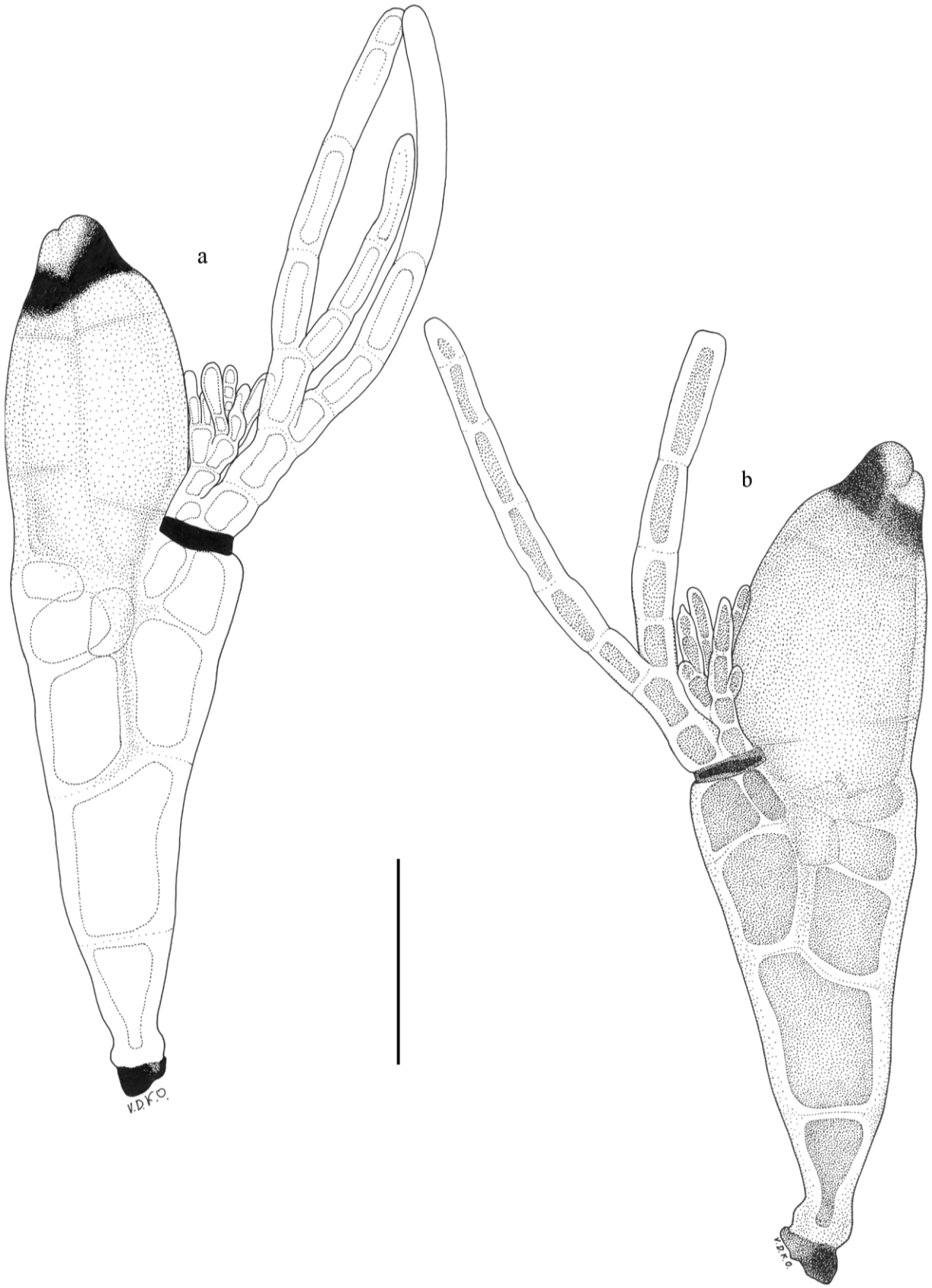

Plate 47. a-b. *Laboulbenia ophoni* Thaxt. from *Harpalus rubripes* (Duftschmid, 1812), with: a. mature thallus with double forked outer appendage (ADK323b, from elytron); b. mature thallus with typical appendage (ADK323b, from elytron). Scale bar = 50 µm.

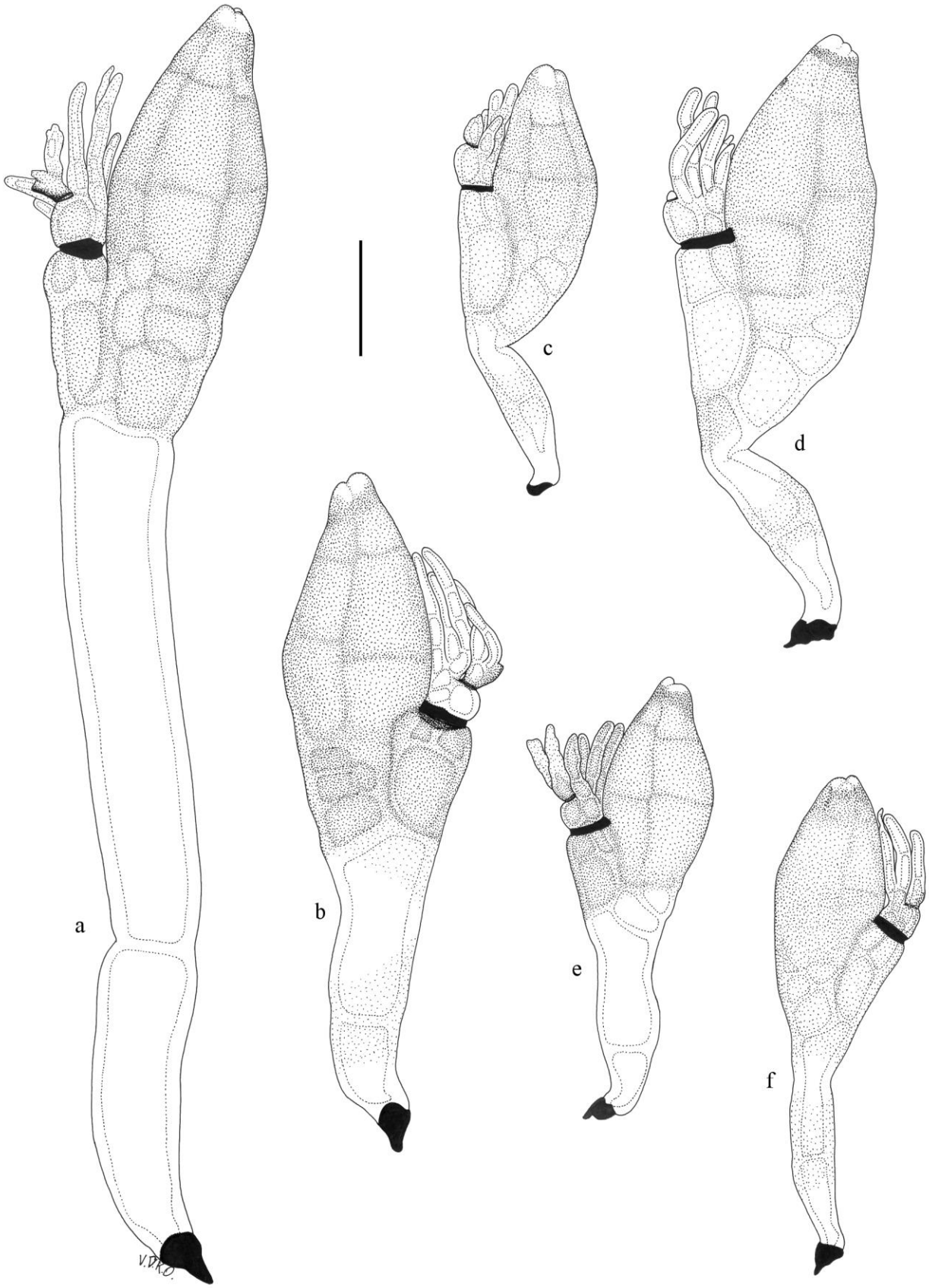

Plate 48. a-f. *Laboulbenia pedicellata* Thaxt. *s.l.*, with: **a.** mature and slender thallus from *Bembidion aeneum* Germar, 1824, (JR5060cl, from femur of front legs); **b.** mature, normal thallus from *B. aeneum* (JR5060a, from pronotum); **c.** mature thallus from *Bembidion normannum* Dejean, 1831, with kinked cell II (ADK329a, from elytron); **d.** mature thallus from *Bembidion varium* (Olivier, 1795), with kinked cell II (ADK324b, from elytron); **e.** mature thallus from *Bembidion gilvipes* Sturm, 1825, (ADK530, from mesothorax); **f.** mature thallus from *Dyschirius tristis* Stephens, 1827, (ADK557a, from mesothorax). Scale bar = 50 µm.

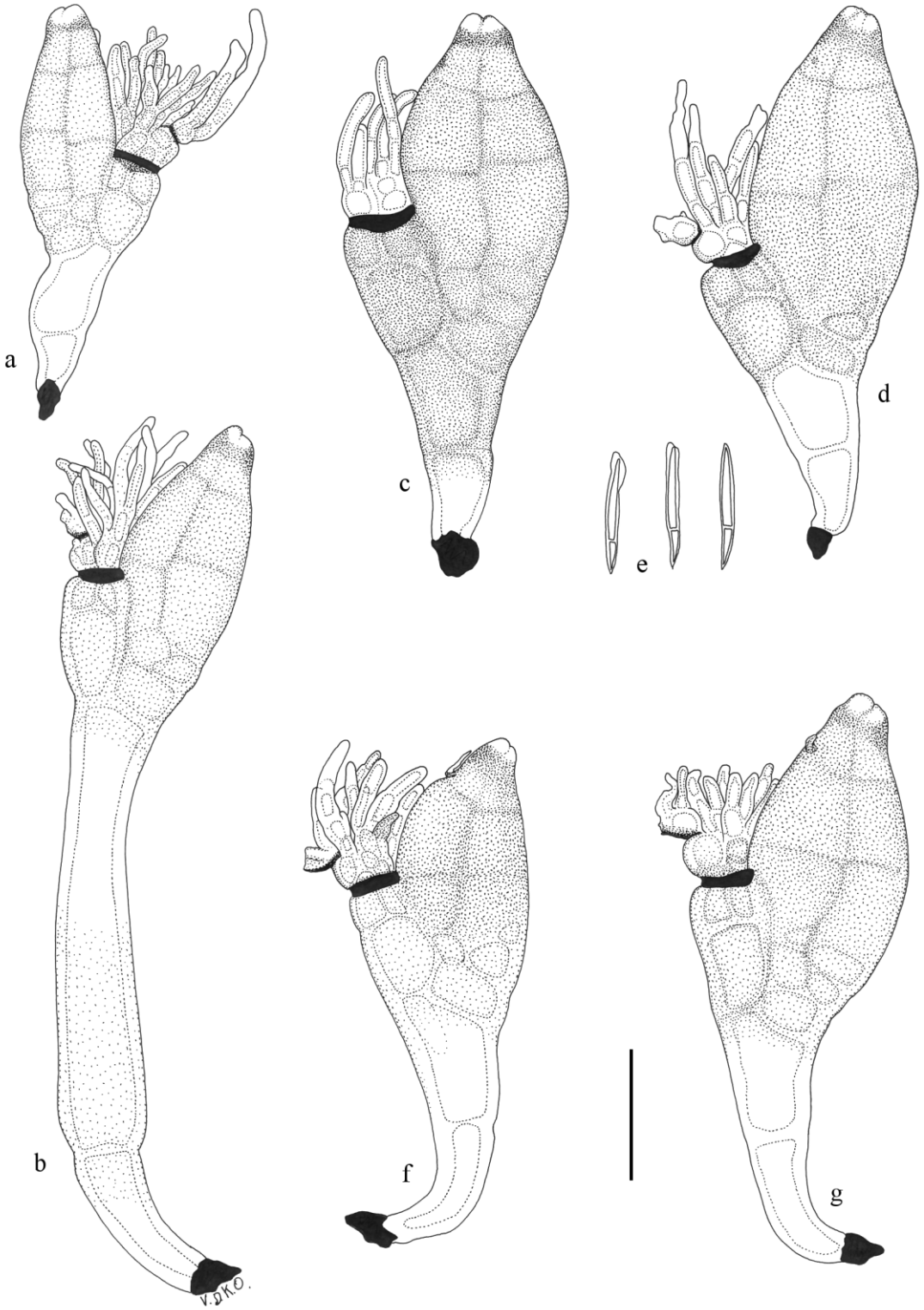

Plate 49. a-g. *Laboulbenia pedicellata* Thaxt. *s.l.*, with: **a.** mature, small thallus from *Bembidion minimum* (Fabricius, 1792), (JR5065b, from elytron); **b.** mature, long thallus from *B. minimum* (ADK904, from femur of middle legs); **c.** mature, compact and darkened thallus from *Bembidion lunulatum* (Fourcroy, 1785), (ADK287, from tarsi); **d.** mature thallus from *Bembidion guttula* (Fabricius, 1792), (ADK531, from prothorax); **e.** ascospores (ADK531); **f.** mature thallus from *Bembidion quadrimaculatum* (Linnaeus, 1761), (ADK533, from elytron); **g.** mature thallus from *Bembidion obtusum* Audinet-Serville, 1821, (ADK539, from prothorax). Scale bar = 50 µm.

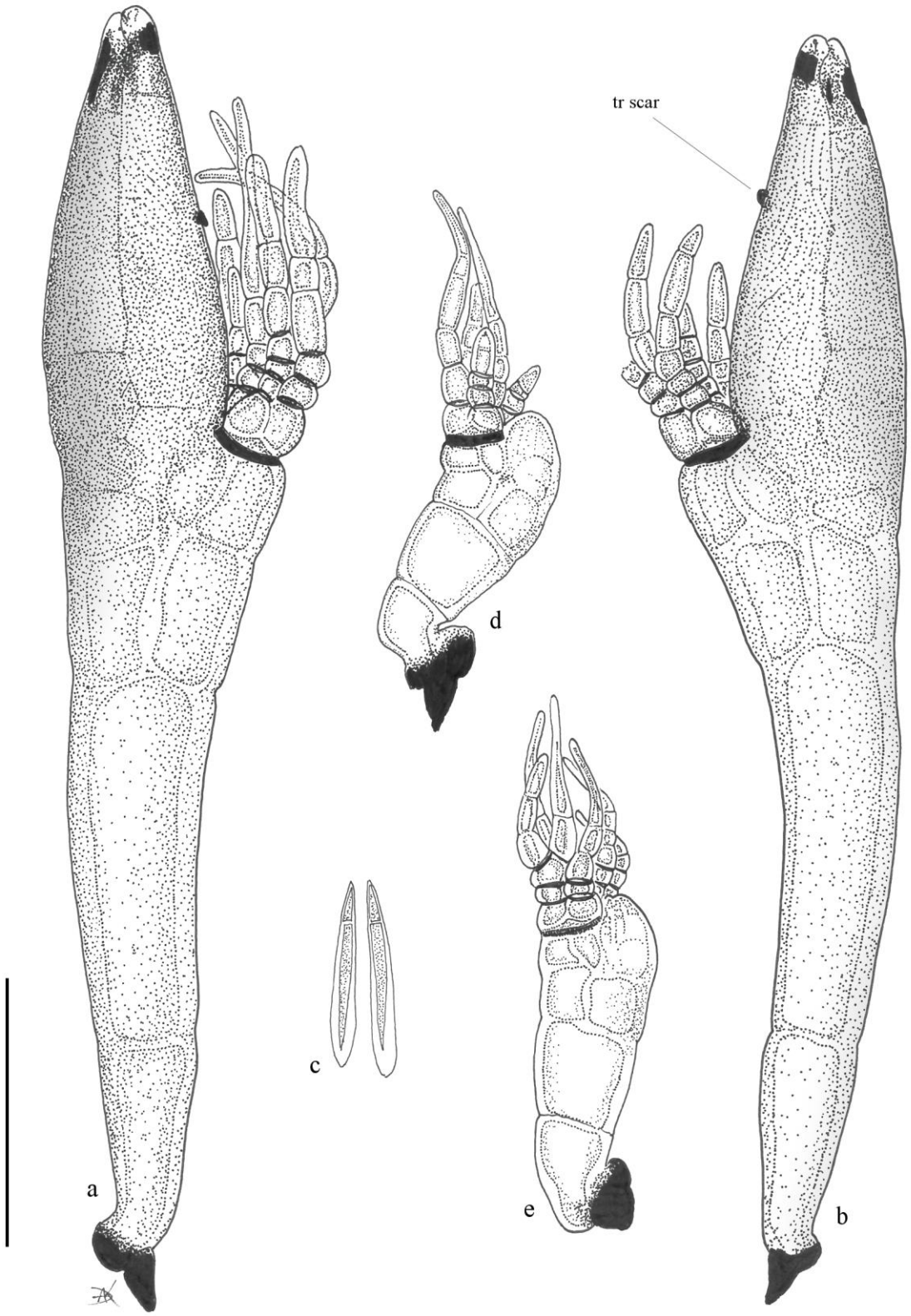

Plate 50. a-e. ***Laboulbenia philonthi*** Thaxt., with: a-b. mature thalli from *Philonthus rubripennis* Stephens, 1832, with remains of the trichogyne (tr scar) (ADK6450, from left elytron); c. ascospores (ADK6450); d-e. juvenile thalli from *Philonthus* sp. (CG268, from abdominal tergites). Scale bar = 50 µm.

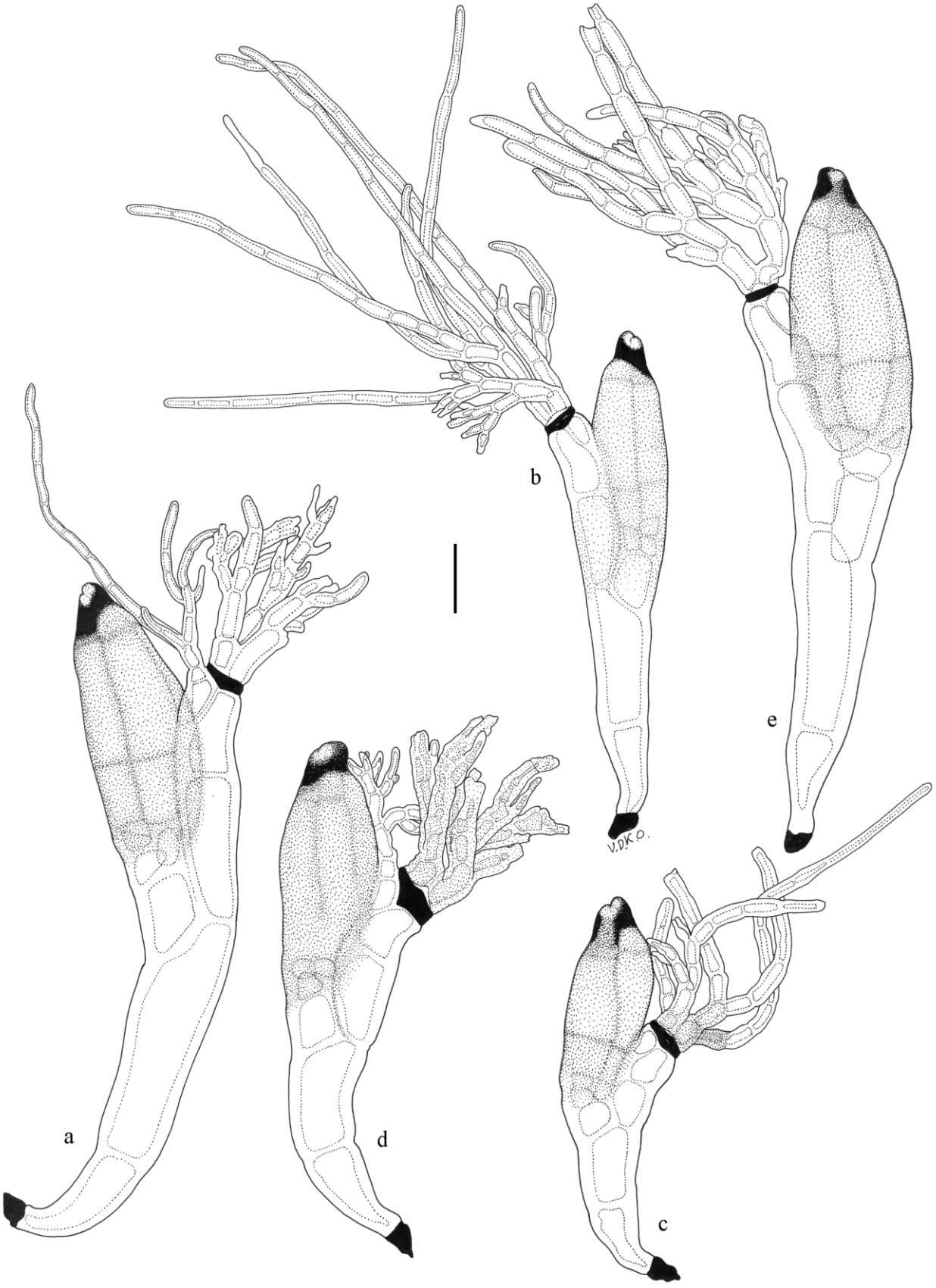

Plate 51. a-e. *Laboulbenia pseudomasei* Thaxt., with: **a.** mature thallus from *Pterostichus minor* (Gyllenhal, 1827), with proliferated cell V (ADK984c, from coxa of hind legs); **b.** mature thallus from *P. minor* with intact appendage (ADK984a, from elytron); **c.** mature thallus from *Pterostichus anthracinus* (Illiger, 1798), showing stout form with pigmented appendages (ADK549, from elytron); **d.** mature thallus from *Stomis pumicatus* (Panzer, 1796) with proliferated cell V (ADK632a, legs); **e.** mature thallus from *Loricera pilicornis* (Fabricius, 1775), (ADK631, from elytron). Scale bar = 50 µm.

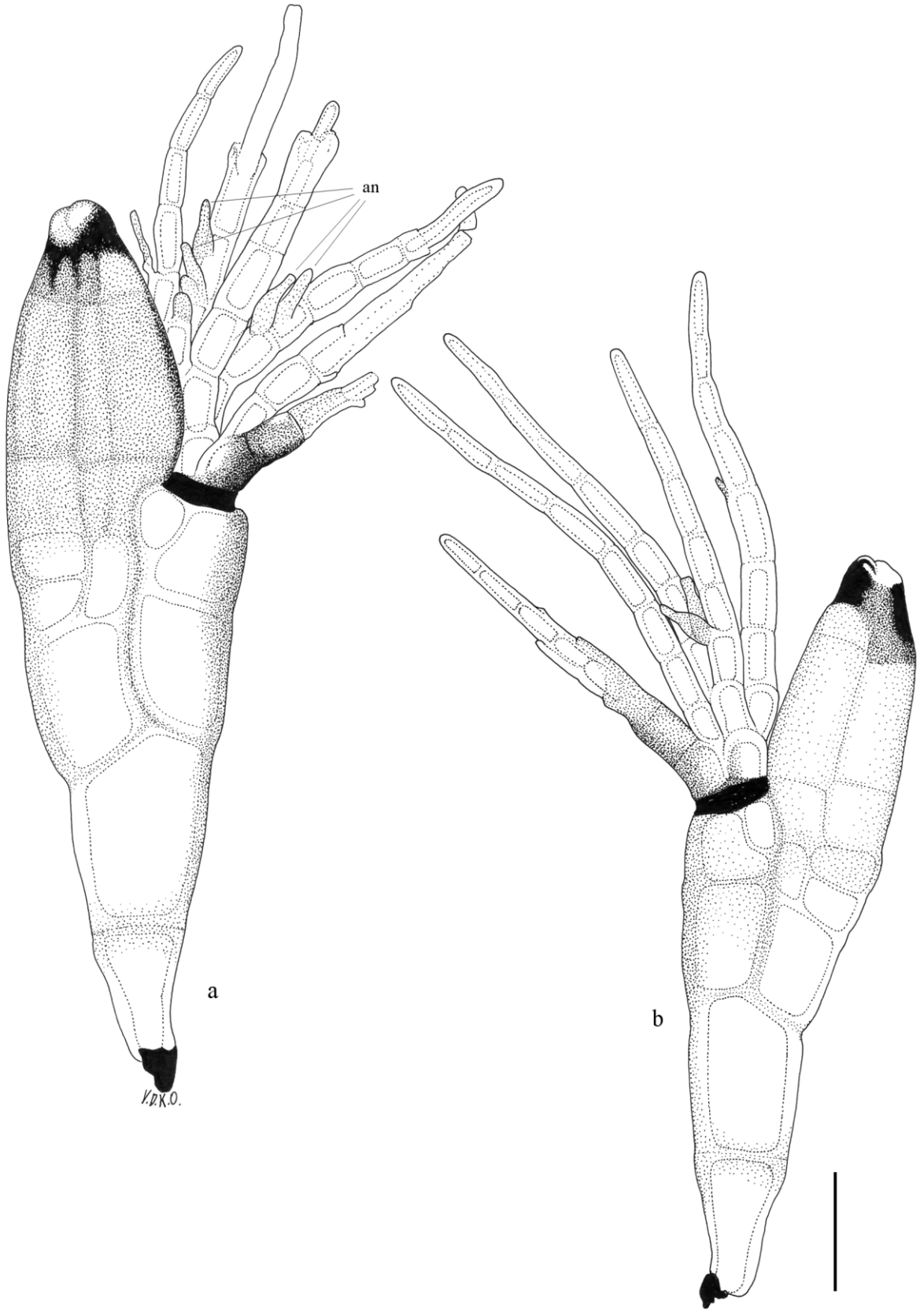

Plate 52. a-b. ***Laboulbenia rougetii*** Mont. & C.P. Robin from *Brachinus crepitans* (Linnaeus, 1758), with: **a.** mature thallus from elytron, with damaged and regenerated appendage (L17a); **b.** mature thallus with intact appendage system (L17a: ibidem). Scale bar = 50 µm.

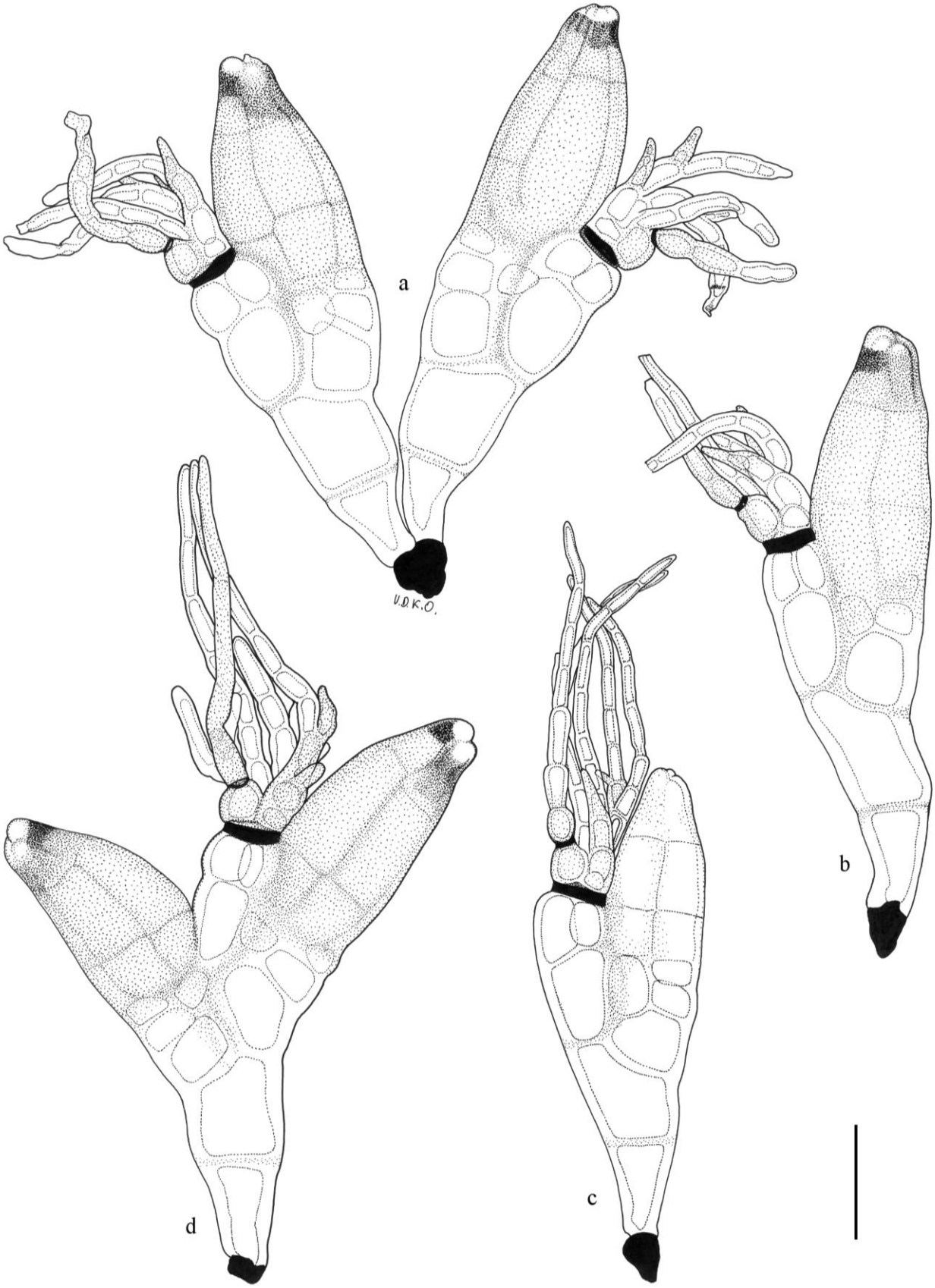

Plate 53. a-d. *Laboulbenia slackensis* Cépède & F. Picard from *Pogonus chalceus* (Marsham, 1802), with: a. mature pair of thalli from elytron (ADK953); b. mature thallus from pronotum (ADK279); c. mature thallus from thorax, with strongly developed appendages and still immature perithecium (ADK853); d. teratological thallus showing a second perithecium on cell II and normally developed appendages (ADK685, from pronotum). Scale bar = 50 µm.

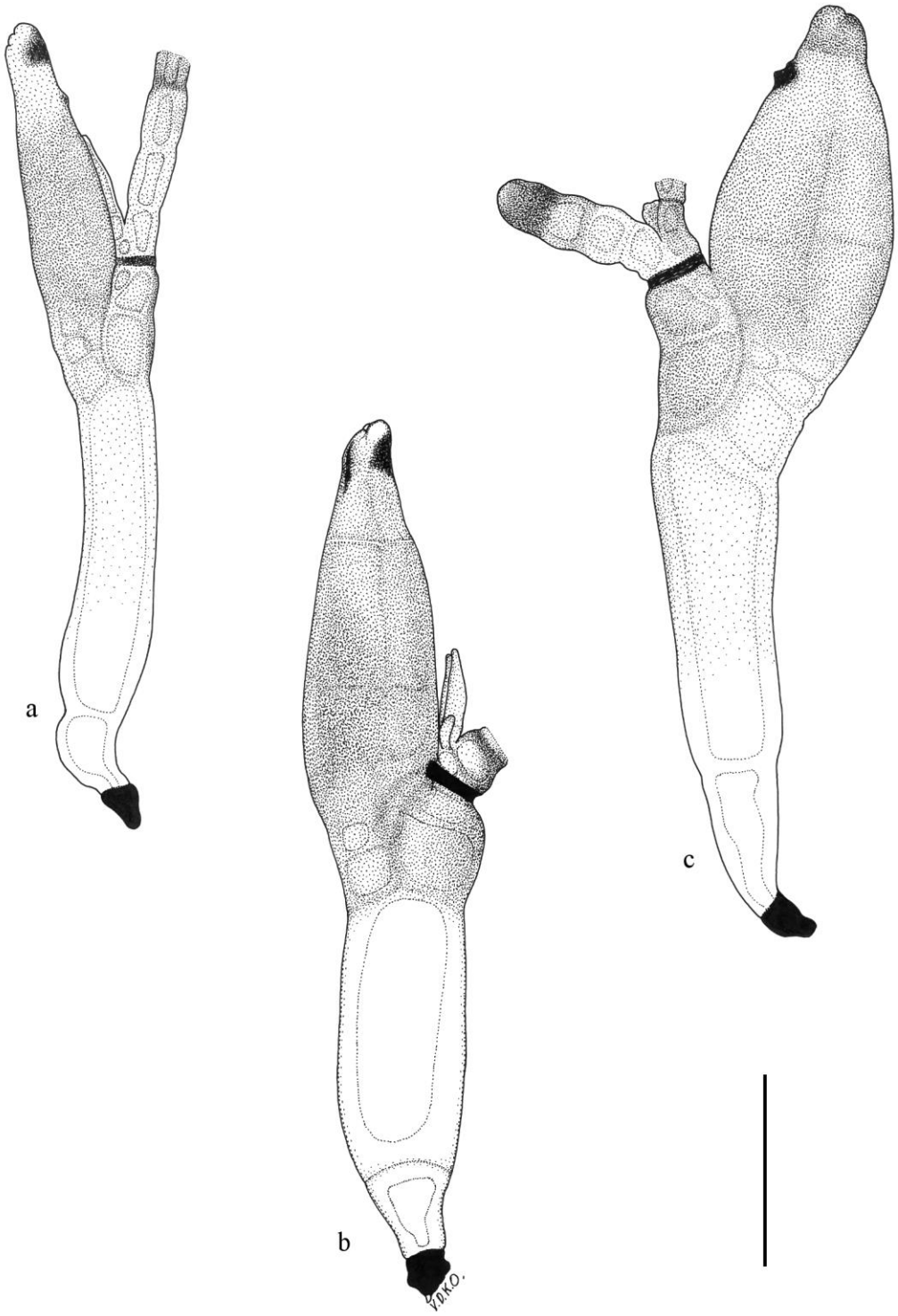

Plate 54. a-c. *Laboulbenia stilicicola* Speg., with: a. mature thallus from *Rugilus rufipes* Germar, 1836, with intact inner and broken outer appendage (ADK1680a, from prothorax); b. mature thallus from mesothorax of *R. rufipes* (ADK1680c); c. mature thallus from *Rugilus orbiculatus* (Paykull, 1789), with exceptionally free insertion cell (ADK341b, lower rim of elytron). Scale bar = 50 µm.

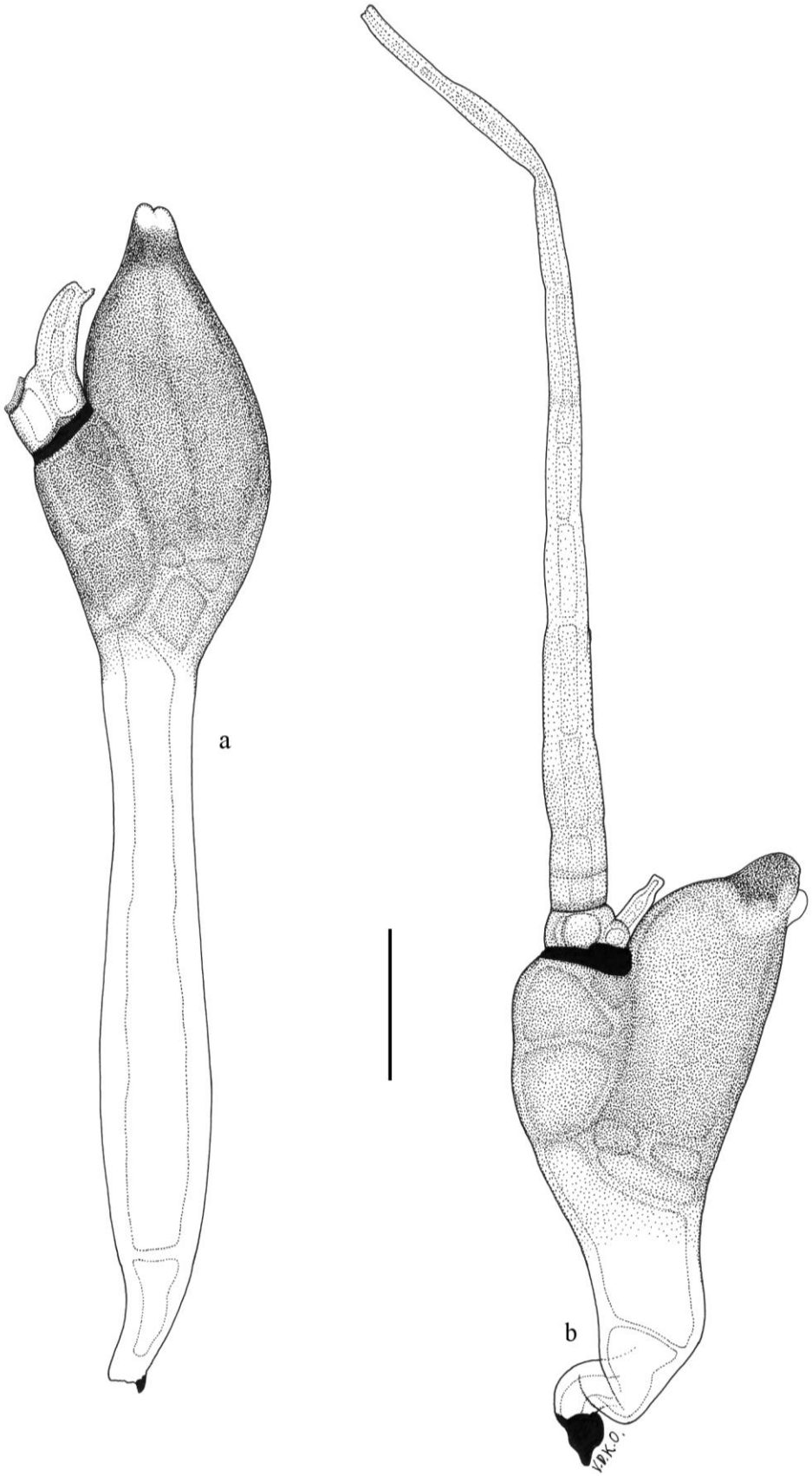

Plate 55. a-b. *Laboulbenia thaxteri* Cépède & F. Picard from *Asaphidion flavipes* (Linnaeus, 1761), with: a. mature thallus, slender form from prosternum (ADK696); b. mature thallus, stout form with flattened cell VI (ADK638, from pronotum). Scale bar = 50 µm.

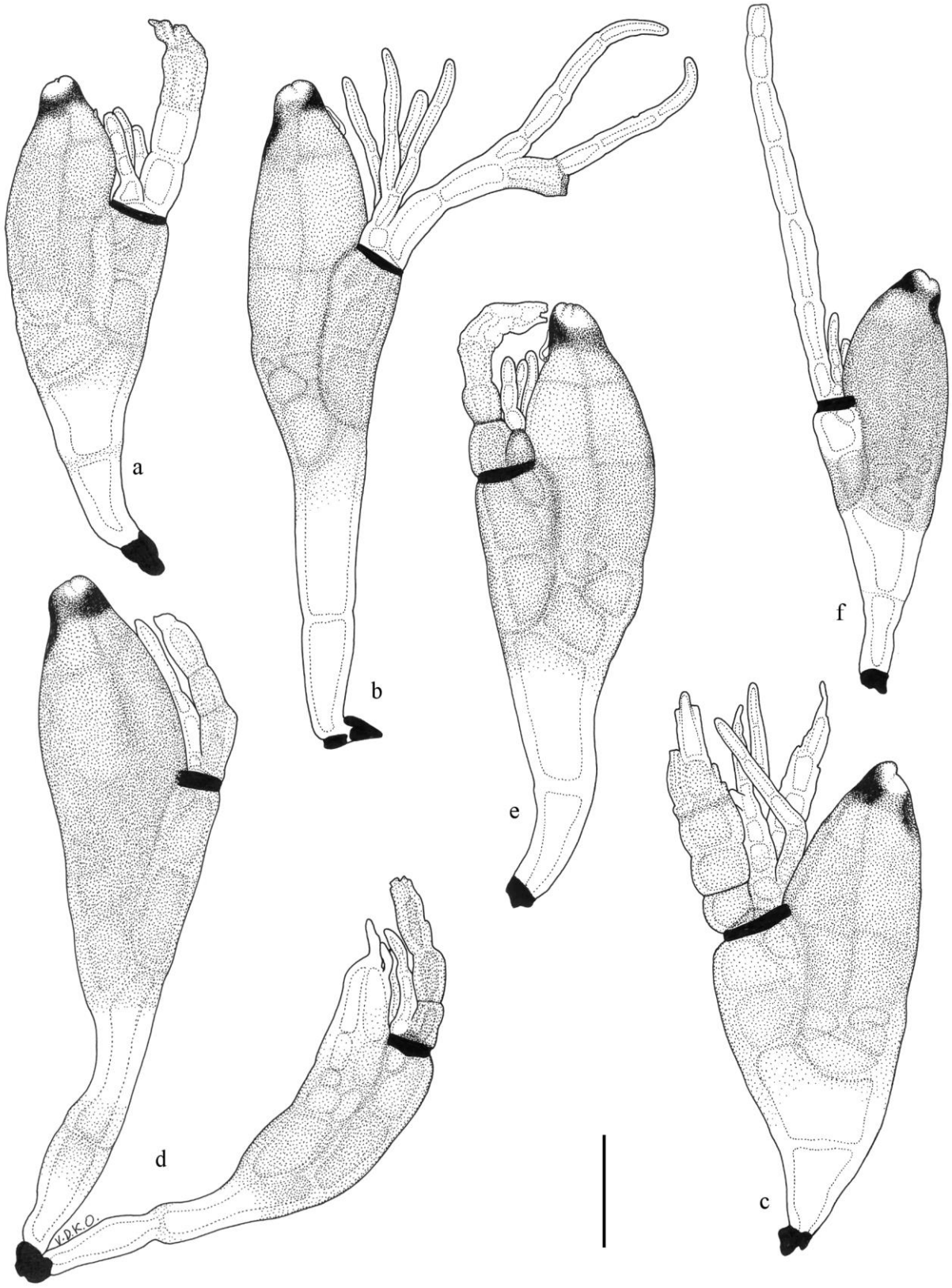

Plate 56. a-f. ***Laboulbenia vulgaris*** Peyr. *s.l.*, with: **a.** mature thallus from *Ocys harpaloides* (Audinet-Serville, 1821), with damaged outer appendage (ADK943b, from elytron); **b.** mature thallus from *Bembidion dentellum* (Thunberg, 1787) with branched outer appendage (ADK974b, from prosternum); **c.** mature thallus from abdomen of *Bembidion biguttatum* (Fabricius, 1779), stout form with relatively broad basal cells of the outer appendage (ADK525b); **d.** pair of thalli from *Bembidion mannerheimi* C.R. Sahlberg, 1827, with slightly constricted cell II (ADK306, from elytron); **e.** mature thallus from *Bembidion tetracolum* Say, 1823, with typical morphology (ADK540, from pronotum); **f.** mature thallus from *Trechus rubens* (Fabricius, 1792), with unpigmented cells IV-V, unusual outer appendage (ADK297, elytron). Scale bar = 50 µm.

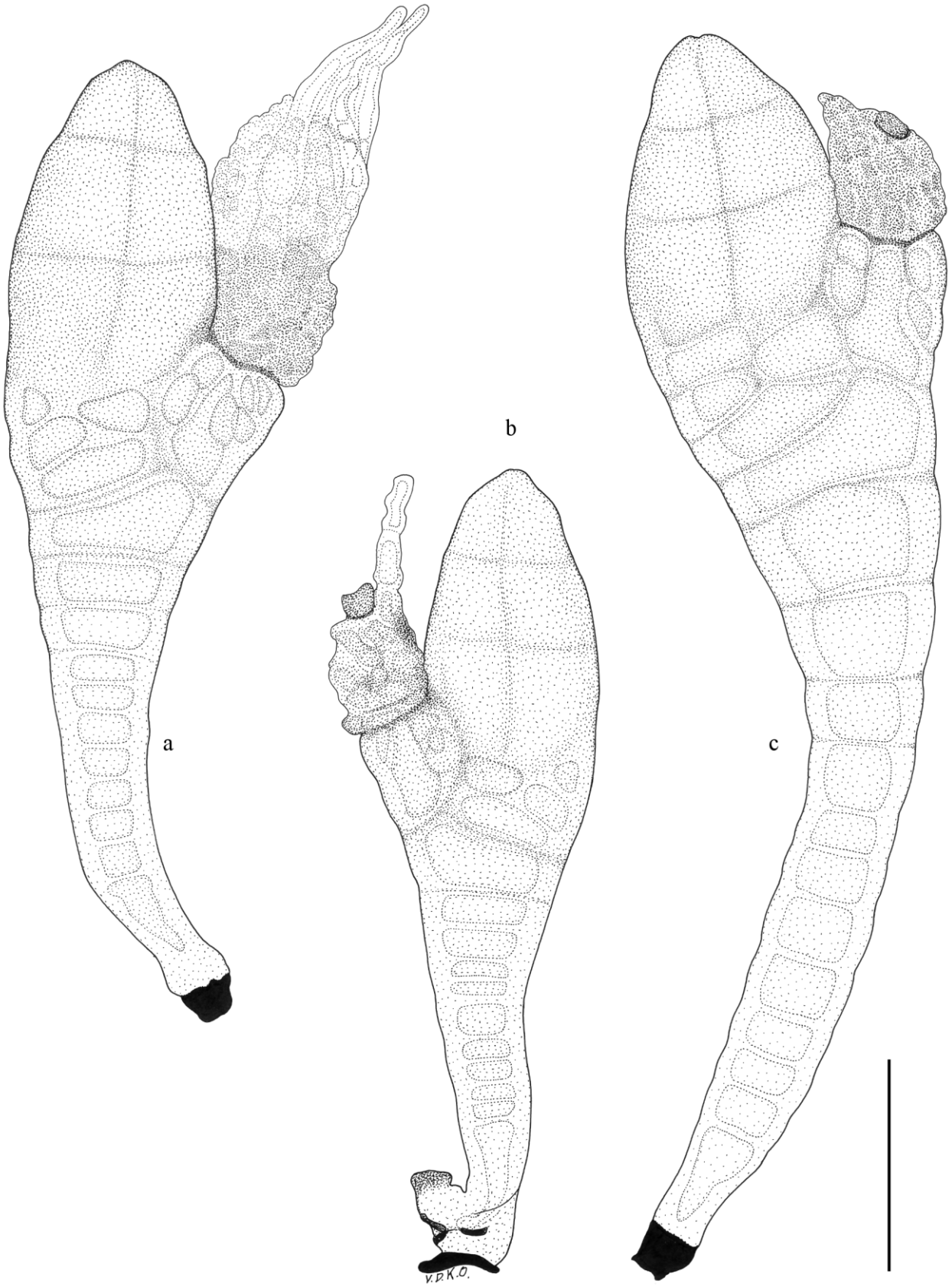

Plate 57. a-c. *Misgomyces dyschirii* Thaxt., with: a-b. mature thalli from *Dyschirius nitidus* (Dejean, 1825) (material from The Netherlands, ADK322a, elytron); c. mature thallus from *Dyschirius tristis* Stephens, 1827, (ADK557b, from mesosternum). Scale bar = 50 µm.

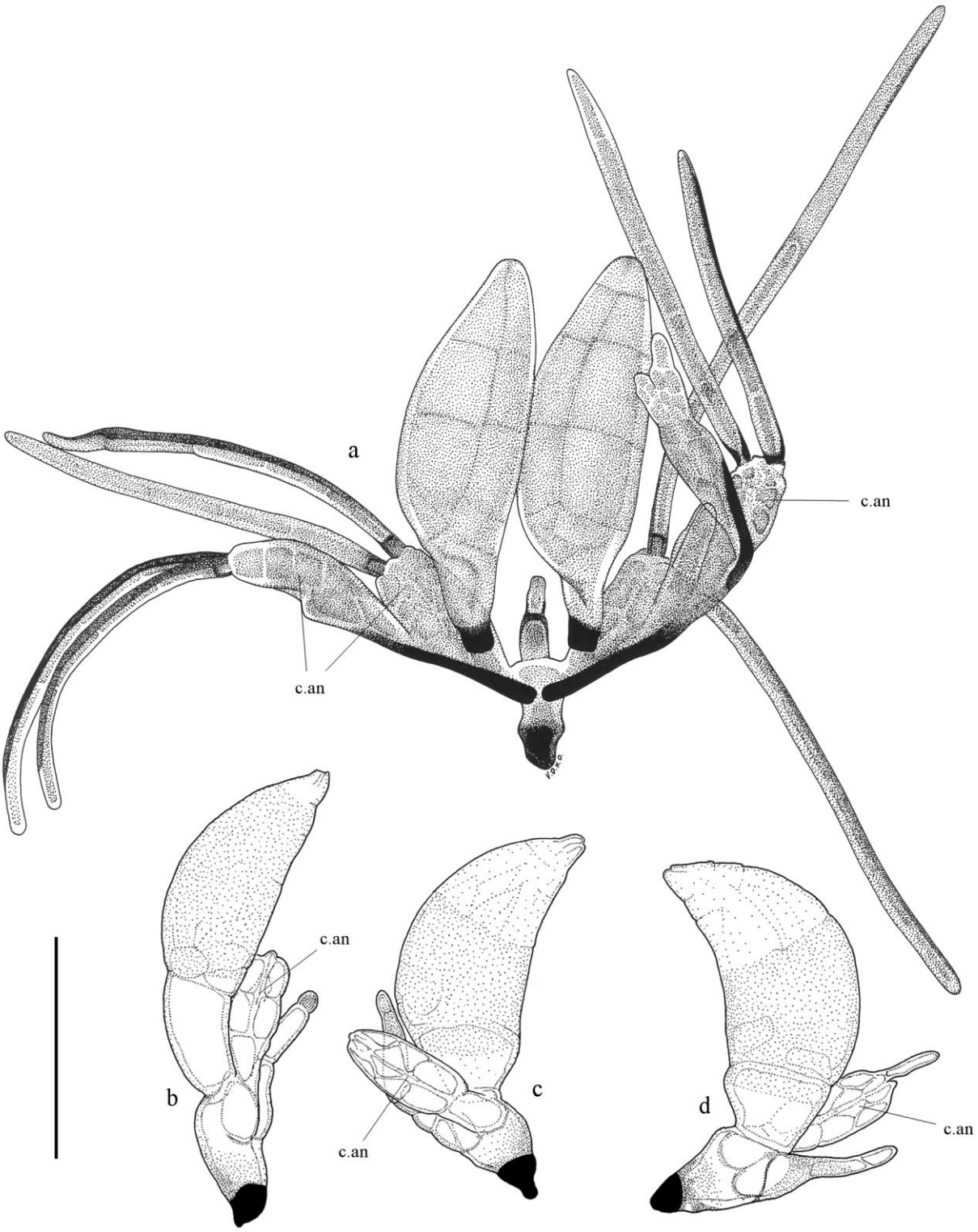

Plate 58. a. *Monoicomyces bolitocharae* T. Majewski from *Bolitochara obliqua* Erichson, 1837, mature and intact thallus from last abdominal tergite (ADK512); b-d. *Monoicomyces matthiatis* T. Majewski from *Platystethus arenarius* (Fourcroy, 1785), with: b. mature thallus from edge of last abdominal tergite (ADK4743); c-d. mature thalli from last abdominal tergite (ADK4741). Scale bar = 50 µm.

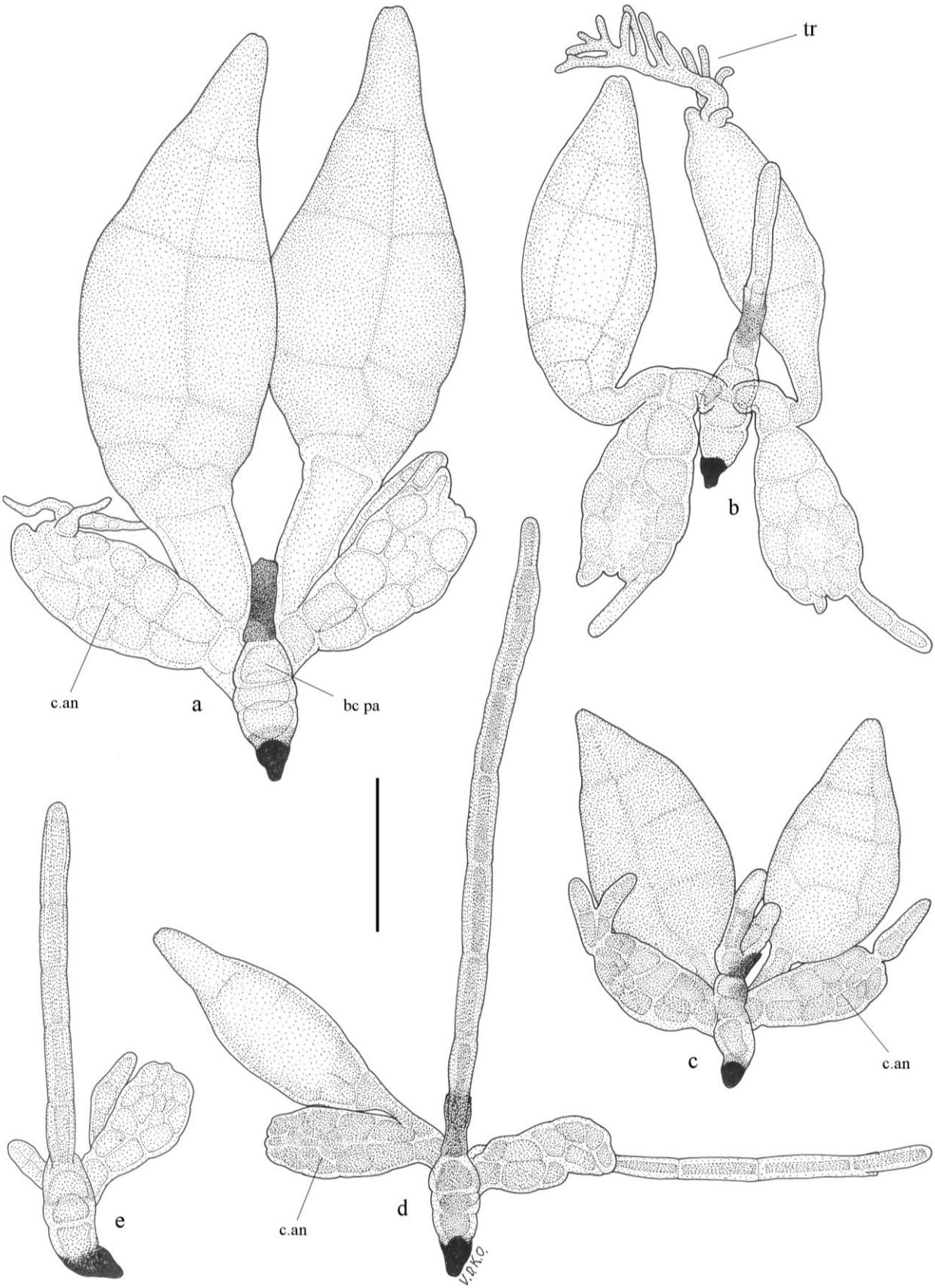

Plate 59. a-e. *Monoicomyces britannicus* Thaxt., with: a. mature thallus from *Atheta* (*Mocyta*) *fungi* (Gravenhorst, 1806), (ADK353, from abdomen); b. semi-mature thallus from *A. fungi* with antler-shaped trichogyne (ADK1675, from abdominal tergite); c. mature thallus from *Atheta sp*. with relatively short cell VI (ADK999b, abdominal tergite); d-e. juvenile thalli from *Atheta* (*Mocyta*) *orbata* (Erichson, 1837) with intact prim. appendage (ADK1677, from abdomen). Scale bar = 50 µm.

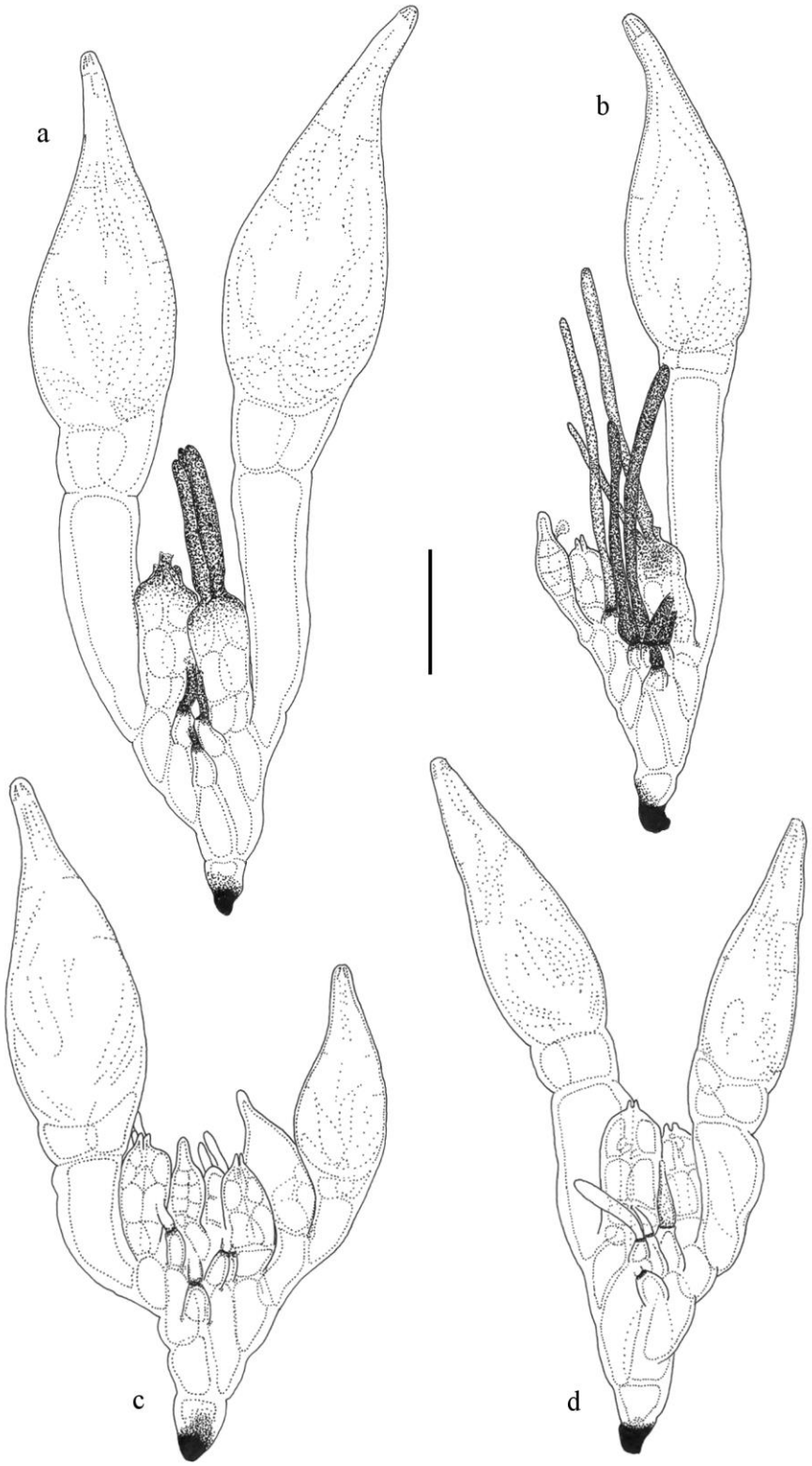

Plate 60. a-b. *Monoicomyces californicus* Thaxt. from *Anotylus sculpturatus* (Gravenhorst, 1806), with: **a.** mature thallus, symmetrical, antheridia with dark pigmented proliferations (ADK397, from legs); **b.** mature thallus, asymmetrical, with intact secondary appendages (ADK399, from legs). **c-d.** *Monoicomyces invisibilis* Thaxt., with: **c.** mature thallus from *A. sculpturatus*, with several antheridia per secondary axis, antheridia without proliferations (ADK343b, from cephalon); **d.** mature thallus from *Oxytelus laqueatus* (Marsham, 1802), (ADK515a, from abdomen). Scale bar = 50 µm.

Plate 61. a-b. *Monoicomyces fragilis* Scheloske from *Ocalea picata* (Stephens, 1832), with: a. mature thallus showing four secondary axes and nearly intact primary appendage (ADK395a, from abdomen); b. mature thallus showing antheridia with extremely long and pigmented proliferations (ADK395b, from abdomen). Scale bar = 50 µm.

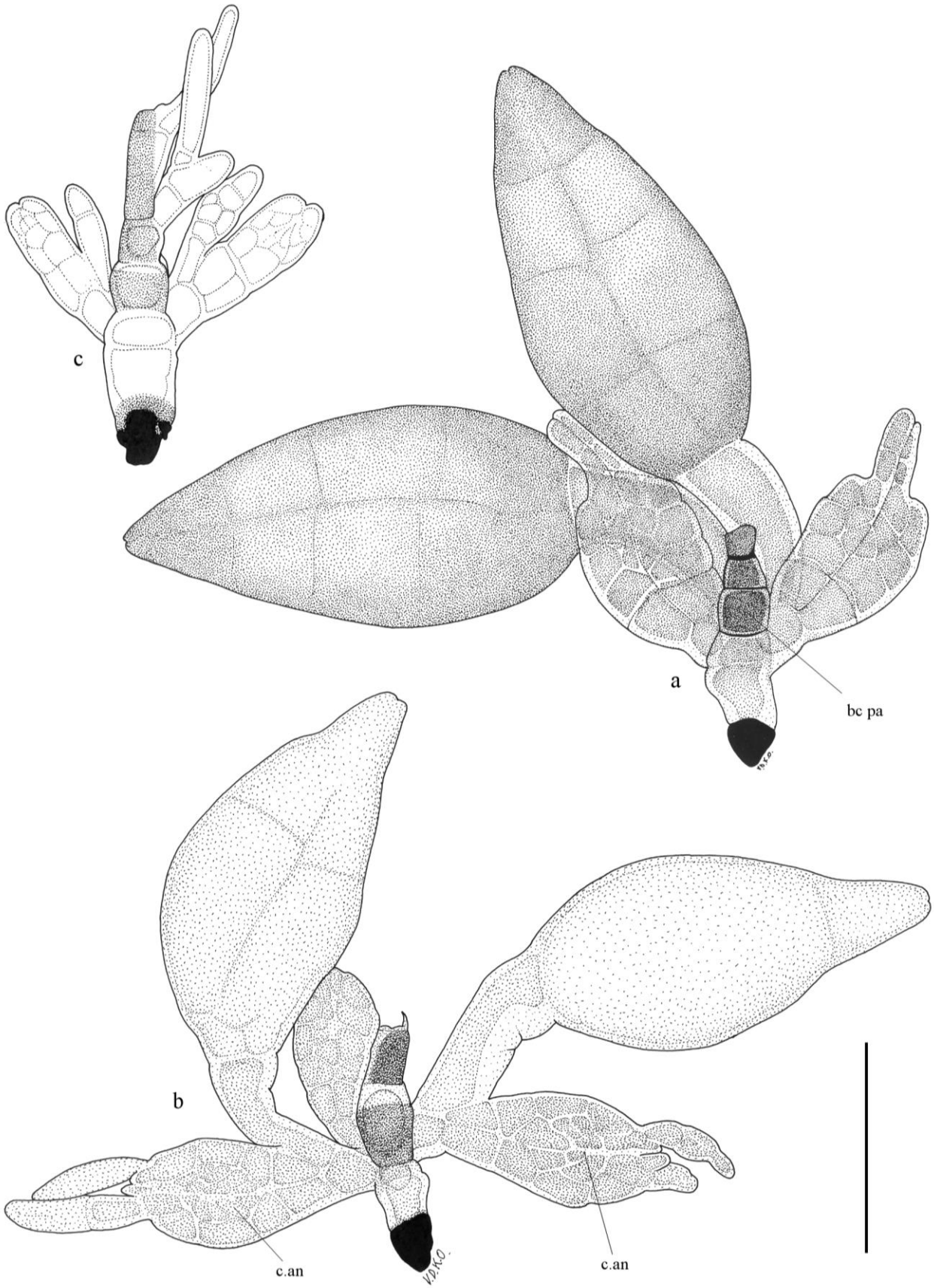

Plate 62. a-c. *Monoicomyces homalotae* Thaxt., with: a. mature thallus from *Atheta* (*Thinobaena*) *vestita* (Gravenhorst, 1806), with broken primary appendage (ADK319a, from abdomen); b. mature thallus from *Atheta triangulum* (Kraatz, 1856), (ADK1676, from tibia); c. juvenile thallus from *Atheta sp*., showing intact and proliferating primary appendage, secondary receptacula form perithecial and antheridial primordia (ADK653, from cephalon). Scale bar = 50 µm.

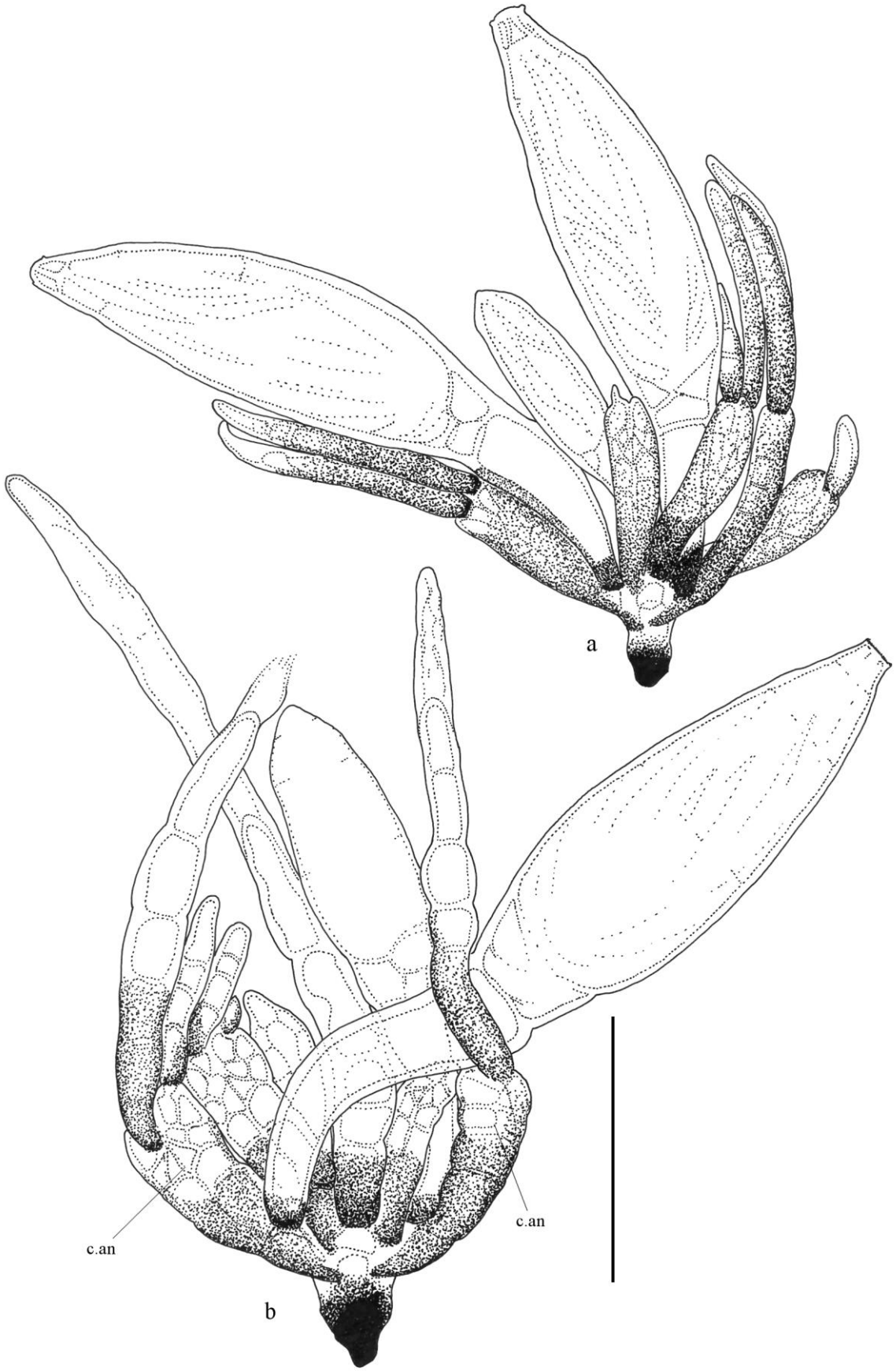

Plate 63. a-b. *Monoicomyces nigrescens* Thaxt., with: a. mature thallus from *Atheta sp*., with slender antheridia (ADK997a, from abdomen); b. mature thallus from *Atheta* (*Actophylla*) *marina* (Mulsant & Rey, 1853), antheridia with robust proliferations (ADK657c, from abdomen). Scale bar = 50 µm.

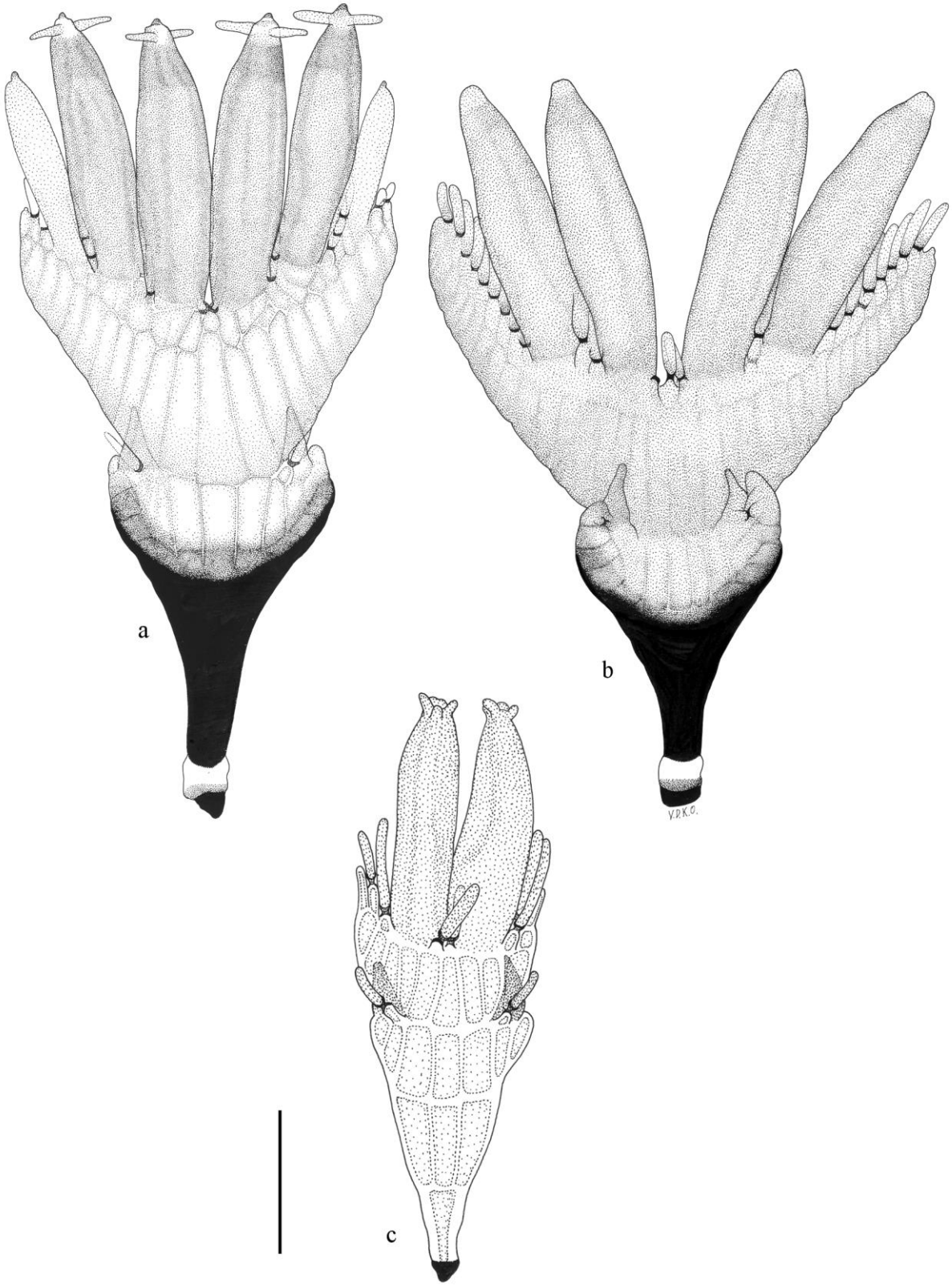

Plate 64. a-b. ***Peyritschiella biformis*** (Thaxt.) I.I. Tav. from *Philonthus umbratilis* (Gravenhorst, 1802), with: **a.** mature thallus with four auriculate perithecia and two developing perithecia (L127b, from elytron); **b.** mature thallus from elytron (L127b); **c.** ***Peyritschiella dubia*** (Thaxt.) I.I. Tav., mature thallus from *Philonthus politus* (Linnaeus, 1758), with auriculate perithecia (L11a, from abdomen). Scale bar = 50 µm.

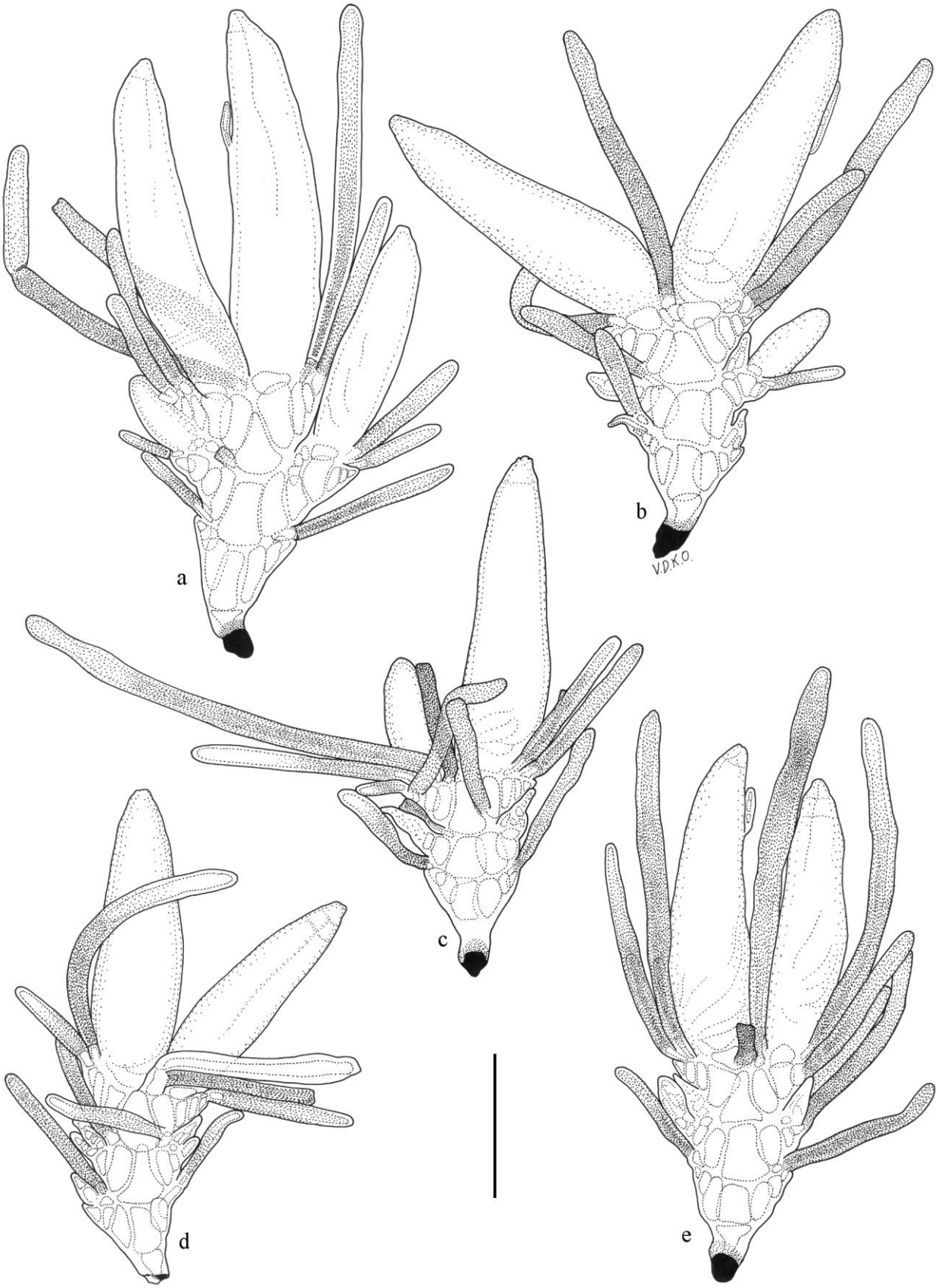

Plate 65. a-e. ***Peyritschiella heinemanniana*** De Kesel from *Xantholinus longiventris* Heer, 1839, with: **a.** mature thallus (ADK648a, the type, from the abdomen); **b-e.** mature thalli from the abdomen (ADK643a). Scale bar = 50 µm.

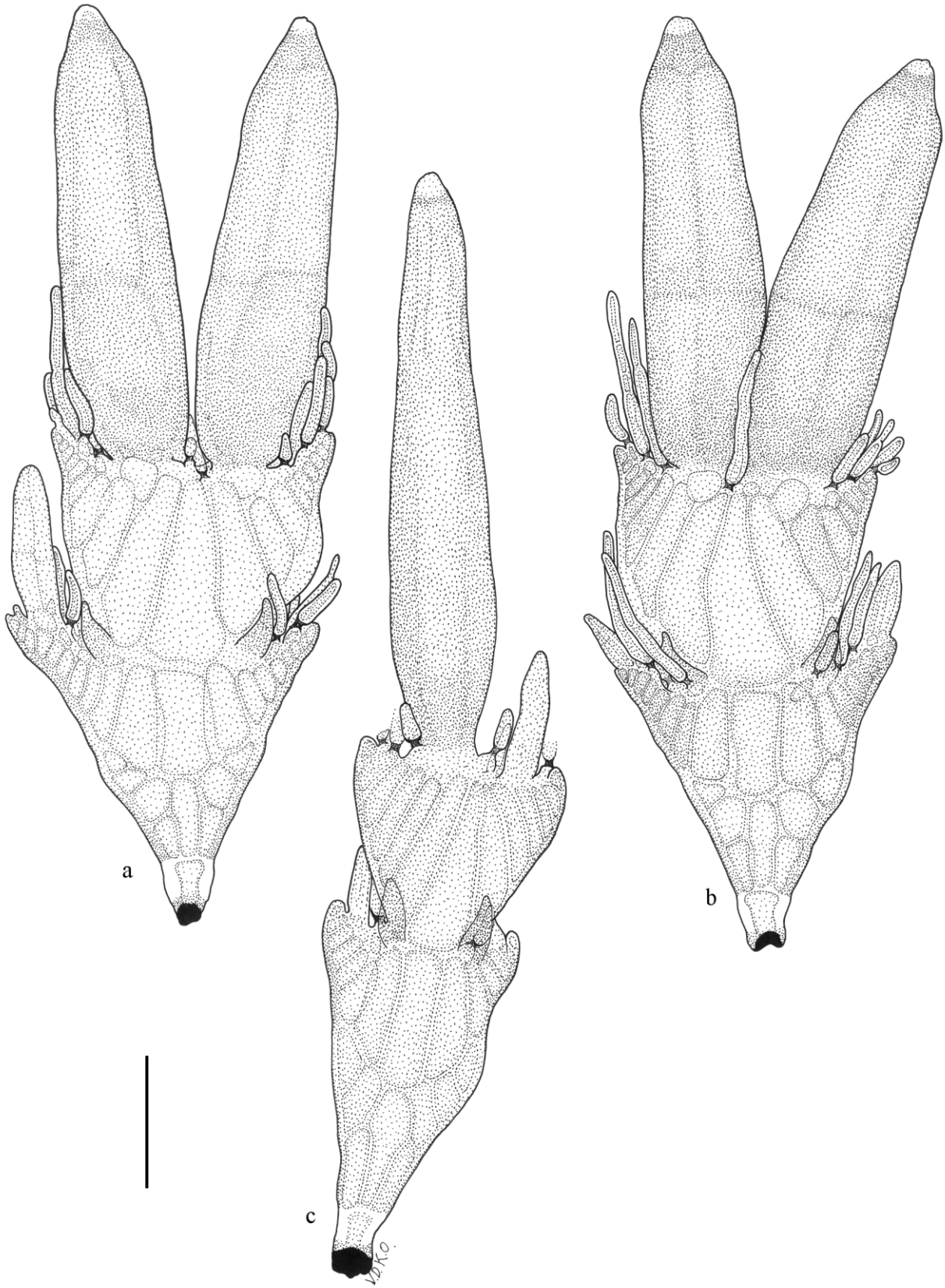

Plate 66. a-c. *Peyritschiella princeps* (Thaxt.) I.I. Tav. a-b. mature thalli from *Bisnius sordidus* (Gravenhorst, 1802), with perithecium primordium on the middle horizontal tier (JR5540, from abdomen); c. mature thallus from *Philonthus politus* (Linnaeus, 1758), showing two perithecia at a different stage of development (L112, from abdomen). Scale bar = 50 µm.

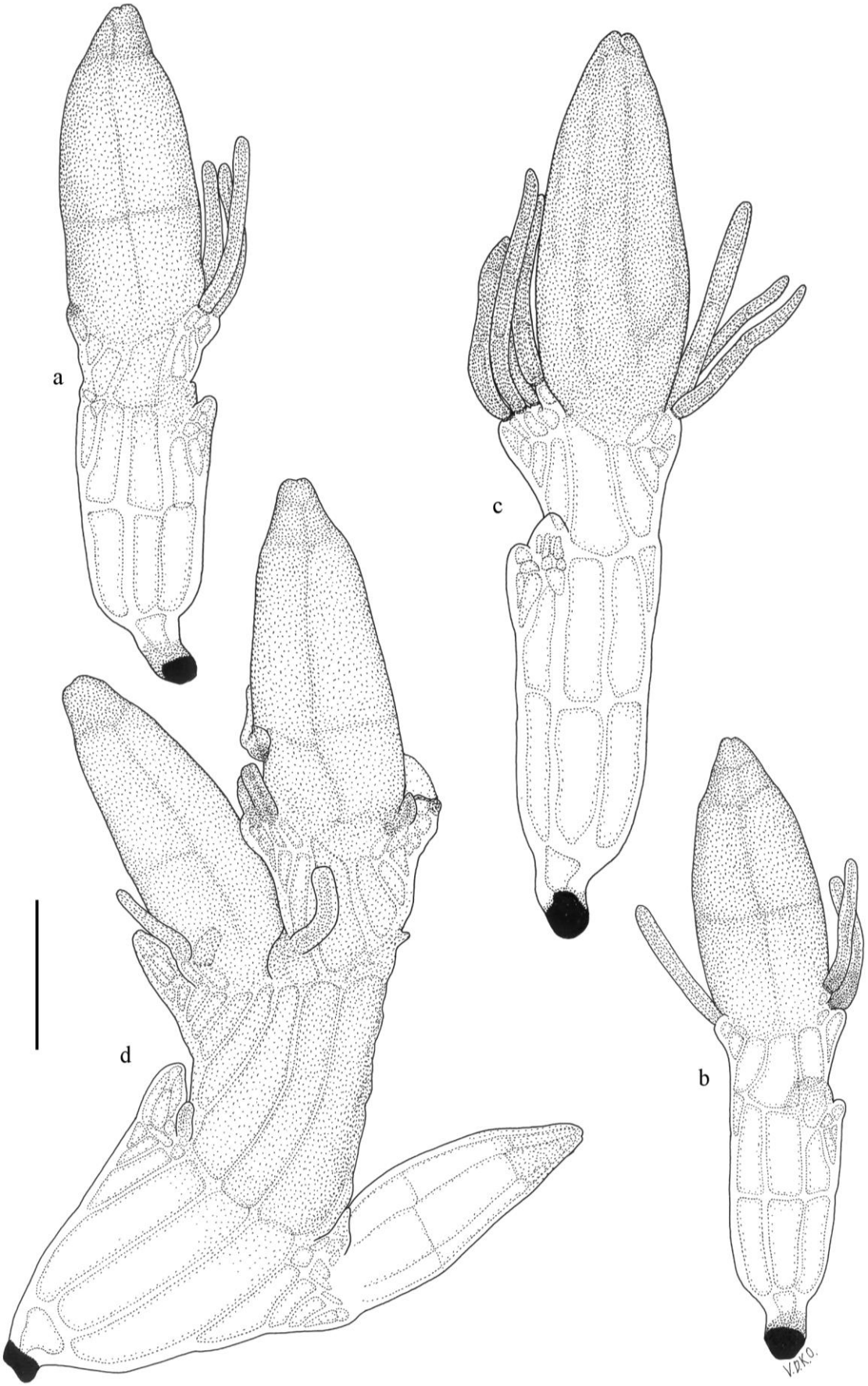

Plate 67. a-d. ***Peyritschiella protea*** Thaxt., with **a-b.** mature thalli from *Anotylus rugosus* (Fabricius, 1775), (ADK640, from cephalon); **c.** mature thallus from *A. rugosus* (ADK318a, abdominal tergite); **d.** mature thallus from *Anotylus insecatus* Gravenhorst, 1806, showing a perithecium on the 1st, 2nd and 3rd horizontal tier of the receptaculum (ADK641, from cephalon). Scale bar = 50 µm.

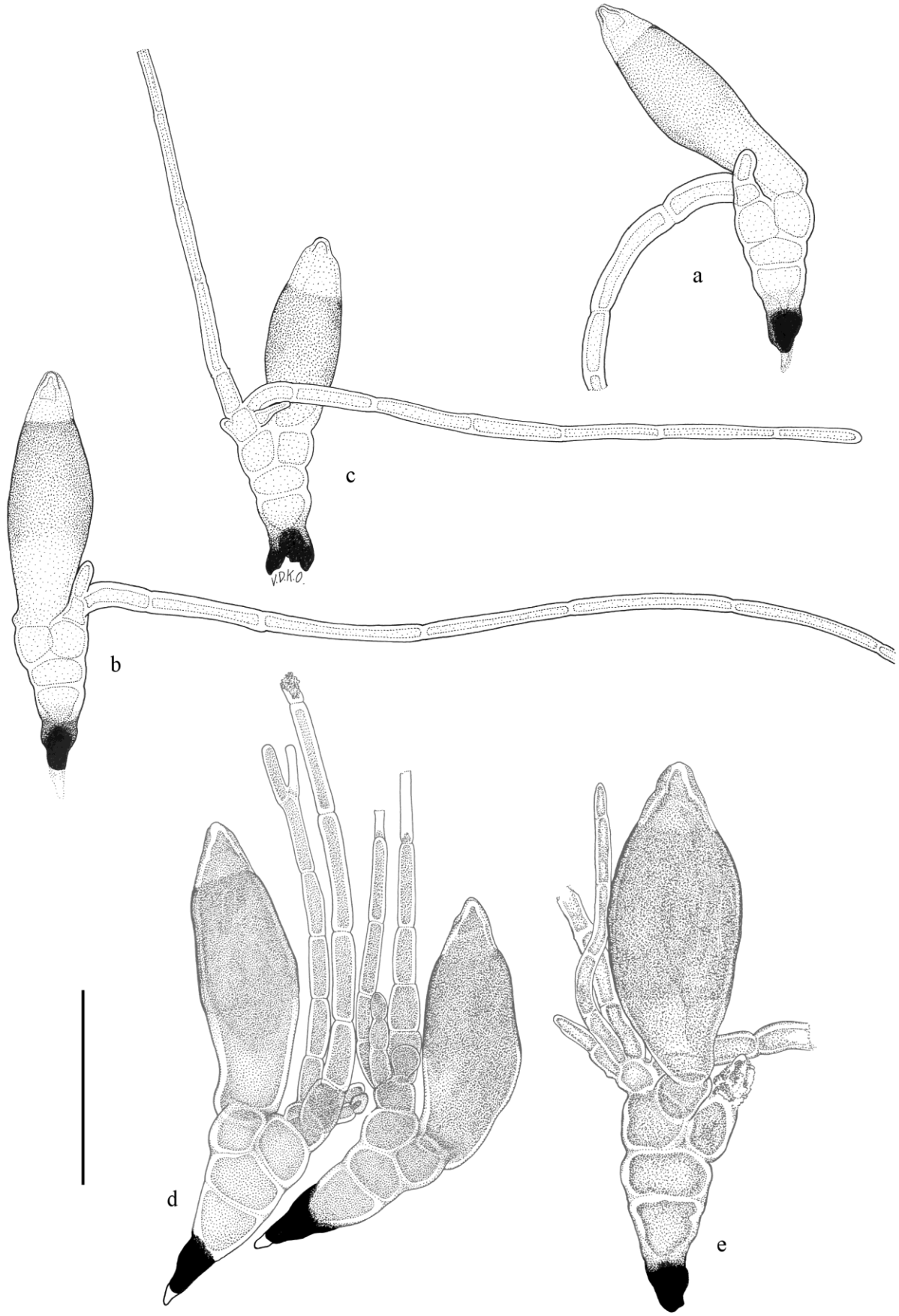

Plate 68. a-e. ***Phaulomyces simplocariae*** De Kesel from *Simplocaria semistriata* Fabricius, 1794, with: **a-b.** mature thalli from elytra (ADK676); **c.** mature thallus from elytron (ADK674); **d.** paired thalli with antheridia (ADK675a, from elytron); **e.** mature thallus from elytron (ADK666b). Scale bar = 50 µm.

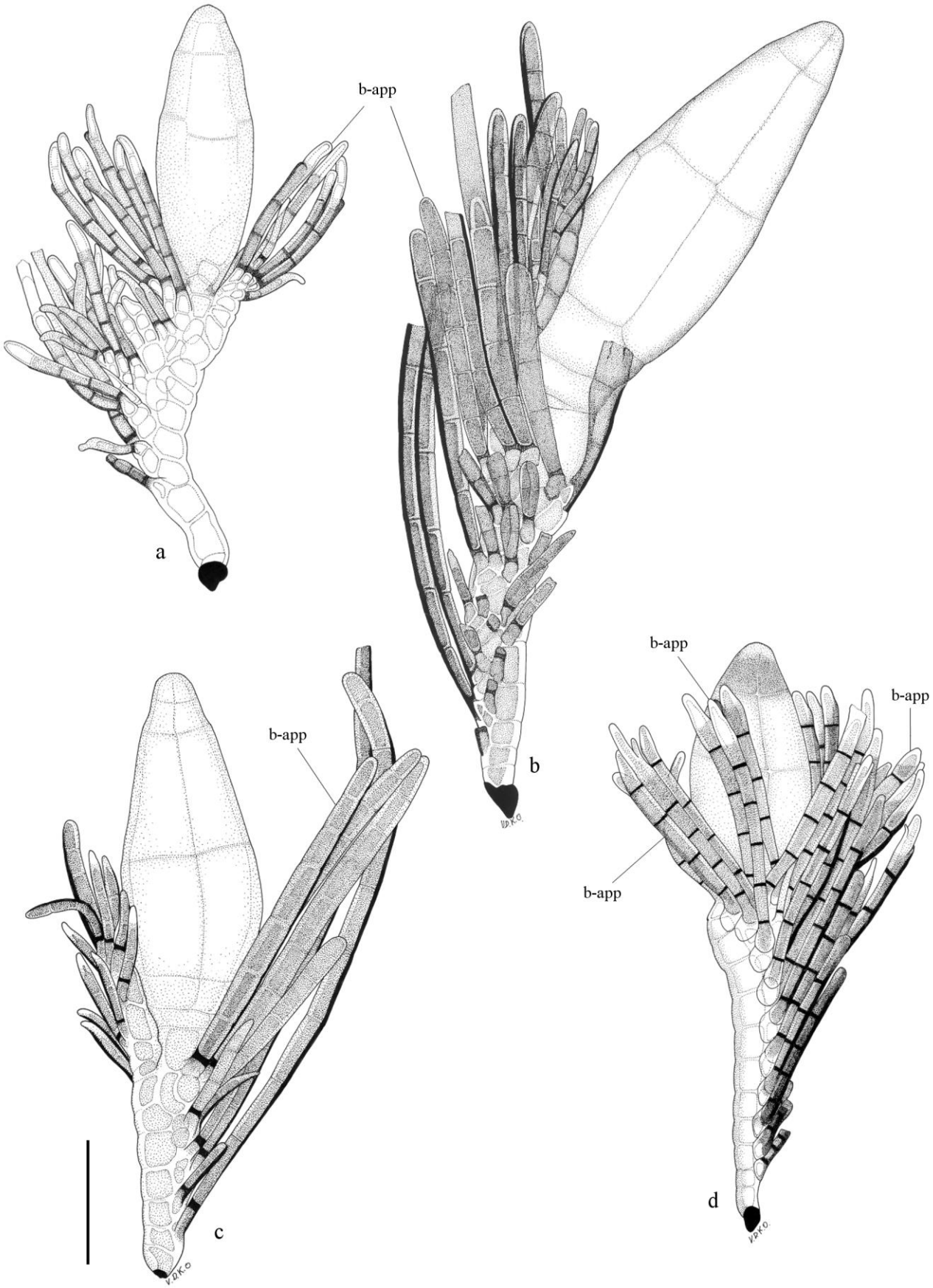

Plate 69. a. ***Rhachomyces canariensis*** Thaxt., mature thallus from *Trechus quadristriatus* (Schrank, 1781) (ADK554, from prosternum); b-c. ***Rhachomyces furcatus*** (Thaxt.) Thaxt. from *Othius myrmecophilus* Kiesenwetter, 1843, with: b. mature thallus from abdomen (JR5069a); c. mature thallus from tarsi (JR5069c); d. ***Rhachomyces lasiophorus*** (Thaxt.) Thaxt. from *Acupalpus dubius* Schilsky, 1888, mature thallus from tarsi (ADK635). Scale bar = 50 µm.

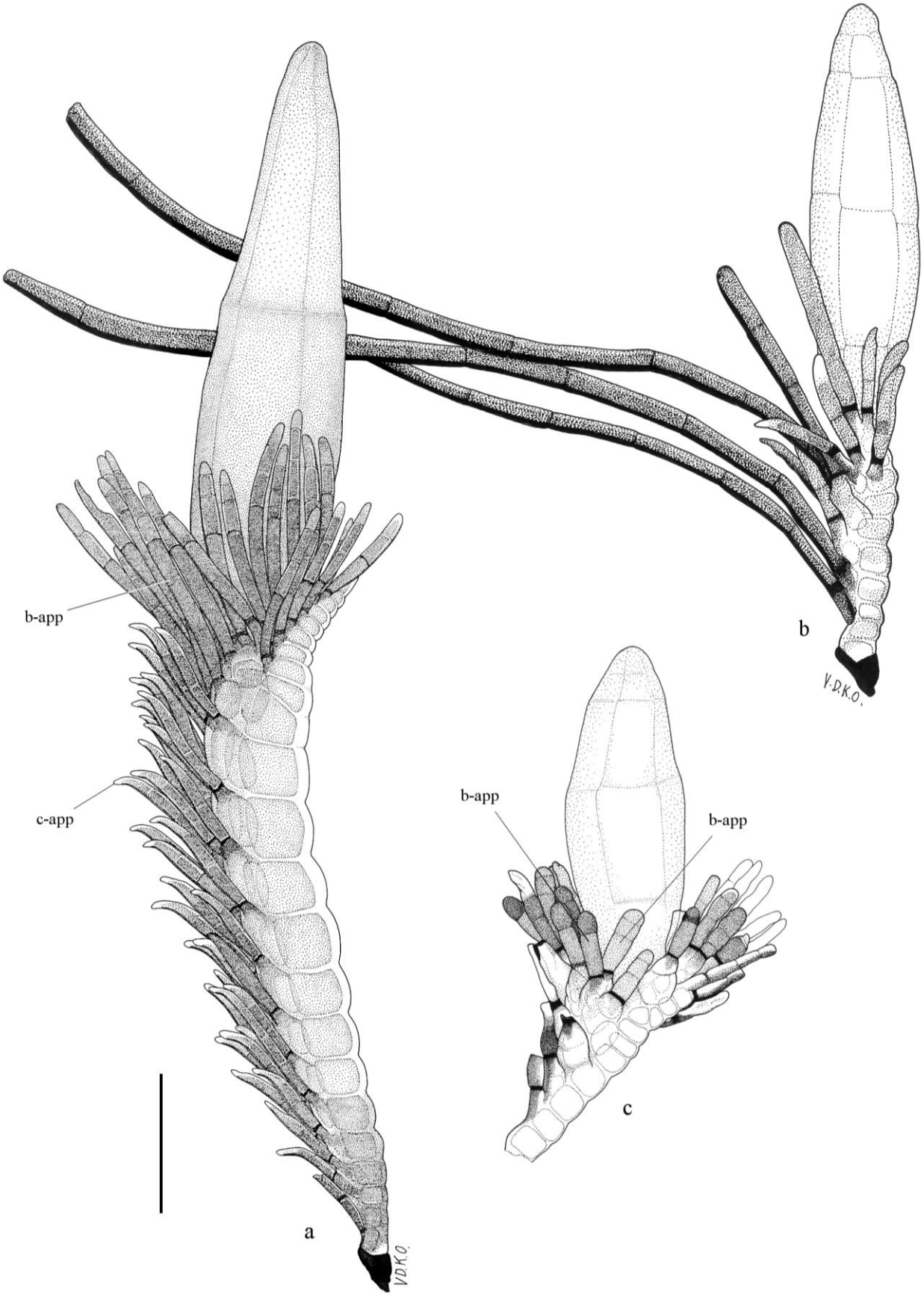

Plate 70. a. ***Rhachomyces philonthinus*** Thaxt. from *Philonthus rectangulus* Sharp, 1874, mature thallus from mesosternum (ADK355); b. ***Rhachomyces pilosellus*** (C.P. Robin) Thaxt. from *Lathrobium fulvipenne* (Gravenhorst, 1806), mature thallus from abdomen (L88a); c. ***Rhachomyces tenenbaumii*** J. Siemaszko et W. Siemaszko, mature thallus from *Thalassophilus longicornis* (Sturm, 1825), mature (slightly damaged) thallus from elytron (L239). Scale bar = 50 µm.

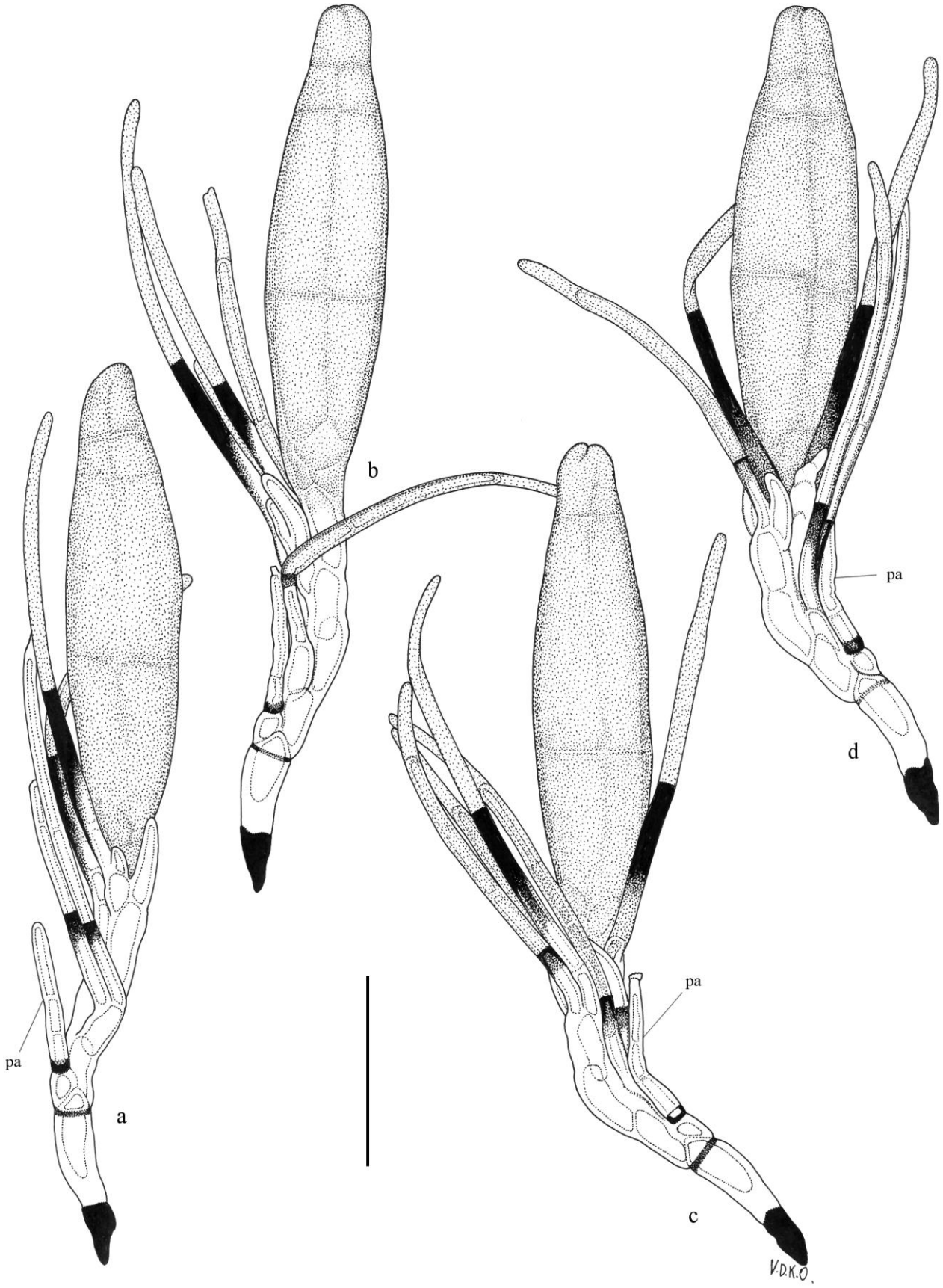

Plate 71. a-d. ***Rhachomyces sciakyi*** W. Rossi from *Syntomus foveatus* (Geoffroy, 1785), with: **a-b.** mature thalli from elytron, in lateral view (ADK995a); **c-d.** mature thalli from elytron in latero-dorsal view (ADK995a). Scale bar = 50 µm.

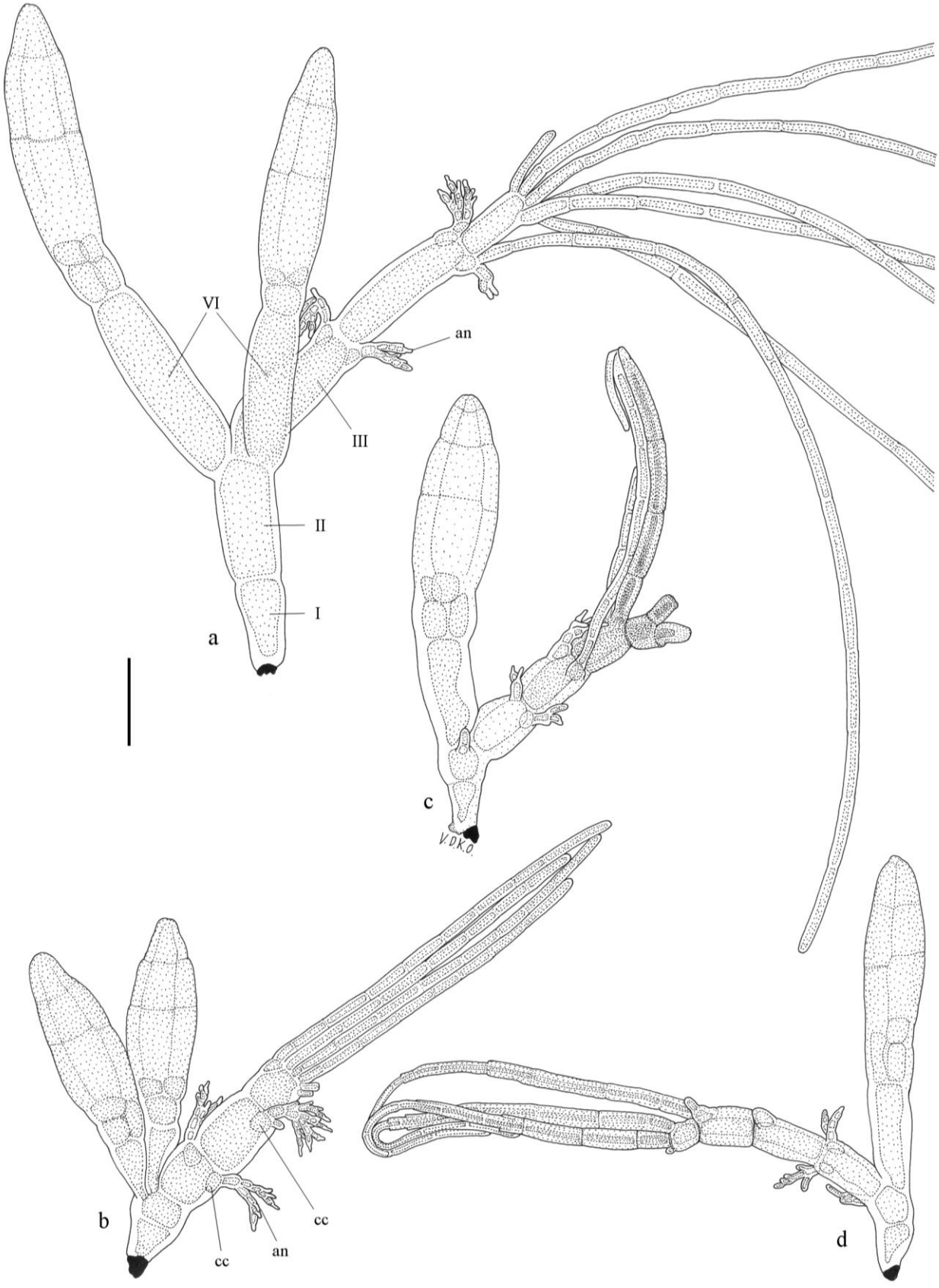

Plate 72. a-d. *Rhadinomyces cristatus* Thaxt., with: a. mature thallus from *Lathrobium brunnipes* (Fabricius, 1793), perithecia with long stalk cells (ADK986b, from prothorax); b. mature thallus from *L. brunnipes* (JR3686, from abdomen); c-d. submature thalli from *Lathrobium geminum* Kraatz, 1857 (JR3687, from legs). Scale bar = 50 µm.

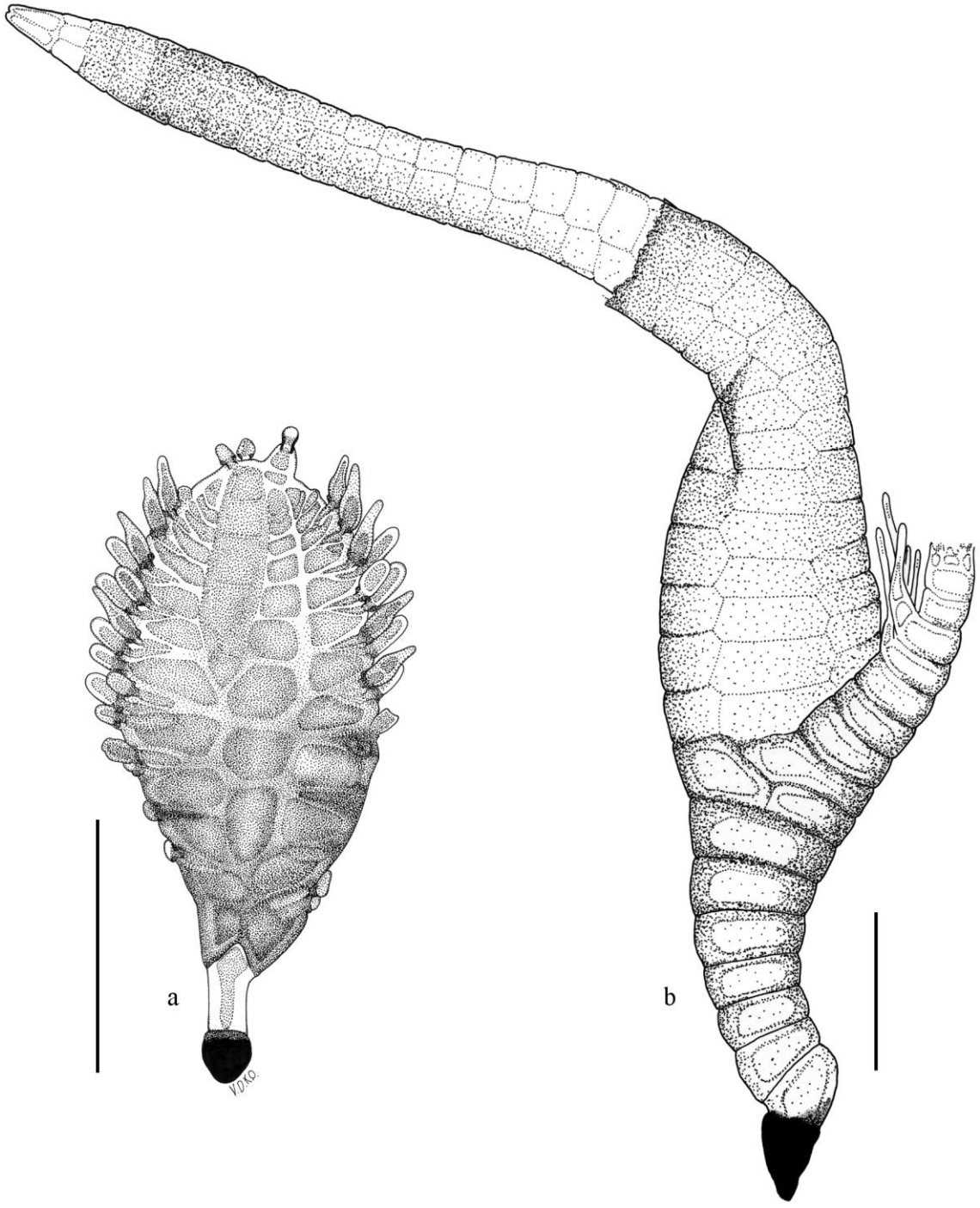

Plate 73. a. ***Rickia peyerimhoffii*** Maire from *Scaphisoma sp*., semi-mature thallus from last abdominal sternite (ADK354). b. ***Rhynchophoromyces anacaenae*** Scheloske from *Anacaena lutescens* (Stephens, 1829), mature thallus from elytra (T. Werbrouck 167). Scale bar = 50 µm.

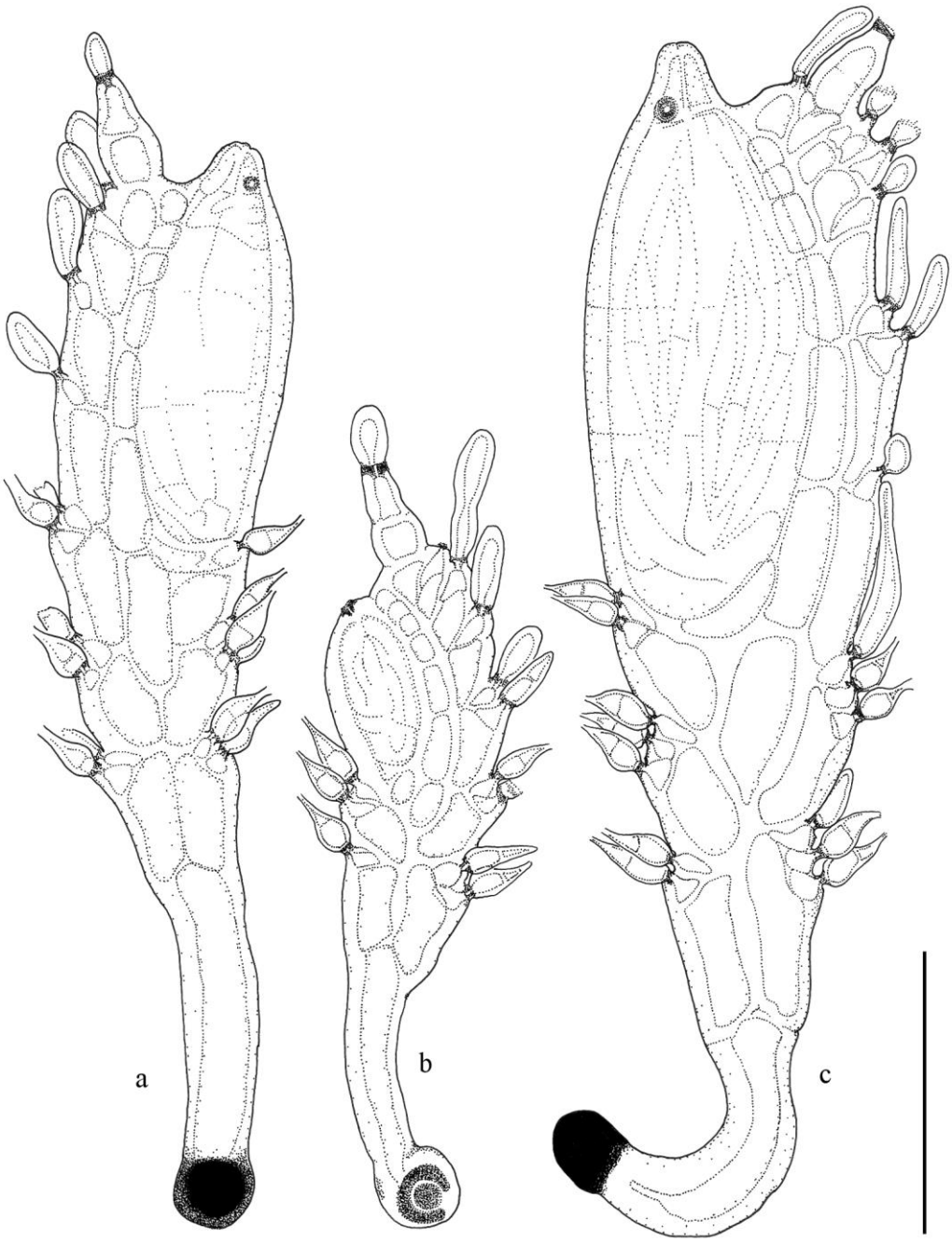

Plate 74. a-c. *Rickia dendroiuli* W. Rossi from an unidentified julid millipede (Diplopoda, Julida), with: **a.** mature thallus from the median legs (CG138a); **b.** juvenile thallus from the legs (CG138a); **c.** mature thallus from the median legs (CG138c). Scale bar = 50 µm.

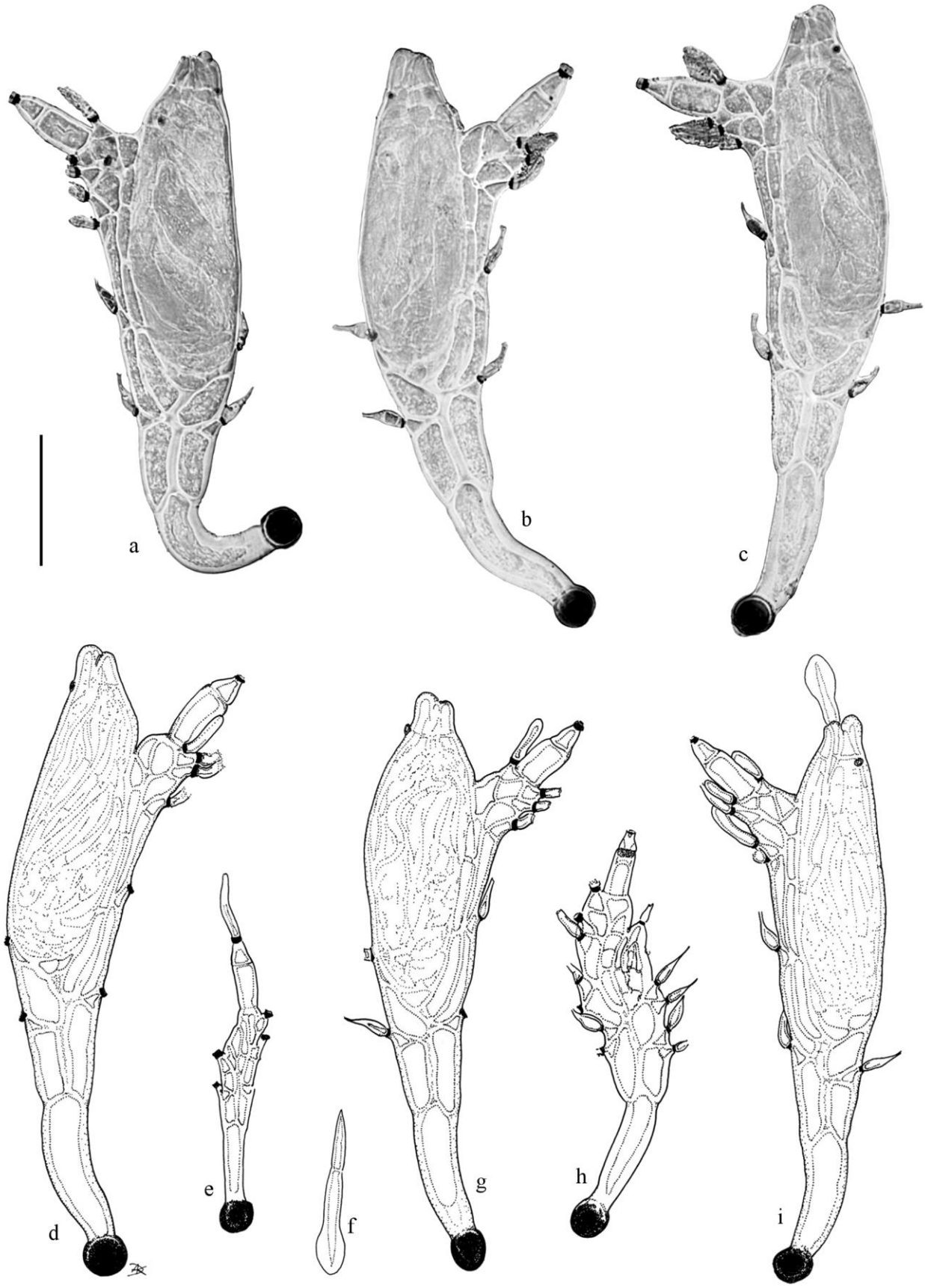

Plate 75. a-i. *Rickia laboulbenioides* De Kesel from *Cylindroiulus latestriatus* (Curtis, 1845). All thalli from second pair of front legs (ADK5533), with: a. mature thallus; b-c. mature thalli; d. mature thallus; e. immature thallus showing primary appendage; f. ascospore; g. mature thallus; h. immature thallus with perithecial primordium; i. mature thallus with emerging spore at the apex. Scale bar = 50 µm.

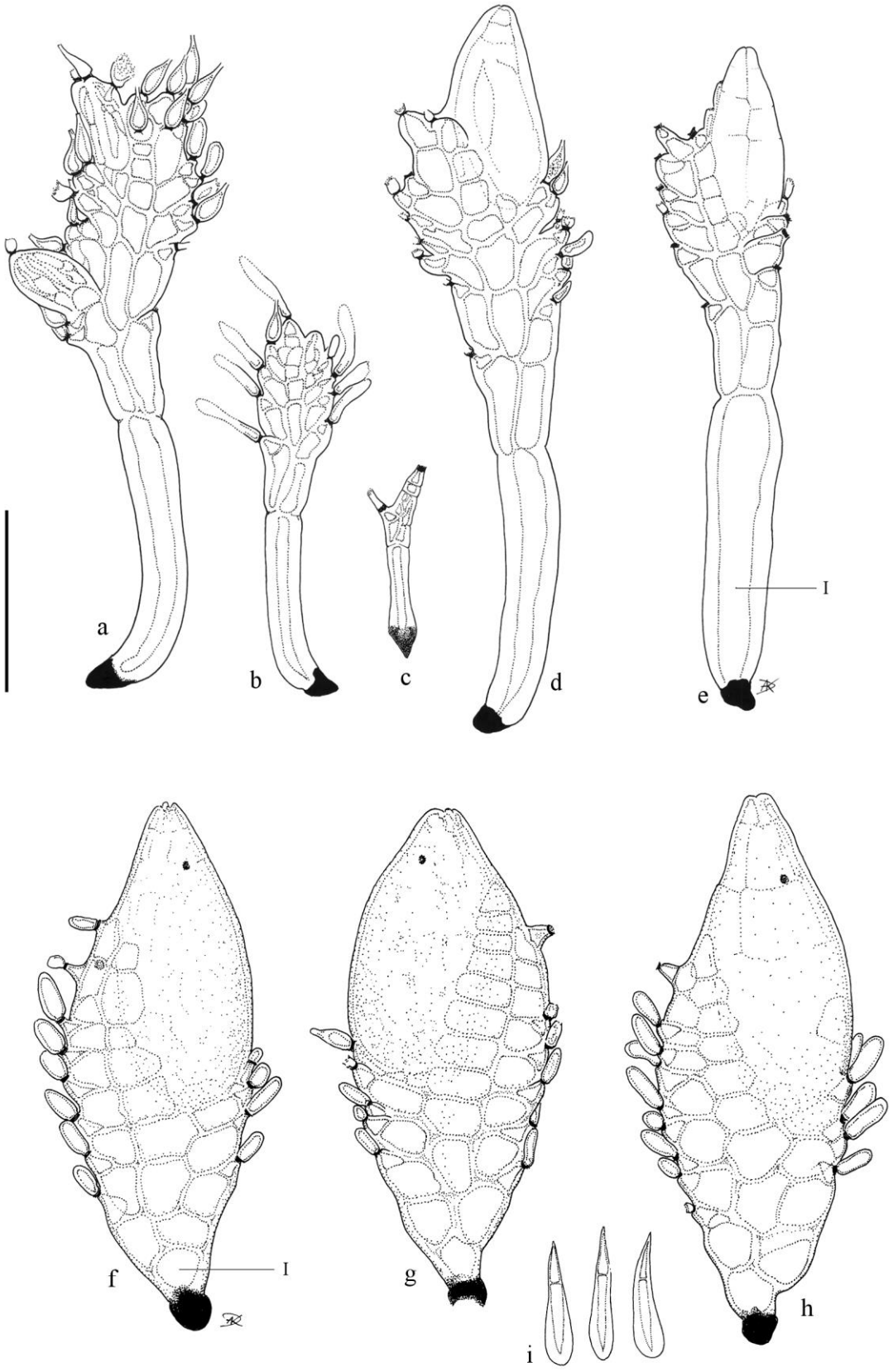

Plate 76. a-e. *Rickia wasmannii* Cavara, taken from the head of *Myrmica sabuleti* Meinert, 1861, with: **a.** maturing thallus with two young perithecia and flask-shaped antheridia; **b.** young thallus with intact appendages; **c.** very young thallus showing primary appendage; **d-e**. mature thalli with typical development. All drawn from ADK6270(a,b). **f-i.** *Rickia proteini* T. Majewski from *Proteinus sp.*, with: **f.** mature thallus from elytron (ADK5146b); **g.** mature thallus from upper abdomen (ADK5146a); **h.** mature thallus from elytron (ADK5146b); **i.** ascospores (ADK5146a). Scale bar = 50 µm.

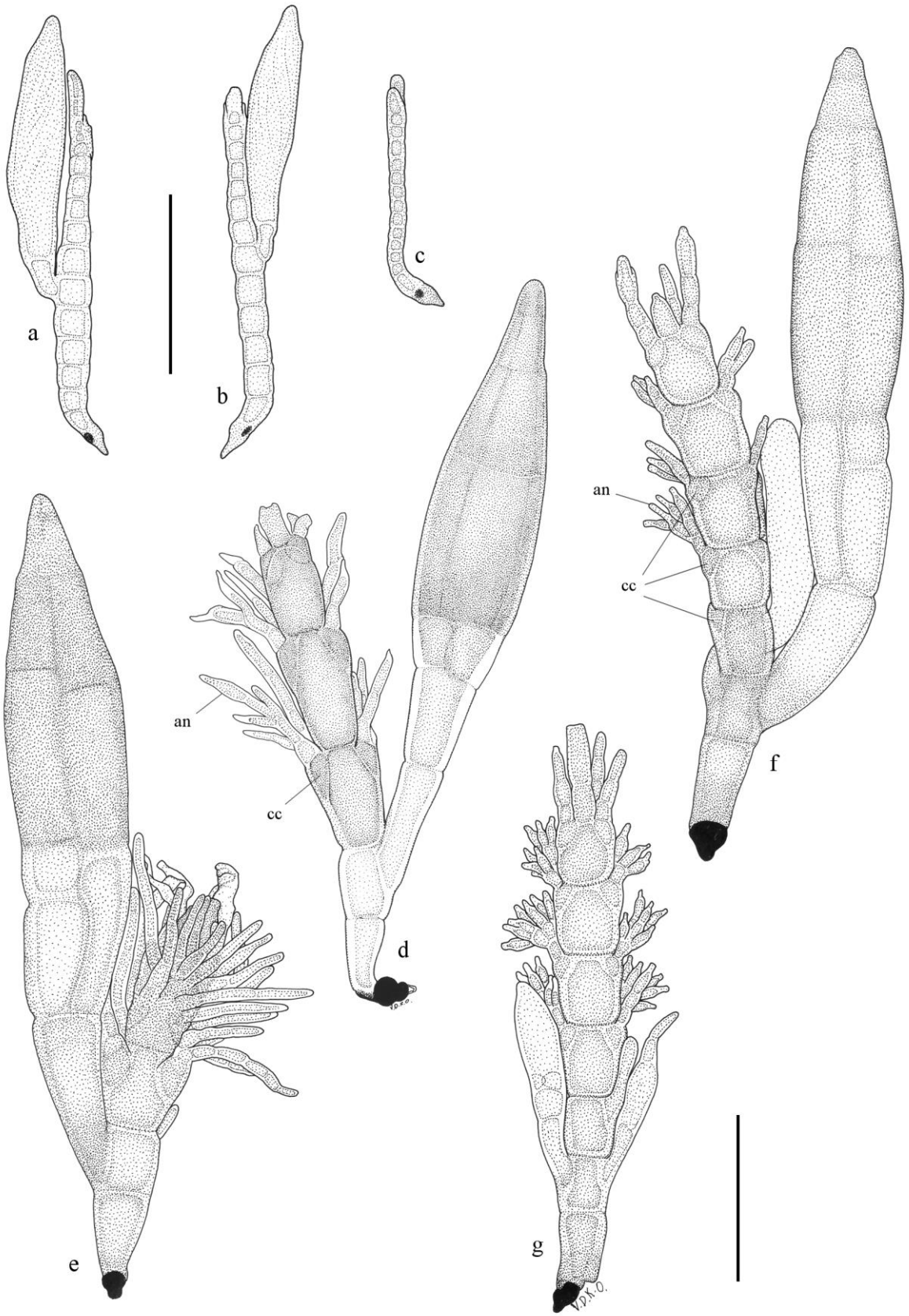

Plate 77. a-c. ***Siemaszkoa ptenidii*** (Scheloske) I.I. Tav. & T. Majewski from *Ptenidium* sp., with: **a-b.** mature thalli from pronotum (ADK659); **c.** immature thallus (ADK659). **d-g.** ***Stichomyces conosomatis*** Thaxt., with: **d.** Mature thallus from *Sepedophilus nigripennis* (Stephens, 1832), (ADK431 from pronotum); **e.** mature thallus from *Sepedophilus sp*., with damaged and regenerating appendage (ADK1683, from elytron); **f.** mature thallus from *Sepedophilus marshami* (Stephens, 1832) showing a secondary perithecium on cell II (ADK661, from pronotum); **g.** immature thallus from *S. marshami*, showing fully developed antheridial branches and two perithecia developing from cell II (ADK661). Both scale bars = 50 µm.

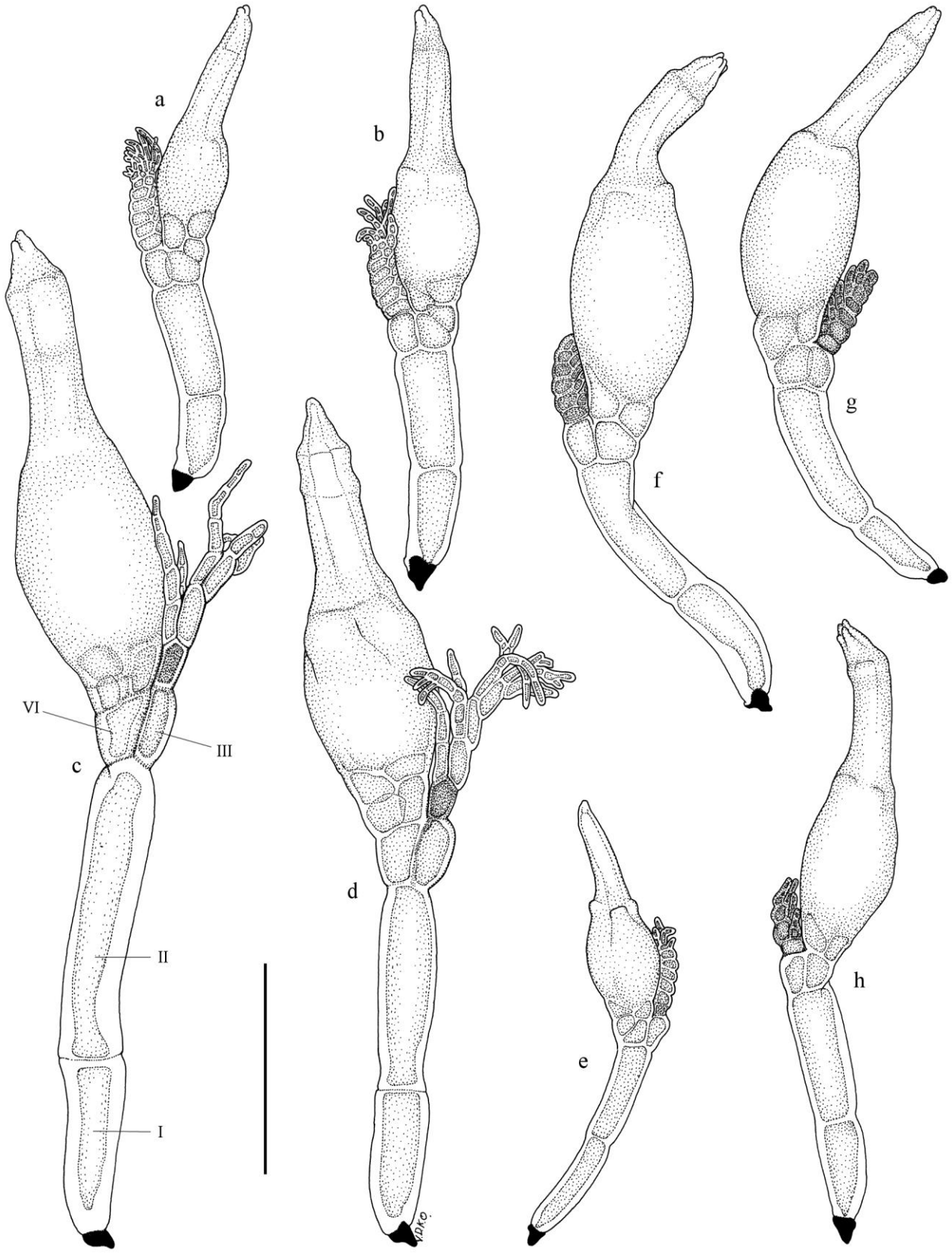

Plate 78. *Stigmatomyces* spp. **a-b.** ***Stigmatomyces divergatus*** Thaxt. from *Spelobia parapusio* (Dahl, 1909), **a.** mature thallus (ADK4504); **b.** mature thallus (ADK4477). **c-d.** ***Stigmatomyces burdigalensis*** (Balazuc) A. Weir & W. Rossi from *Copromyza stercoraria* (Meigen, 1830); **c.** mature thallus (ADK4479); **d.** mature thallus (ADK4478). **e.** ***Stigmatomyces minilimosinae*** T. Majewski from *Minilimosina parvula* (Stenhammar, 1855), mature thallus, perithecium with protuberances (ADK4489). **f-h.** ***Stigmatomyces platensis*** Speg., with: **f.** mature thallus from *Paralimosina subcribrata* (Rohacek, 1977) (ADK4526b); **g.** mature thallus from *P. subcribrata* (ADK4522); **h**. mature thallus from *Paralimosina fucata* (Rondani, 1880) (ADK4484). Scale bar = 100 µm.

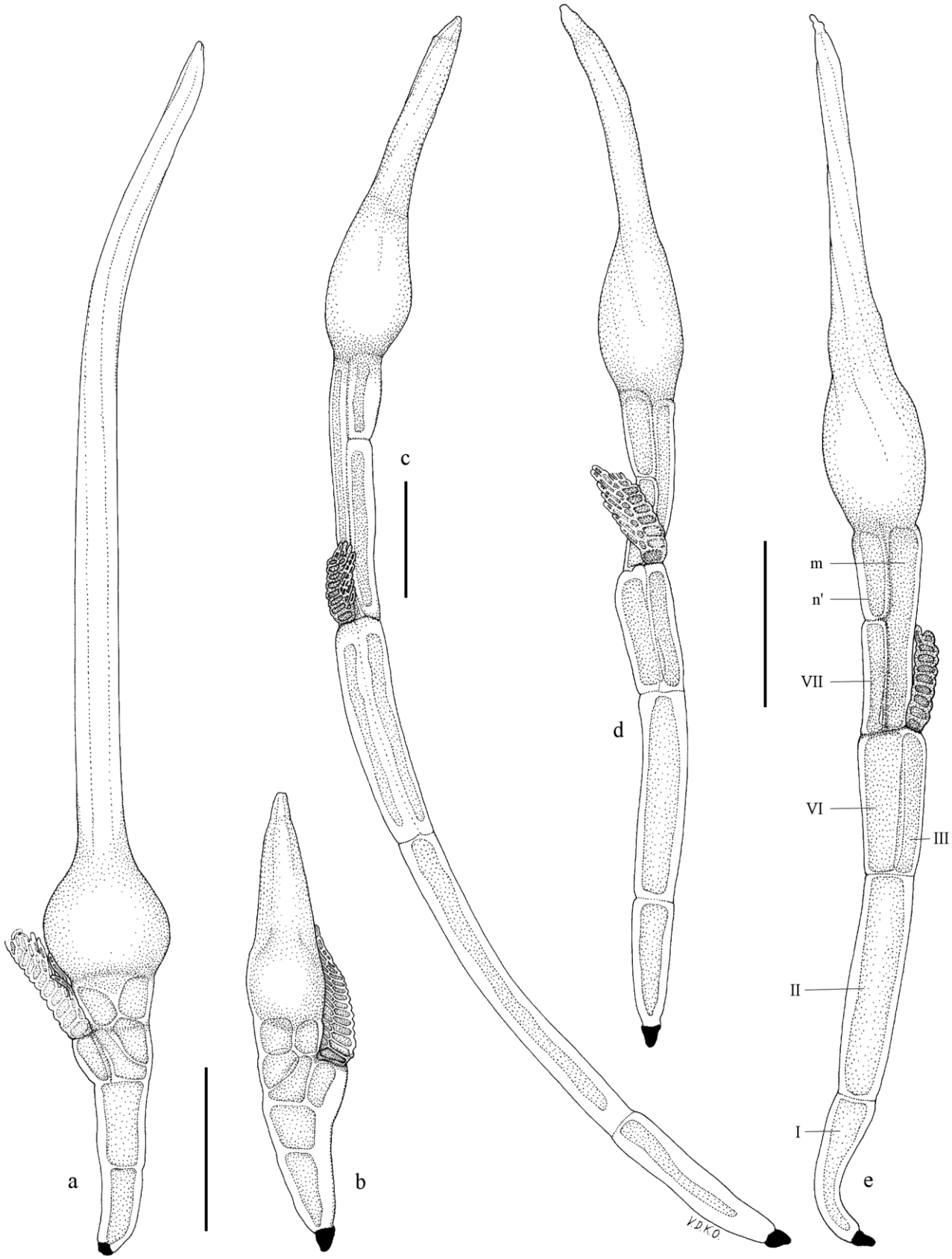

Plate 79. *Stigmatomyces* spp. a-b. ***Stigmatomyces crassicollis*** Thaxt., with: a. mature thallus from on *Leptocera fontinalis* (Fallén, 1826) (ADK4528b); b. maturing thallus from *Leptocera caenosa* (Rondani, 1880) (ADK4490b). c-e. ***Stigmatomyces limosinae*** Thaxt. from Spelobia clunipes (Meigen, 1830), with: c. mature thallus from thorax (ADK 4512a); d. mature thallus from wing (ADK4511); e. mature thallus from tibia (ADK4516). All scale bars = 100 µm.

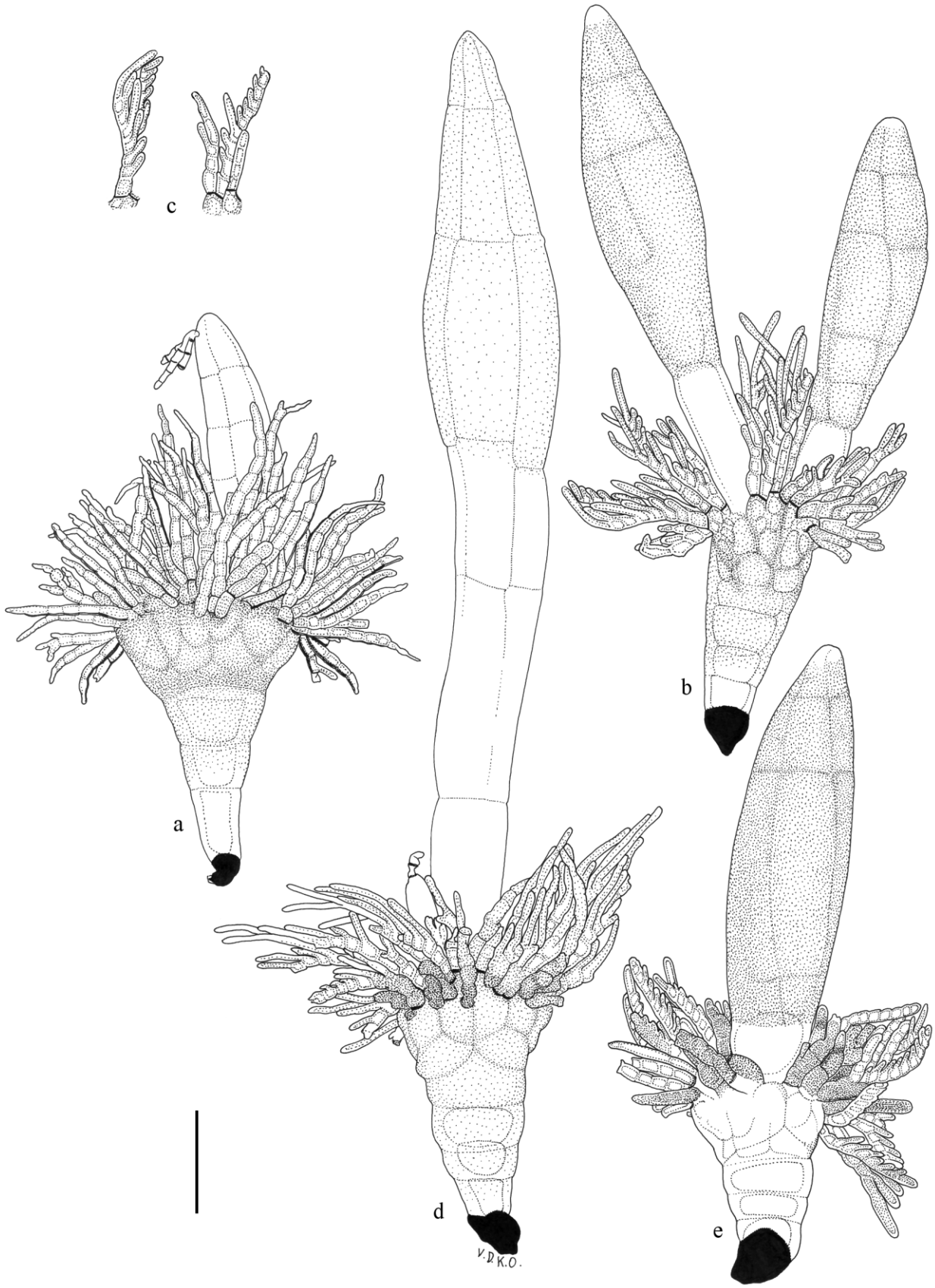

Plate 80. a-e. *Symplectromyces vulgaris* (Thaxt.) Thaxt., with: **a.** immature thallus from *Quedius fumatus* (Stephens, 1833), showing remains of the trichogyne on the perithecium (ADK649, from elytron); **b.** mature thallus from *Quedius curtipennis* Bernhauer, 1908 showing two perithecia (ADK421, from pygidium); **c.** detail of secondary appendages showing intercalary antheridia; **d.** mature and very slender thallus from abdomen of *Quedius mesomelinus* (Marsham, 1802) (L186); **e.** mature and short thallus from the pygidium of *Quedius tristis* (Brullé, 1832) (ADK340a). Scale bar = 50 µm.

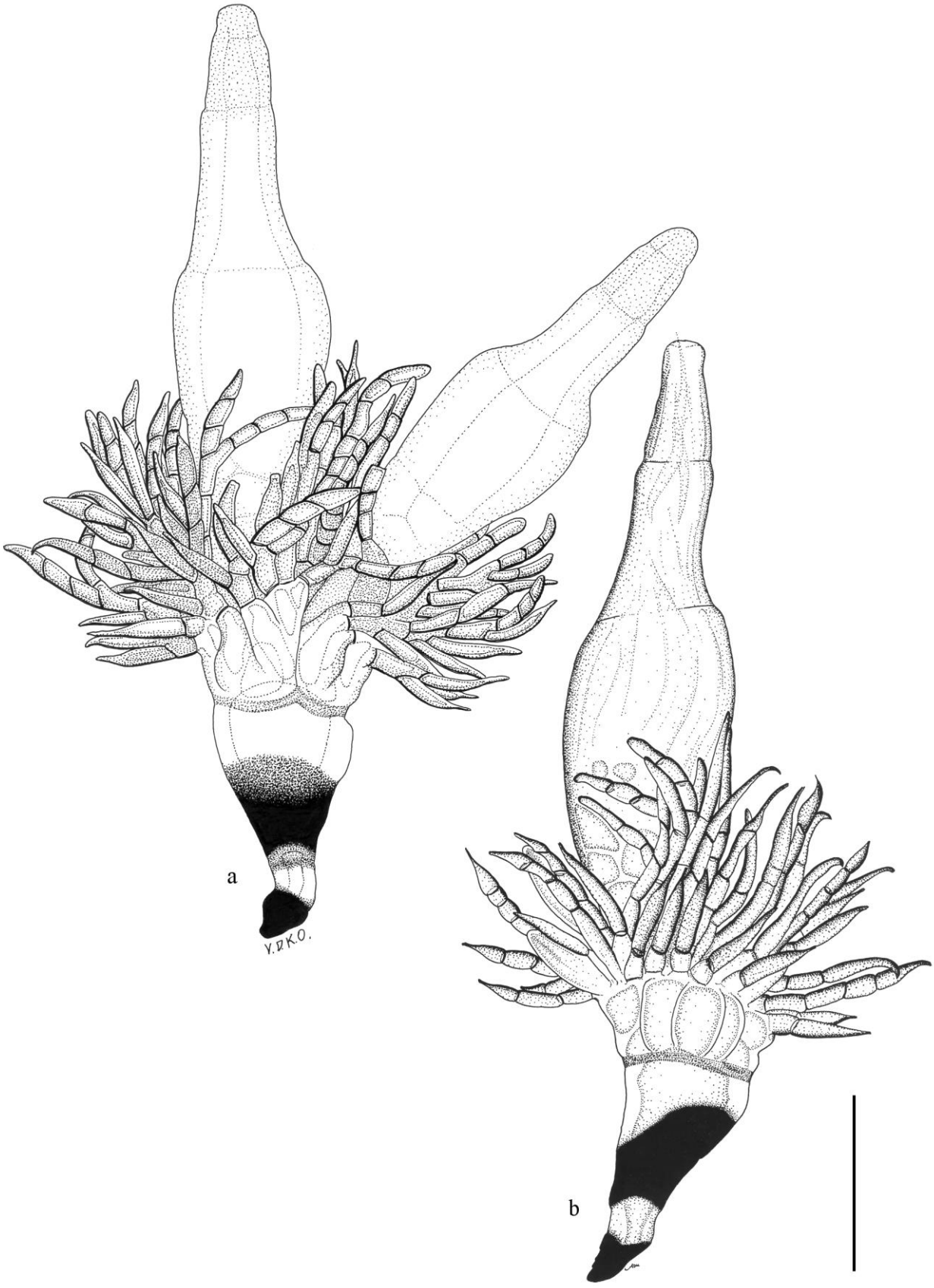

Plate 81. a-b. *Teratomyces actobii* Thaxt. from *Gabrius nigritulus* (Gravenhorst, 1802), with: a. mature thallus with two perithecia (JR3690); b. mature thallus with one perithecium, from elytron (JR3690). Scale bar = 50 µm.

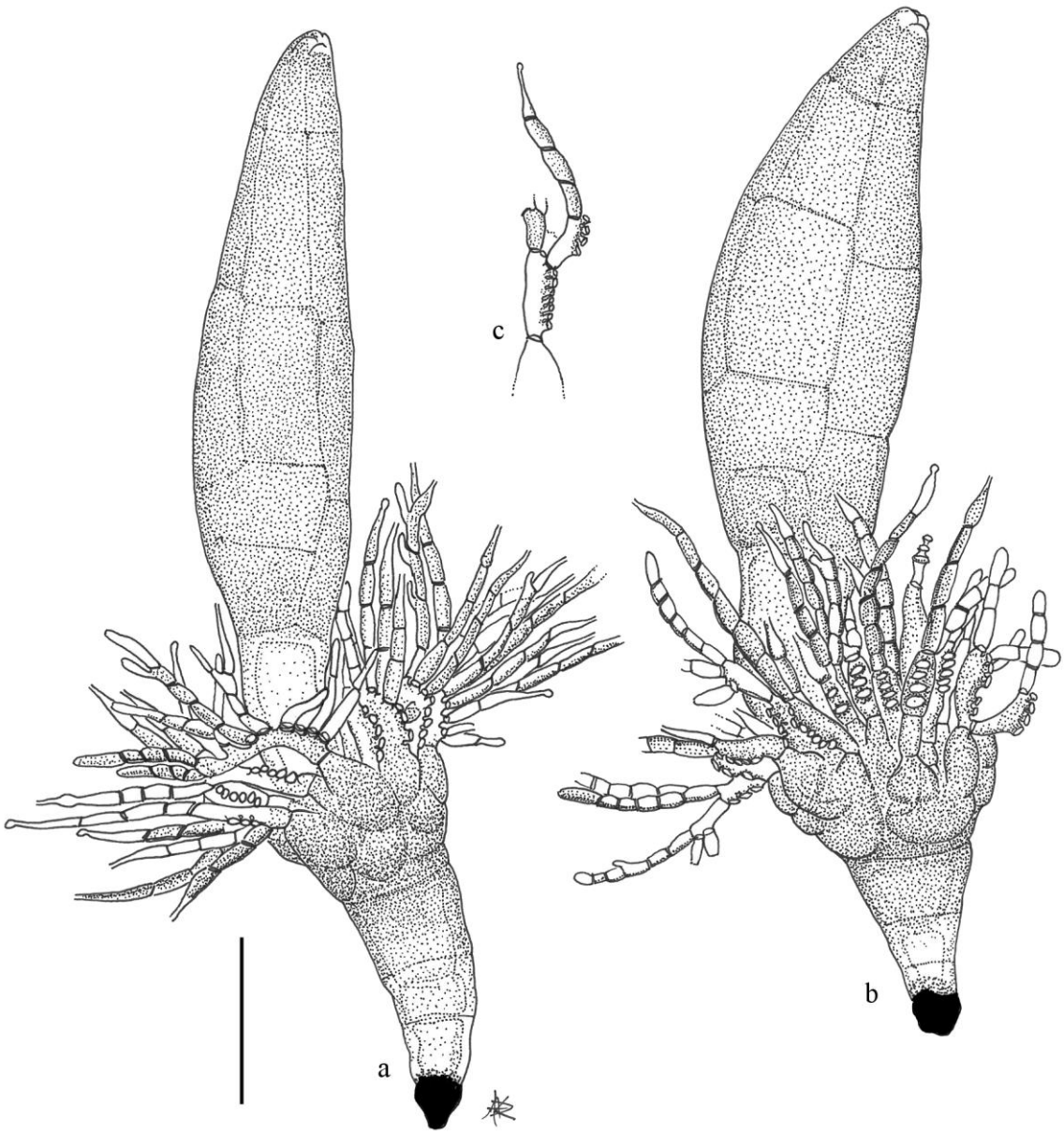

Plate 82. a-c. ***Teratomyces philonthi*** Thaxt. from *Gabrius nigritulus* (Gravenhorst, 1802), with: **a-b.** mature thalli from abdomen (ADK6513); **c.** detail of secondary appendages showing pointed tips with free phialides, as well as subbasal cells with lateral series of 3-9 dark septa (ADK6513). Scale bar = 50 µm.

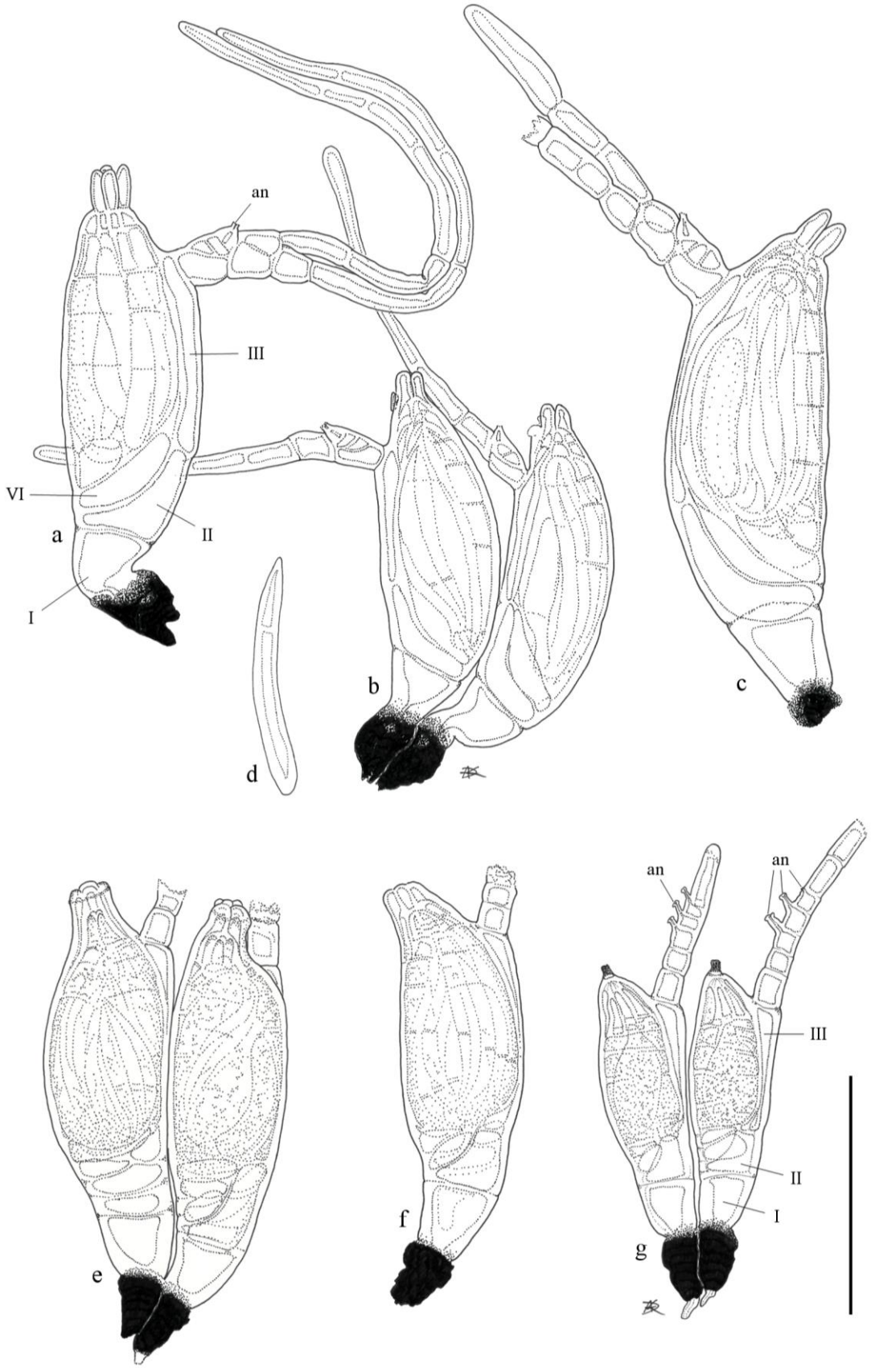

Plate 83. a-d. *Troglomyces manfrediae* S. Colla, from an unidentified julid millipede (Diplopoda, Julida), with: **a.** mature thallus from the antenna (ADK5142b); **b.** pair of mature thalli (ADK5149); **c.** mature thallus from antenna (ADK5142b); **d.** ascospore (ADK5142b). **e-g.** *Troglomyces triandrus* Santam. & Enghoff from *Archiboreoiulus pallidus* (Bradebirks, 1920), with: **e.** pair of mature thalli from cephalon (ADK6510), **f.** mature thallus, with focus on the left side of the receptacle (ADK6510); **g.** pair of immature thalli with intact appendage, showing simple antheridia on 3rd, 4th and 5th appendage cell (ADK6510). Scale bar = 50 µm.

Plate 84. a-b. *Zodiomyces vorticellarius* Thaxt. from *Helochares sp*. (Coleoptera, Hydrophilidae), with: a-b. immature thalli with typical massive, multicellular receptacles forming a suprabasal bump or projection, and numerous filiform appendages at the apical margin (ADK6139, from tibia and femur). Scale bar = 50 µm.