

THECOTHEUS STRANGULATUS, A SELDOM REPORTED COPROPHILOUS ASCOMYCETE

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Samenvatting

Op oude mest van paarden en runderen, afkomstig uit het natuurreservaat Ingendael (Zuid-Limburg), werd *Thecotheus strangulatus* (Velen.) Aas & Lundq. ontdekt. Deze soort bleek nieuw te zijn voor Nederland en is ook elders nog niet of slechts sporadisch gerapporteerd. *Thecotheus strangulatus* kenmerkt zich door de ingesnoerde asci, sterk gekromde parafysen en ruw wrattige sporen. Ze is nauw verwant met de eveneens coprofiele *T. uncinatus*, die zich kenmerkt door kleinere, fijn wrattige sporen en mogelijke voorkeur voor naaldbossen.

Dit artikel bevat een beschrijving van *T. strangulatus* inclusief enkele aanvullende opmerkingen betreffende de habitat en het substraat.

Introduction

Thecotheus strangulatus (Velen.) Aas & Lundq. (Pezizales: Ascobolaceae) has been found on old dung of horses and cows in a Dutch nature reserve. It is the first record of this seldom reported species in the Netherlands. *T. strangulatus* is characterized by strangulate asci, strongly curved paraphyses and verrucose ascospores. *Thecotheus uncinatus* Aas is a closely related coprophilous species, but it can be distinguished by the smaller verruculose ascospores and the possible preference for coniferous forests. In this article *T. strangulatus* is described and some remarks concerning the habitat and substrate are provided as well.

***Thecotheus strangulatus* (Fig. 1)**

Thecotheus strangulatus (Velen.) Aas & N. Lundq., in Aas, Univ. Bergen Bot. Inst., Thesis 4: 170 (1992).

Basionym: *Ascophanus strangulatus* Velen., Monogr. Discom. Bohemiae 1: 358 (1934).

Apothecia 0.2-1.3 mm broad and up to 0.5 mm high, solitary dispersed or gregarious, superficial, sessile, base broad or tapered. Receptaculum immature pyriform to subcylindrical, at maturity doliiiform, cupulate or discoid, concolorous all over, white to pale greyish or yellowish green. **Hymenium** plane or slightly convex and roughened by protruding ascus tips, exterior smooth (fig. 1a). **Medullary excipulum** difficult to distinguish in the small and polymorph apothecia (see Aas (1992) and Doveri (2004) for comments). **Ectal excipulum** consisting of textura (sub)globulosa-angularis and polygonal cells up to 16 x 12 μm . **Asci** mature 185-245 x 26-28 μm , 8-spored, (broad) cylindrical, operculate, bitunicate (0.7-1.2 μm) and amyloid in Melzer's reagens, upper part notably strangulate, tapered and bent towards the base, base more or less bilobed (fig. 1b). Some empty asci can reach a width of 30-36 μm after spore release (fig. 1c).

Ascospores (22)23-25(26) x (11)12-13 μm , Q = (1.8)1.9-2.1, ellipsoid, eguttulate, hyaline, ornamented with a regular or irregular pattern of warts 0.2-2.5(3) μm wide and 0.2-1.5(2) μm high (fig. 1e), without apiculi, irregularly uniseriate or biseriata. Immature ascospores with walls up to 2-2.5 μm , primary wall in mature spores 0.5-0.7 μm thick. After spore liberation each ascospore is surrounded by a thick gelatinous envelope (fig. 1d), disappearing after a while. **Paraphyses** below 1-2 μm , apices up to 2.5-3(4) μm dilated and strongly uncinata, filiform, septate, simple or forked (fig. b), hyaline and sometimes with a few large yellowish vacuoles in the top.

Substrate: on 9 months old horse dung lying in litter of a deciduous forest, accompanied by *Paratrichophaea boudieri*, *Saccobolus beckii*, *Sporormiella australis*, *Thecotheus pelletieri*, *Thelebolus crustaceus* and *Trichophaeopsis tetraspora*. Also on old cow dung together with *Coprotus granuliformis* and *C. sexdecemsporus*.

Material examined (*in statu vivo et udo*): The Netherlands, Vilt (prov. Zuid-Limburg), Ingendael (Bergse heide-Meertensgroeve), alt. 120 m, 62-21-15, on old horse dung, 09/10/2003, Bronckers RB03221; id., 23/10/2003, Bronckers RB03223 (L 993.112 254), id., on old cow dung, 22/11/2003, Bronckers RB03225.

HABITAT & SUBSTRATE

Thecotheus strangulatus has been found in a quarry called 'Meertensgroeve', after the winning of sand and gravel it closed in 1974. From that time on it served many purposes, but since 1983 it is a protected nature reserve due to the presence of the Midwife toad (*Alytes obstetricans*).

In the decennia that followed after exploitation a large part of the upper edge and slopes got over-

grown with Silver burch (*Betula pendula*), False acacia (*Robinia pseudoacacia*) and Goat willow (*Salix caprea*). Seedlings from the surrounding wood (*Carpinion betuli*) have managed to settle and are gradually taking over.

The area is grazed by Galloway cows which play an important role in the stimulation of natural processes. In the winter of 2003 from January 5th up to 26th inclusive, 4 Koniks horses have been incarcerated in the quarry. During that period the horses fed mainly on dead rough herbage, bark of living trees (especially *Salix caprea*) and hay (supplementary feeding). This resulted in the presence of coarse dung rich in structure and quite difficult to decompose. The fact that a certain amount is dropped on a forest floor, less exposed to sun and rain, makes it even more durable. After 9 months many balls of the horse dung are still completely intact. Most of the specimen have been collected on dung deposited along the upper edge of the quarry in a thin litter layer underneath Hazel (*Corylus avellana*). A small collection of *Thecotheus strangulatus* has also been found on old dung of Galloway cows just outside the quarry. This dung contains mainly roughage of

Blackberry (*Rubus fruticosus*) and dead herbs. Velenovský (1934) also found this species on old cow dung and Doveri (2004) reported it from sheep dung.

Acknowledgements

I would like to thank Dr. Olav Aas (University-Bergen, Norway), Dr. Joop van Brummelen (Rijksherbarium-Leiden, Netherlands), Nicole Cordewener (Stichting het Limburgs Landschap regio zuid, Netherlands) and Dr. Francesco Doveri (A.M.B.-Trento, Italy) for their contributions.

References

- AAS, O. (1992) – A world-monograph of the genus *Thecotheus* (Ascomycetes, Pezizales). Univ. Bergen Bot. Inst., Thesis 4: 211p.
- DOVERI, F. (2004) – Fungi Fimicoli Italici – A guide to the recognition of Basidiomycetes and Ascomycetes living on faecal material. A.M.B., Trento.
- VELENOVSKÝ, J. (1934) – Monographia Discomycetum Bohemiae. Pars 1: 1-436. Pars 2: pls. 1-31. Praha.

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Errata

Bronckers, R.J.C. (2003) – Een sleutel tot de Europese soorten van de genera Trichophaea, Trichophaeopsis en Paratrachophaea. Sterbeekia 23: 9-27.

Op pagina	staat:	maar moet staan:
13, r.1	<i>Trichophaea hemisphaerica</i>	<i>Humaria hemisphaerica</i>
18, kolom 1, r.2	7	6
22, kolom 1, r. 44-45	<i>Trichophaea woolhopeia?</i>	<i>Anthracobia subatra</i>
22, kolom 2, r. 28-30	Toch wijzen de gegroepeerde haren, sporen omvang en inhoud eerder in de richting van <i>Trichophaea woolhopeia</i>	Toch wijzen de zeer donker gekleurde apothecia, gegroepeerde haren met clavate top en duidelijk geïncrusteerde parafysen in de richting van <i>Anthracobia subatra</i> .

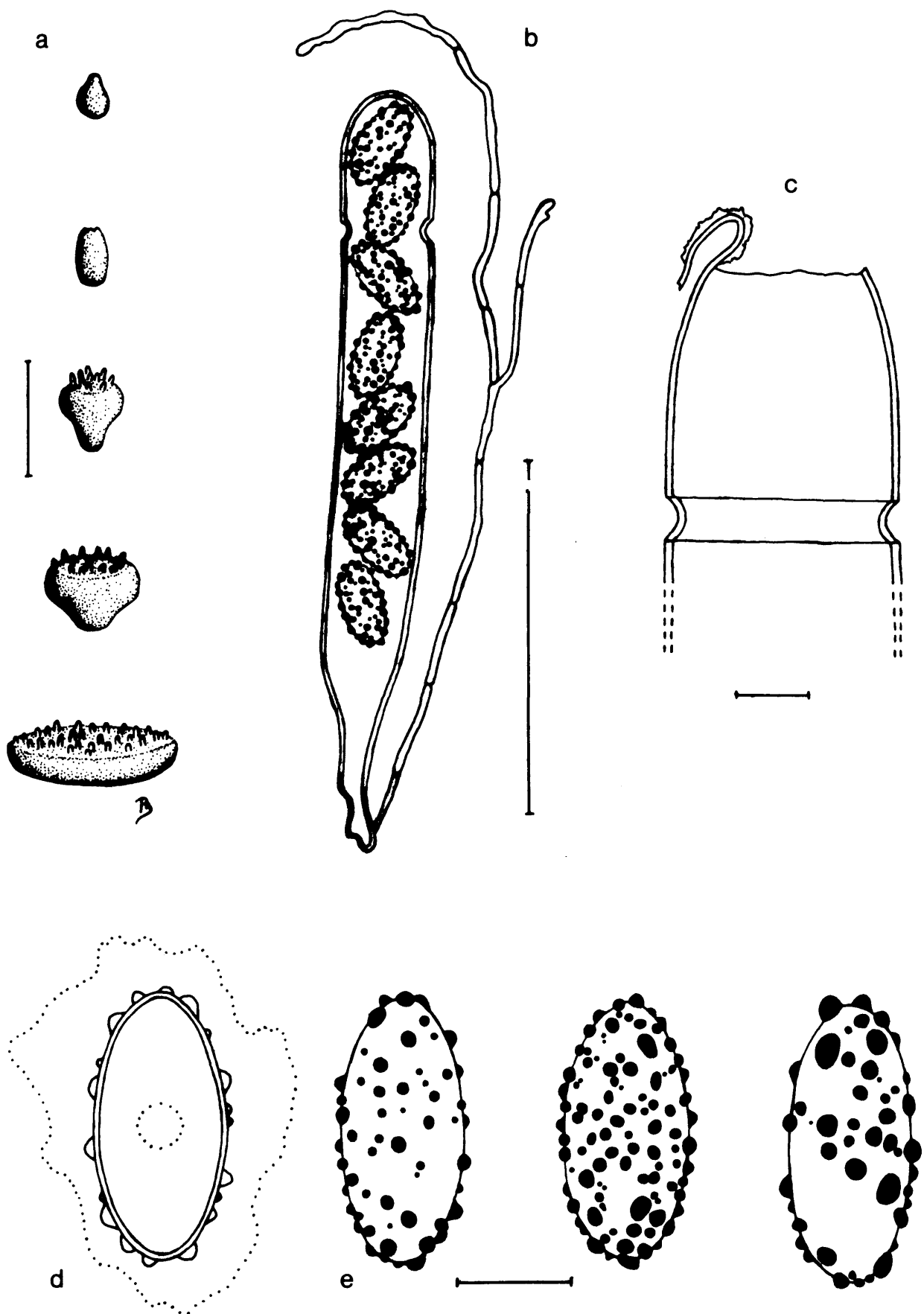


Fig. 1. *Thecotheus strangulatus*. a) apothecia in different stages of development (bar = 0.75 mm), b) ascus and paraphyse in Cotton blue (bar = 100 μ m), c) empty ascus in water (bar = 10 μ m), d) ascospore with a gelatinous envelope in water, e) ascospores in Cotton blue (bar = 10 μ m).