

Hanseniella lanceolata sp.n. (Myriapoda: Symphyla) found in a European hothouse

Hanseniella lanceolata sp.n. (Myriapoda: Symphyla), вид, найденный в тропической оранжерее в Европе

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KEY WORDS: Scutigereidae, new species, *Hanseniella oligomacrochaeta*, *Symphylella vulgaris*.

КЛЮЧЕВЫЕ СЛОВА: Scutigereidae, новый вид, *Hanseniella oligomacrochaeta*, *Symphylella vulgaris*.

ABSTRACT. A new species of the symphylan genus *Hanseniella* Bagnall, 1913 is described. It was found in a hothouse of a small zoo at Almere, the Netherlands. *Hanseniella oligomacrochaeta* Scheller, 2002 was recorded, for the first time since its description, in another Dutch hothouse. A bibliographic catalogue of all 82 *Hanseniella* species known to date is presented.

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РЕЗЮМЕ. Описан новый вид симфила рода *Hanseniella* Bagnall, 1913. Он был найден в маленьком зоопарке в Алмере (Нидерланды). Вид *Hanseniella oligomacrochaeta* Scheller, 2002 впервые обнаружен со времени его описания в еще одной голландской оранжерее. Представлен библиографический каталог всех 83 известных до сих пор видов рода *Hanseniella*.

Introduction

Symphylans in hothouses have received little attention in comparison to other myriapods. Four hothouses in the Netherlands have recently been investigated: Luttelgeest Orchid Farm; Almere Jungle Zoo; University of Utrecht Botanical Garden; University of Amsterdam Botanical Garden. From two of these hothouses (Amsterdam and Utrecht), the diplopod and isopod faunas are known to be rich [Berg *et al.*, 2008] and the same was expected of the symphylan fauna. None, however, were found. Symphylans were only revealed in the two other hothouses, where they were very rare. One of the species found is known from hothouses in London [Shaw, 1961], Berlin [Scheller, 2002] and Tomsk [Nefediev *et al.*, 2016]. The second species was only reported from Berlin [Scheller, 2002]. The third species is new to science.

Systematics

The four animals collected belong to two genera and three species. Of the two animals from Luttelgeest, one is *Symphylella vulgaris* (Hansen, 1903) and the other *Hanseniella oligomacrochaeta* Scheller, 2002.

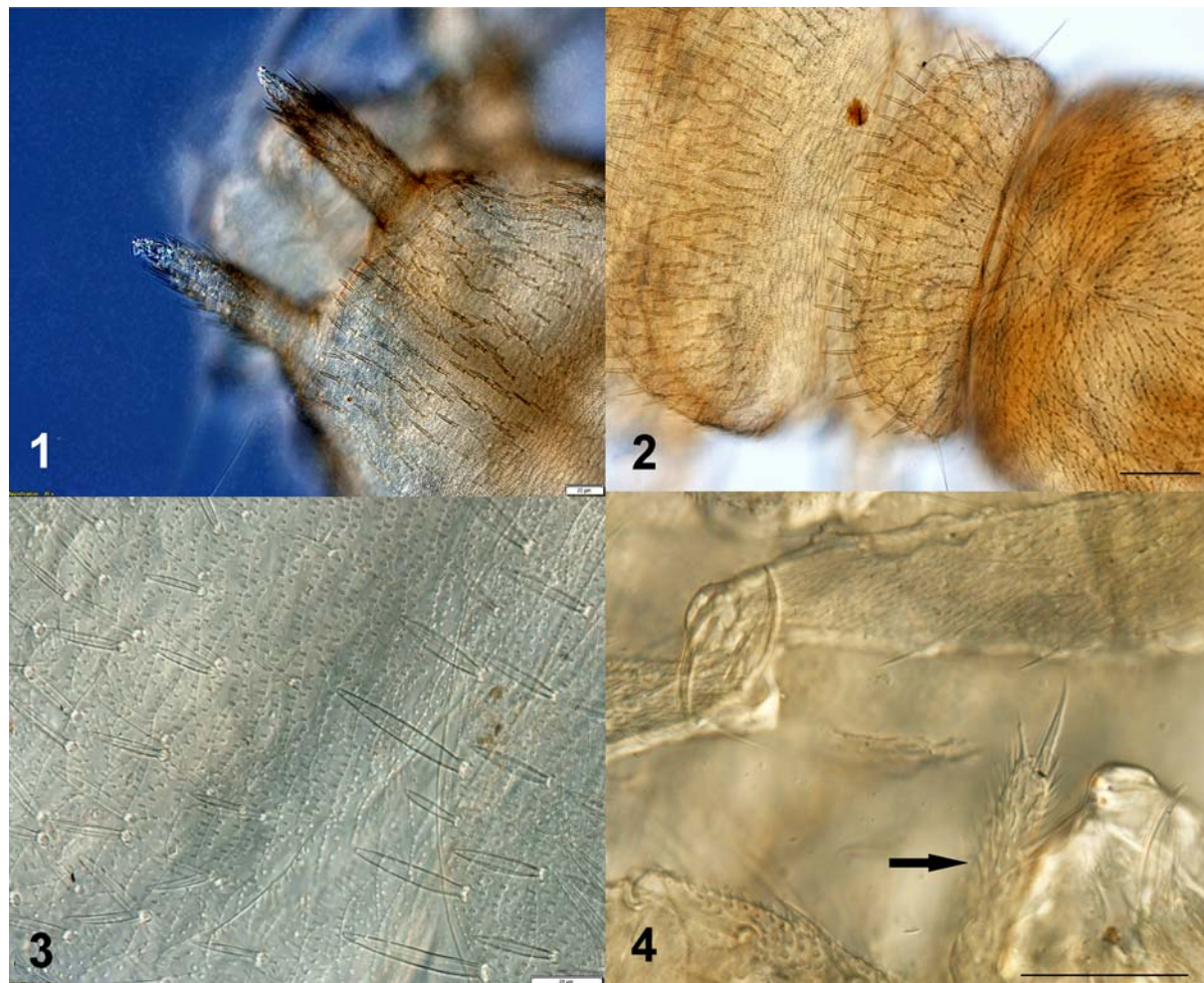
Animals from the Almere Jungle Zoo, belonging to the family Scutigereidae, could not be identified to the species level. The Scutigereidae consists of five genera [Camacho, 2010]. Comparison with these five genera showed that the Almere Jungle Zoo animals have:

- no u-shaped incision, and are, therefore, not *Scutigereella* [Edwards, 1959];
- neither angled tergites nor short styli, thus indicating that they are not *Scolopendrelloides* [Camacho, 2010];
- no sternal appendages, as would be the case with *Millotellina* [Naumann, Scheller, 1977];
- no disciform lobe on the last tergite as found in *Scopoliella* [Scheller, 1986].

Both animals from the Almere Jungle Zoo belong to *Hanseniella* Bagnall, 1913 and have only one pair of anterolateral macrochaetae on tergite 2. Since there is no key to all of the known *Hanseniella* species, descriptions of 82 species [Szucsich, Scheller, 2011] were consulted. No new species have been described since 2011 [BioNames, 2018]. Only three of these species have a reduced number of anterolateral macrochaetae, with only one pair being anterolateral macrochaetae on segment 2. A complete list of *Hanseniella* species with the known positions of (anterolateral) macrochaetae on the tergites is in Appendix.

- Family Scolopendrellidae
Genus *Symphylella* Silvestri, 1902
1. *Symphylella vulgaris* (Hansen, 1903)

A widely distributed subcosmopolitan species [Camacho, VandenSpiegel, 2012]. Known from Europe, Asia, Africa, North America, Mexico and New Zealand



Figs 1–4. *Hanseniella lanceolata* sp.n., holotype. 1 — last segment; 2 — anterolateral macrochaetae on tergite 2; 3 — setae and pubescence on tergite 2; 4 — stylus indicated by arrow. Scale bars: 100 μ m (2) and 50 μ m (4).

Рис. 1–4. *Hanseniella lanceolata* sp.n., голотип. 1 — последний сегмент; 2 — переднебоковые макрохеты на тергите 2; 3 — щетинки и опушение на тергите 2; 4 — перо обозначено стрелкой. Масштаб: 100 мкм (2) и 50 мкм (4).

and the Atlantic islands of Madeira, Azores and St. Helena. The main distribution is in Europe where it occurs in natural habitats, common in gardens and hot-houses [Hansen, 1903; Scheller, Stoev, 2006].

Family Scutigerellidae

Genus *Hanseniella* Bagnall, 1913

2. *Hanseniella oligomacrochaeta* Scheller, 2002

A species previously known only from a hothouse in Berlin [Scheller, 2002] where 19 specimens were caught. The Orchid Farm specimen is the first published record since the original description of the species and represents an addition to the Dutch fauna.

3. *Hanseniella lanceolata* sp.n.

Figs 1–11.

HOLOTYPE, Almere Jungle Zoo hothouse, Almere, the Netherlands, collected on 18.XI.2017, leg. M. Soesbergen.

PARATYPE, same data, together with holotype.

Slide preparations of the cleared animals are deposited in the collection of the Naturalis Biodiversity Centre Leiden, numbers RMNH.5092386 (holotype) and RMNH.5070501 (paratype).

On a second visit on 11.VI.2018, no more animals could be found.

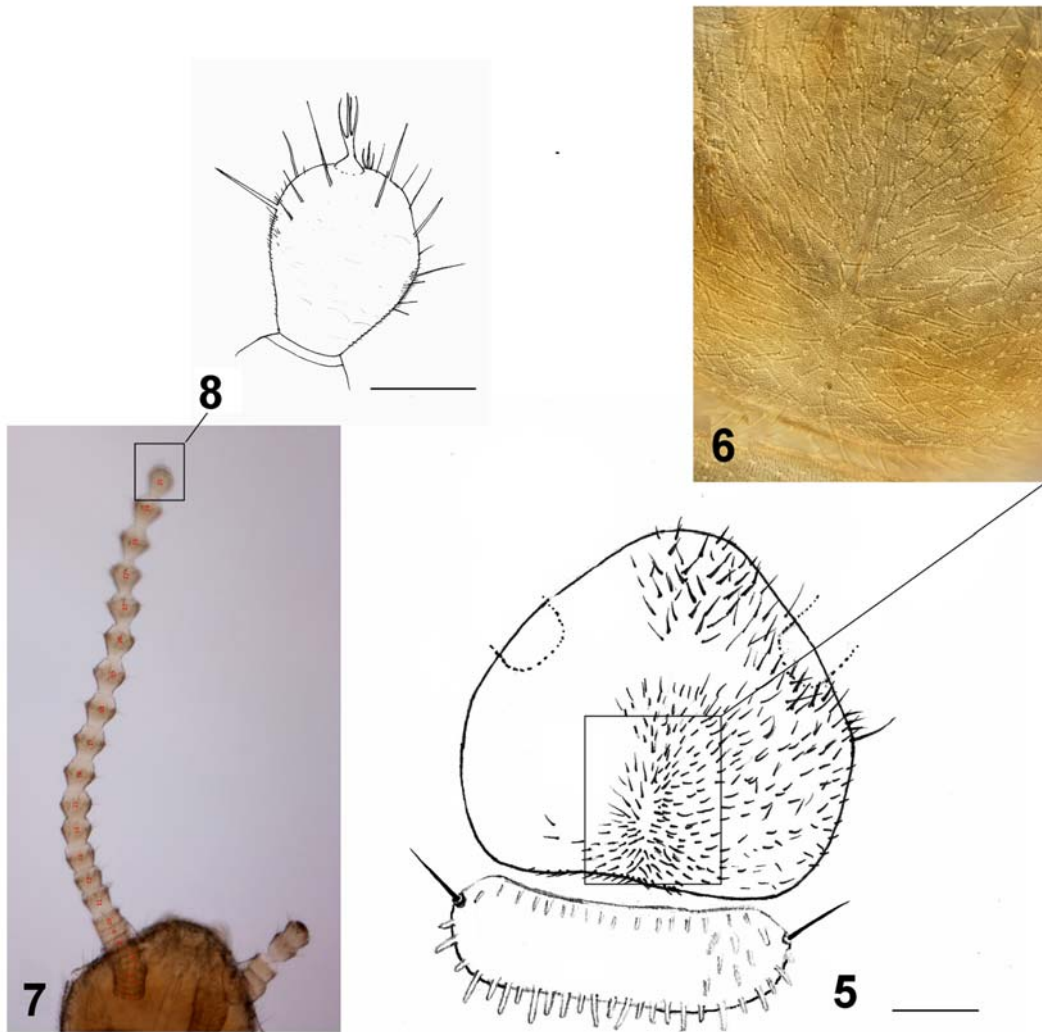
DIAGNOSIS. Last segment (Fig. 1) rounded, with neither a u-shaped incision nor a depression. Only one pair of anterolateral macrochaetae on segment 2 (Fig. 2) and no anterolateral macrochaetae on other segments. Setae on dorsal side of tergites fusiform. Tergites with pubescence among these setae, mostly placed on ridges (Fig. 3). Stylus with two terminal spines, unequal of length, and one long lateral spine (Fig. 4).

TYPE LOCALITY. Almere Jungle Zoo hothouse, Almere, the Netherlands.

NAME. From Latin “lanceolata” = lance or spear, referring to the lanceolate shape of the setae on the tergites; adjective in feminine gender.

DESCRIPTION. Length: Body without cerci and antennae 4.25 mm (holotype) and 3.75 mm (paratype).

Head. Rounded and slightly, 1.1 times, broader than long (Fig. 5), head densely granulate and setose. Central rod indistinct, formed by a smooth line without granules (Figs 5,



Figs 5–8. Structural details of head and tergite 2 of *Hanseniella lanceolata* sp.n., holotype. 5 — head and tergite 2; 6 — central rod; 7 — left antenna with 25 segments; 8 — last segment of antenna. Scale bars: 100 μm (5) and 50 μm (8).

Рис. 5–8. Структурные детали головы и тергита 2 у *Hanseniella lanceolata* sp.n., голотип. 5 — голова и тергит 2; 6 — центральная ветвь; 7 — левый усик с 25 сегментами; 8 — последний членик усика. Масштаб: 100 мкм (5) и 50 мкм (8).

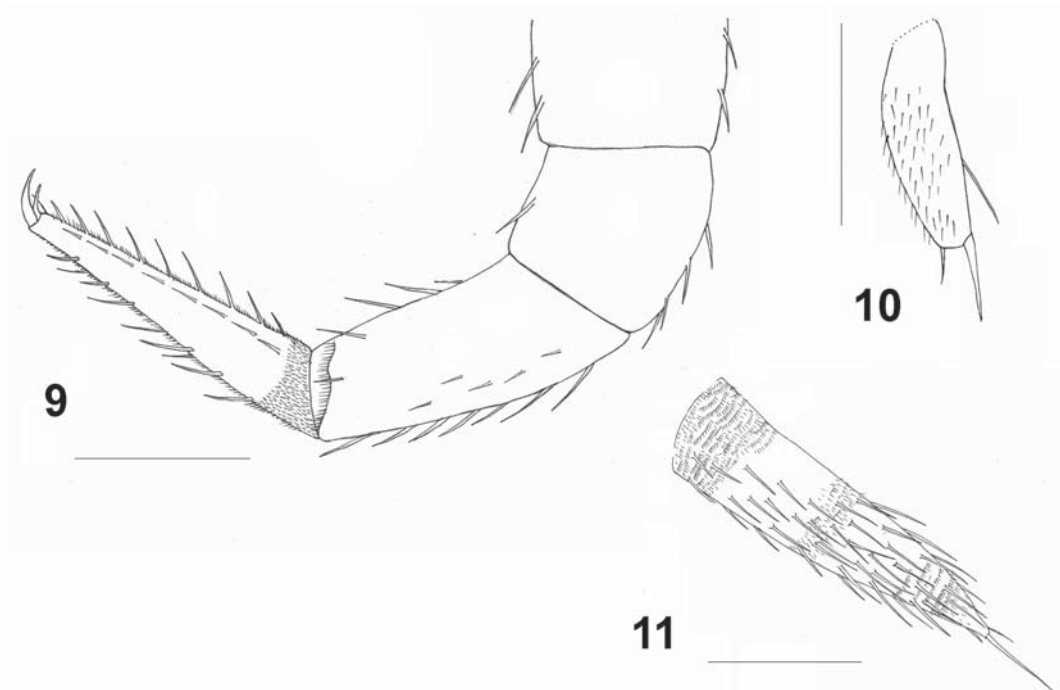
6). Setae at front and on top of head pointed. Setae on the front of head longer and placed less regularly, directed forward and outward from central rod. Setae in back part of head more blunt and lanceolate. One longer seta at median edge of head (Fig. 5) about twice as long as other setae. Setae on head finer than on tergites.

Antennae. Left one short, 1/3 of body length, with 25 segments (Fig. 7). Right antenna of holotype broken off. Paratype with both antennae broken off. First ten segments broader than long. Segment 10 elongated, with some long setae. Segment 11 and following ones conical, each with a whorl of setae. Setae on inner and outer sides almost equal in length. Last segment spherical (Fig. 8), with one large apical four-spined organ on a circular protuberance. A second, much smaller, spined organ present as well.

Tergites. Tergite 1 rudimentary, with two setae. Tergite 2 complete, with a pair of anterolateral macrochaetae directed outward and forward (Fig. 5). Both equal in length (75 μm), 0.9 diameter of antennomere 1. Between anterolateral macrochaetae, 28 posteromarginal setae alternating in size.

Longer setae 0.6 times as long (45–47 μm) as anterolateral macrochaetae. Shorter ones 0.3–0.4 times as long (25–28 μm) as anterolateral macrochaetae. All setae on tergites blunt lanceolate (parallel-sided and broadest before the middle) to somewhat fusiform (broadest in the middle and tapering thereafter). Most of larger setae lanceolate and some of the smaller more fusiform. Starting with tergite 3, alternation of long and shorter setae at hind edge less clear. Tergite 3 longer, length:breadth = 1:1.6. Segments 5, 6 and 13 also longer. Tergites 4 and 7–12 shorter. Last tergite (Fig. 1) rounded, without u-shaped incision. Short fusiform pubescence between setae, this pubescence present on all segments and mostly located on cuticular ridges (Fig. 3).

Legs. With numerous large setae on trochanter, femur, coxa and tarsus (Fig. 9). Trochanter dorsally with, at the most, two setae on last leg. Tarsi regularly tapering distally. Tarsi with rows of 7–10 setae dorsally, proximally and ventrally. Tibiae stout, with setae on all sides. Femur short, with several setae on dorsal and proximal sides and one on ventral side. Claws unequal in size, the smaller one about 2/3



Figs 9–11. Leg and appendages of *Hanseniella lanceolata* sp.n., holotype (9 and 11) or paratype (10). 9 — last leg, pubescence only partly shown on tarsus; 10 — stylus; 11 — cercus, pubescence only partly drawn. Scale bars: 100 μ m (9 and 11) and 50 μ m (10).

Рис. 9–11. Нога и конечности у *Hanseniella lanceolata* sp.n., голотип (9 и 11) или паратип (10). 9 — последняя нога, опушение показано только частично на лапке; 10 — перо; 11 — церка, опушение показано только частично. Масштаб: 100 мкм (9 и 11) и 50 мкм (10).

the size of the longer one. Front seta almost as long as shorter claw. Trochanter, femur, coxa and tarsus with pubescence of short hairs.

Styli. About 3.5 times as long as broad and about 1.5 times as long as basis of tarsus. One side slightly concave, the other almost straight (Fig. 10). Two apical setae, the longer twice as long as the smaller one. On the straight side, a slender seta at 2/3 of the length, about as long as the long apical seta.

Cerci. Conical and about 3.7 times as long as wide. On one side, 40–45 slightly curved setae, distal ones being longer than proximal ones. Distal setae 0.64 ± 0.08 ($n=10$) times as long as greatest diameter of cercus, vs. 0.44 ± 0.04 ($n=10$) times in proximal ones. Setae not uniformly distributed and absent from first half on mesal side (Fig. 11). Pubescent with a glabrous top. Pubescence present as very small hairs among setae placed on and between transverse rows of cuticular ridges. Top seta on cerci 0.6 times as long as the greatest diameter of a cercus.

AFFINITIES AND COMPARISONS

Comparing the new species to known congeners, it is noteworthy that species with only anterolateral macrochaetae on tergite 2 are very rare. The three other species with only one pair of anterolateral macrochaetae on tergite 2 are as follows: *Scutigera* (*Hanseniella*) *hanseni* (Bagnall, 1913). *H. condylifera* Scheller, 1971 and *H. unichaetosa* Scheller, 1971. Bagnall's [1913] description of *H. hanseni* is short and incomplete, in contrast to Scheller's [1971] descriptions of *H. unichaetosa* and *H. condylifera*. Both latter species are small, *H. condylifera* reaching 3.8 mm (mean 3.44 mm) without antenna and cerci, *H. unichaetosa*

averages 2.02 mm and reaches 3.04 mm [Scheller, 1971], vs. 4.65 mm in *H. hanseni* [Bagnall, 1913].

Hanseniella lanceolata sp.n. measures 3.75 to 4.25 mm. The differences from the other three species are discussed, and comparisons given, in Table. The head of all four species is about as long as broad, with an indistinct central rod in three species, vs. unknown in *H. hanseni*. The end swelling in the new species is indistinct and elongated, vs. round to ovoid. The setae on the head are of different shapes, straight and pointed on the front, longer, slightly bent and blunt in the back part. In *H. condylifera* and *H. unichaetosa*, all are equal in length and pointed. In *H. hanseni*, they are short, fusiform and blunt. One longer seta is at the angle on the side of the head. In *H. condylifera* and *H. unichaetosa*, there are two longer setae. The number of antennomeres is much larger in *H. hanseni* (38), whereas *H. unichaetosa* has less, 22–23 segments.

Tergite 1 is reduced, with two setae, this character being unknown in *H. hanseni*. Tergite 2 has one pair of long anterolateral macrochaetae, each 0.9 times the size of the basis of the antenna, pointed as in *H. unichaetosa*. The number and shape of setae between the anterolateral macrochaetae differs strongly, blunt and alternating in length. In *H. condylifera* and *H. unichaetosa* shorter, pointed and not alternating in length. The dense pubescence all over tergites, mostly placed on cuticular ridges, gives them a scaly appearance. In *H. condylifera*, the hind margin is glabrous and has a different pattern (Table). In *H. unichaetosa*, there is no pubescence on tergites.

The styli are with three setae, two distal and unequal in length and one lateral seta about the size of the long distal

Table. Comparison of features in four species of *Hanseniella*.
Таблица. Сравнение признаков четырех видов *Hanseniella*.

Features	<i>H. condylifera</i>	<i>H. unichaetosa</i>	<i>H. hanseni</i>	<i>H. lanceolata</i> sp.n.
Length	2.78–(3.44)–3.80 (n=29)	1.80–(2.08)–3.13 (n=85)	4.65 (n=1)	3.75–4.25 (n=2)
Head				
Shape	As long as broad	About as long as broad	Ovate 7/8 as long as broad (1:1.1)	About as long as broad (1:1.1)
Central rod	A very thin circular to ovoid end swelling	Thin, indistinct with a round end swelling	Unknown	Indistinct with a lanceolate end swelling
Setae	Dense, equal in length and pointed, lateral ones slightly bent	Dense, straight, equal in length and pointed	Short, blunt, fusiform	On front pointed, in the rear blunt
Setae at margin	Two, dagger- or blade-shaped, a little longer	Two longer setae behind antenna	Unknown	One twice as long
Segments antenna	23–34	22–23	38	25
Body				
Tergite 1	Reduced with 2 setae	Reduced with 2 setae	Unknown	Reduced with 2 setae
Tergite 2	2.6–3.6x as broad as long	2.0–2.2x as broad as long	Unknown	2.7x as broad as long
– AM x length of first segment antenna	0.6–0.7	0.7–0.8	<1.0	0.9
– AM setae	Blunt	Pointed	Unknown	Pointed
– setae between	23–26	15–19	Unknown	28
– setae between	Pointed, short (0.3–0.33 AM) and longest in the middle	Pointed, short (0.5x AM) and equal in length	Unknown	Blunt, alternating long (0.5 x AM) and short (0.25x AM)
– dorsal setae	Pointed anterior and blunt posterior	Pointed and sparse	Short blunt	Numerous blunt all over
– pubescence	Distinct anteriorly, partly in transverse lines, posterior reticulate. Rear margin glabrous.	No pubescence, but finely granulated	Unknown	Distinct, short, blunt, partly located on cuticular ridges
Appendages				
Legs tarsus setae	6(–8)	5	10–12	8–9
Cerci l:b	2.5–3.0x	2.8–3.3x	4.0–4.5x	3.7–3.8x
Cerci setae length to depth of cerci	0.4–0.5(0.6)x	0.6–0.8 increasing distally	>0.5x	0.5–0.7x increasing distally
Cerci setae/side	<15	<10	Moderate (±20)	30–36
Cerci top	Glabrous and triangular	Glabrous and swollen	Not clearly drawn	Glabrous and conical
Styli l:b	2.4–2.9x as long as wide	3.2–3.3x as long as wide	Unknown	3.5–4.7x as long as wide
Styli hairs	Pubescent	Finely pubescent	Unknown	Pubescent
Styli setae	2	2	Unknown	3
Coxal sacks	7 pairs on legs 3–9	7 pairs on legs 3–9	Unknown	7 pairs on legs 3–9

AM — anterolateral macrochaetae.

one. The longest distal seta is 0.31–0.36 times as long as the stylus, the shortest 0.4–0.5 times the length of the longest. In *H. condylifera*, there are two distal setae unequal in length, the longest being 0.4 times the stylus length, the shortest 0.4 times as long as the longest seta. In *H. unichaetosa*, two distal setae are unequal in length, the longest being 0.6 times the stylus length, the shortest 0.5 times as long as the longest seta. Regrettably, these characters are unknown in *H. hanseni*.

The cerci support far more numerous setae than the other species. The cerci are more slender than in *H. condylifera* and *H. unichaetosa*, but broader than in *H. hanseni*.

The main differences between the four species lie in the shape and number of setae on the tergites and head, the number of setae on the cerci and the number of large setae on the styli. The new species differs readily from the other three species in question that show only a single pair of large anterolateral macrochaetae on tergite 2 (Table).

The affinities of *H. lanceolata* sp.n. lie not only with the above trio of congeners that share a reduced number of anterolateral macrochaetae, but also with another four species which show macrochaetae only on tergites 2 and 3. These are *H. appendicofera* Scheller, 1971, *H. cirrofera* Scheller, 1971, *H. oligomacrochaeta* and *H. silvicola* Scheller, 1961 (see Scheller [2002]).

The stylus with a third seta 2/3 as long as the straight side resembles that of *H. pillipes* Attems, 1937, *H. afromontana* Scheller, 1954, *H. pulchra* Rochaix, 1956 and *H. natalensis* Juperthie-Jupeaux, 1972. The first is a large (9 mm) species with (antero)lateral macrochaetae at least on tergites 2 to 9 [Attems, 1937]. The second species has long anterolateral macrochaetae on tergites 2, 3, 4, 6, 7 and 9 [Scheller, 1954]. The third species shows long anterolateral macrochaetae on tergites 2, 3, 4, 6, 7, 9 and 10 [Rochaix, 1956]. The last species has long anterolateral macrochaetae on tergites 2, 3, 6, 9 and 12 [Juperthie-Jupeaux, 1972]. All four are African taxa.

Discussion

The most common *Hanseniella* species in hothouses is *H. caldaria* (Hansen, 1903), described from a hothouse in Copenhagen [Hansen, 1903]. It is known from Belgium [Lock, 2010], France, Denmark, Monaco, England [Remy, 1942], Scotland [Hancock, 1999], Norway [Olsen *et al.*, 2014] and Germany [Voigtländer *et al.*, 2017]. This species has not yet been found in the Netherlands. Other species of *Hanseniella* known from hothouses are *H. agilis* Tiegs, 1939, *H. oligomacrochaeta*, *H. orientalis* (Hansen, 1903), and *H. unguiculata* (Hansen, 1903) [Shaw, 1961; Voigtländer *et al.*, 2017]. An unidentified *Hanseniella* is known from a hothouse in Tomsk, Siberia [Nefediev *et al.*, 2016]. Because the genus *Hanseniella* is widespread in the tropical and subtropical regions of the world, more species are probably to be found in hothouses. For species other than *H. caldaria*, particular care is needed when identifying specimens from hothouses.

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APPENDIX

The appendix gives the name, the author and year of description for each *Hanseniella* species. The tergites are numbered 1–14. The first tergite is always reduced (R). For the other tergites, the presence (Y) or absence (N) of macrochaetae is given. When unknown, this is indicated with ?. Literature and remarks give the literature used and sometimes a remark on the status of the species or the affinity with other species. Those shaded in grey are species described as *Hanseniella*, but transferred to *Scopoliella*.

SPECIES	Pair of macrochaetae on TERGITE														Literature and remarks	
	T1	T2	T3	T4	T5	T6	T7	T8	T9	T10	T11	T12	T13	T14		
<i>H. lanceolata</i> sp.n.	R	Y	N	N	N	N	N	N	N	N	N	N	N	N	N	
<i>H. aculeata</i> Jupeau, 1955	R	Y	Y	Y	N	Y	Y	N	Y	N	N	N	N	N	N	Jupeau [1955]
<i>H. afriomontana</i> Scheller, 1954	R	Y	Y	Y	N	Y	Y	N	Y	N	N	N	N	N	N	Scheller [1954]
<i>H. agilis</i> Tiegs, 1939	R	Y	Y	N	Y	Y	N	Y	Y	N	Y	Y	Y	Y	N	Tiegs [1939]
<i>H. angulosa</i> (Hansen, 1903)	R	Y	Y	N	N	Y	N	N	Y	N	N	Y	N	N	Y	Hansen [1903], Camacho [2010] belongs to <i>Scopoliella</i>
<i>H. appendicofera</i> Scheller, 1971	R	Y	Y	N	N	N	N	N	N	N	N	N	N	N	N	Scheller [1971]
<i>H. arborea</i> Scheller, 1979	R	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Scheller [1979b]
<i>H. armigera</i> Scheller, 1961	R	Y	Y	Y	N	Y	Y	N	Y	N	N	N	N	N	N	Scheller [1961]
<i>H. audax</i> Clark et Greenslade, 1996	R	Y	Y	Y	N	Y	Y	N	Y	Y	N	Y	Y	Y	N	Clark, Greenslade [1996]
<i>H. bacillisetosa</i> Scheller, 1971	R	Y	Y	N	N	N	N	N	N	N	N	N	N	N	N	Scheller [1971]
<i>H. baltica</i> Scheller et Wunderlich, 2004	R	N	Y	Y	N	Y	N	N	Y	Y	Y	Y	Y	Y	Y	Scheller, Wunderlich [2004]
<i>H. barroisi</i> Aubrey et Masson, 1953	R	Y	Y	Y	N	Y	Y	Y	Y	Y	N	N	N	N	N	Aubrey, Masson [1953]
<i>H. brachyserca</i> Adam et Burtel, 1956	R	Y	Y	Y	N	Y	Y	N	Y	Y	N	N	N	N	N	Adam, Burtel [1956]
<i>H. caldaria</i> (Hansen, 1903)	R	Y	Y	Y	N	Y	Y	N	Y	N	N	N	N	N	N	Bagnall [1913], Hansen [1903]
<i>H. californica</i> Hilton, 1931	R	Y	Y	Y	N	Y	Y	N	Y	Y	N	Y	Y	Y	Y	Allan [1992] same anterolateral macrochaetae as in <i>H. ouachitica</i>
<i>H. campbellensis</i> Juberthie-Jupeau, 1964	R	Y	Y	Y	N	Y	Y	N	Y	Y	N	Y	Y	Y	Y	Juberthie-Jupeau [1964]
<i>H. capensis</i> (Hansen, 1903)	R	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Hansen [1903]
<i>H. chilensis</i> (Hansen, 1903)	R	Y	Y	Y	?	?	?	?	?	?	?	?	?	?	?	Hansen [1903]
<i>H. cirrofera</i> Scheller, 1971	R	Y	Y	N	N	N	N	N	N	N	N	N	N	N	N	Scheller [1971]
<i>H. colombiana</i> Juberthie-Jupeau et Réveillet, 1997	R	Y	Y	Y	N	Y	Y	N	Y	N	N	N	N	N	N	Juberthie-Jupeau, Réveillet [1997]
<i>H. condylifera</i> Scheller, 1971	R	Y	N	N	N	N	N	N	N	N	N	N	N	N	N	Scheller [1971]
<i>H. confusa</i> Adam et Burtel, 1956	R	Y	Y	Y	N	Y	Y	N	Y	Y	N	Y	N	N	N	Adam, Burtel [1956]
<i>H. conisetosa</i> Scheller, 1971	R	Y	Y	Y	N	Y	Y	N	Y	N	N	N	N	N	N	Scheller [1971]
<i>H. conveniens</i> Clark et Greenslade, 1996	R	Y	Y	Y	N	Y	Y	N	Y	N	N	Y	Y	Y	N	Clark, Greenslade [1996]
<i>H. copiosa</i> Clark et Greenslade, 1996	R	Y	Y	Y	N	Y	Y	N	Y	Y	N	Y	Y	Y	Y	Clark, Greenslade [1996]
<i>H. crassisetosa</i> Adam et Burtel, 1956	R	Y	Y	Y	N	Y	Y	N	Y	Y	N	Y	N	N	N	Adam, Burtel [1956]

APPENDIX (continued)

SPECIES	Pair of macrochaetae on TERGITE														Literature and remarks
	T1	T2	T3	T4	T5	T6	T7	T8	T9	T10	T11	T12	T13	T14	
<i>H. cristata</i> Scheller, 1971	R	Y	Y	N	Y	N	Y	N	N	Y	N	N	N	N	Scheller [1971]
<i>H. delphini</i> (Aubrey et Masson, 1953)	R	Y	Y	Y	N	N	N	N	N	N	N	N	N	N	Aubrey, Masson [1953]
<i>H. dolosa</i> Ribaut, 1914	R	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Scheller [1971], Camacho [2010] belongs to <i>Scopoliella</i>
<i>H. dugdalei</i> Adam et Burtel, 1956	R	Y	Y	Y	N	Y	Y	Y	Y	Y	N	Y	Y	Y	Adam, Burtel [1956]
<i>H. echinata</i> Adam et Burtel, 1956	R	Y	Y	Y	N	Y	Y	Y	Y	N	N	N	N	N	Adam, Burtel [1956]
<i>H. elgolenensis</i> Scheller, 1954	R	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Scheller [1954], Camacho [2010] belongs to <i>Scopoliella</i>
<i>H. forsteri</i> Adam et Burtel, 1956	R	Y	Y	Y	N	Y	Y	Y	Y	Y	N	Y	N	N	Adam, Burtel [1956]
<i>H. ghanensis</i> Belfield, 1988	R	Y	Y	Y	N	Y	Y	Y	Y	N	N	N	N	N	Belfield [1988]
<i>H. glabra</i> Adam et Burtel, 1956	R	Y	Y	Y	N	Y	Y	Y	Y	N	N	N	N	N	Adam, Burtel [1956]
<i>H. graeca</i> Remy, 1941	R	?	?	?	?	?	?	?	?	?	?	?	?	?	Camacho [2010] belongs to <i>Scopoliella</i>
<i>H. guimaraensis</i> Scheller, 2007	R	Y	Y	Y	N	Y	Y	Y	Y	N	N	N	N	N	Scheller [2007]
<i>H. hanseni</i> (Bagnall, 1913)	R	Y	N	N	N	N	N	N	N	N	N	N	N	N	Bagnall [1913]
<i>H. hardyi</i> (Chamberlin, 1920)	R	Y	Y	Y	?	Y	Y	?	Y	Y	?	?	?	?	Clark, Greenslade [1996]
<i>H. hebes</i> Clark et Greenslade, 1996	R	Y	Y	N	N	Y	N	N	N	N	N	N	N	N	Clark, Greenslade [1996]
<i>H. heterotosa</i> Scheller, 1971	R	Y	Y	Y	N	Y	Y	Y	Y	Y	N	N	N	N	Scheller [1971]
<i>H. hortulana</i> Scheller, 1971	R	Y	Y	Y	N	Y	Y	Y	Y	N	N	N	N	N	Scheller [1971]
<i>H. hova</i> Remy, 1942	R	Y	Y	Y	N	Y	Y	Y	Y	Y	N	N	N	N	Adam et Burtel [1956], Remy [1942]
<i>H. imerina</i> Aubrey et Masson, 1953	R	Y	Y	Y	N	N	N	N	N	N	N	N	N	N	Aubrey, Masson [1953], see also <i>H. modesta</i>
<i>H. incisa</i> Scheller, 1979	R	Y	Y	Y	N	Y	Y	Y	Y	N	N	N	N	Y	Scheller [1979a]
<i>H. incompta</i> Scheller, 1971	R	Y	Y	Y	N	Y	Y	Y	Y	N	N	N	N	N	Scheller [1971]
<i>H. indecisa</i> (Attems, 1911)	R	Y	Y	Y	N	Y	Y	Y	Y	Y	N	N	N	N	Adam, Burtel [1956]
<i>H. insequens</i> Clark et Greenslade, 1996	R	Y	Y	Y	N	Y	Y	Y	Y	N	N	Y	Y	N	Clark, Greenslade [1996]
<i>H. ivoriensis</i> Juberthie-Jupeau et Kehe, 1978	R	Y	Y	Y	N	Y	Y	Y	Y	N	N	N	N	N	Juberthie-Jupeau, Réveillet [1997]
<i>H. longisetis</i> Juberthie-Jupeau, 1962	R	Y	Y	Y	N	Y	Y	Y	Y	Y	N	N	N	N	Scheller [1971]
<i>H. lucifuga</i> Scheller, 1961	R	Y	Y	Y	N	Y	Y	Y	Y	N	N	N	N	N	Scheller [1961]
<i>H. madecassa</i> Aubrey et Masson, 1953	R	Y	Y	Y	N	Y	Y	Y	Y	Y	N	Y	Y	N	Aubrey, Masson [1953]
<i>H. magna</i> Scheller, 1996	R	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	Y	Y	N	Scheller [1996]
<i>H. milloti</i> Aubrey et Masson, 1953	R	Y	Y	Y	N	Y	Y	Y	Y	N	N	N	N	N	Aubrey, Masson [1953]
<i>H. minor</i> Tiegs, 1939	R	Y	N	Y	N	N	Y	Y	Y	Y	N	N	Y	Y	Tiegs [1939]
<i>H. modesta</i> Aubrey et Masson, 1953	R	Y	Y	Y	N	Y	Y	Y	Y	N	N	N	N	N	Scheller [1971], Aubrey, Masson [1953]: macrochaetae on 2, 3, 4.

APPENDIX (continued)

SPECIES	Pair of macrochaetae on TERGITE														Literature and remarks
	T1	T2	T3	T4	T5	T6	T7	T8	T9	T10	T11	T12	T13	T14	
<i>H. montana</i> Scheller, 1971	R	Y	Y	Y	N	Y	Y	N	Y	N	N	N	N	N	Scheller [1971]
<i>H. mutila</i> Adam et Burtel, 1956	R	Y	Y	Y	N	Y	Y	N	Y	N	N	Y	Y	N	Adam, Burtel [1956]
<i>H. natalensis</i> Juberthie-Jupeau, 1972	R	Y	Y	N	N	Y	N	N	Y	N	N	Y	N	N	Juberthie-Jupeau [1972]
<i>H. neozelandica</i> Chamberlin, 1920	R	?	?	?	?	?	?	?	?	?	?	?	?	?	Chamberlin [1920], close to <i>H. plebeia</i> and <i>H. nivea</i>
<i>H. nivea</i> (Scopoli, 1763)	R	Y	Y	Y	N	Y	Y	Y	Y	N	N	Y	Y	N	Hansen [1903], Bagnall [1913]
<i>H. nuda</i> Clark et Greenslade, 1996	R	Y	Y	Y	N	Y	Y	Y	Y	N	N	Y	N	N	Clark, Greenslade [1996]
<i>H. oligomacrochaeta</i> Scheller, 2002	R	Y	Y	N	N	N	N	N	N	N	N	N	N	N	Scheller [2002]
<i>H. orientalis</i> (Hansen, 1903)	R	Y	Y	Y	N	Y	Y	Y	Y	N	N	Y	N	N	Hansen [1903]
<i>H. ouachiticha</i> Allan, 1992	R	Y	Y	Y	N	Y	Y	Y	Y	Y	N	Y	Y	Y	Allan [1992]
<i>H. paolettii</i> Scheller, 1993	R	Y	Y	Y	Y	Y	?	?	?	?	?	?	?	?	Scheller [1993]
<i>H. pillipes</i> Attems, 1937	R	Y	Y	Y	Y	Y	Y	Y	Y	N	N	N	N	N	Attems [1937]
<i>H. plebeja</i> (Hansen, 1903)	R	Y	Y	Y	N	Y	Y	N	N	N	N	N	N	N	Hansen [1903]
<i>H. pluvialis</i> Clark et Greenslade, 1996	R	Y	Y	Y	N	Y	Y	Y	Y	Y	N	Y	Y	N	Clark, Greenslade [1996]
<i>H. producta</i> Ribaut, 1914	R	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Ribaut [1914], Camacho [2010] belongs to <i>Scopoliella</i>
<i>H. proxima</i> Adam et Burtel, 1956	R	Y	Y	Y	N	Y	Y	Y	Y	N	N	Y	Y	N	Adam, Burtel [1956]
<i>H. pulchra</i> Rochaix, 1956	R	Y	Y	Y	N	Y	Y	Y	Y	N	N	N	N	N	Rochaix [1956]
<i>H. pyrethrata</i> Clark et Greenslade, 1996	R	Y	Y	Y	N	Y	Y	Y	Y	N	N	Y	Y	N	Clark, Greenslade [1996]
<i>H. remyi</i> Aubrey et Masson, 1953	R	Y	Y	Y	N	Y	Y	Y	Y	N	N	N	N	N	Aubrey, Masson [1953]
<i>H. reticulata</i> Scheller, 1971	R	Y	Y	N	N	Y	N	N	Y	N	N	N	N	N	Scheller [1971]
<i>H. ruwenzorii</i> (Silvestri, 1907)	R	Y	Y	Y	Y	Y	Y	N	N	N	N	N	N	N	Silvestri [1907]
<i>H. serisetosa</i> Scheller, 1971	R	Y	Y	N	N	Y	N	N	Y	N	N	N	N	N	Scheller [1971]
<i>H. setigera</i> Adam et Burtel, 1956	R	Y	Y	Y	N	Y	Y	Y	Y	Y	N	Y	N	N	Adam, Burtel [1956] as <i>H. confusa</i> var. <i>setigera</i>
<i>H. silvicola</i> Scheller, 1961	R	Y	Y	N	N	N	N	N	N	N	N	N	N	N	Scheller [1961]
<i>H. similis</i> Scheller, 1961	R	Y	Y	Y	N	Y	Y	Y	Y	N	N	N	N	N	Scheller [1961]
<i>H. southgatei</i> Adam et Burtel, 1956	R	Y	Y	N	N	Y	N	Y	Y	N	N	N	N	N	Adam, Burtel [1956]
<i>H. subunguiculata</i> (Imms, 1908)	R	Y	Y	?	?	?	?	?	?	?	?	?	?	?	Imms [1908], resembles <i>H. unguiculata</i> .
<i>H. tasma</i> Hilton, 1943	R	N	?	?	?	?	?	?	?	?	?	?	?	?	Hilton [1943]
<i>H. tenella</i> Ribaut, 1914	R	Y	Y	N	N	Y	N	Y	Y	N	N	Y	N	Y	Ribaut [1914], Camacho [2010] belongs to <i>Scopoliella</i>
<i>H. unguiculata</i> (Hansen, 1903)	R	Y	Y	Y	N	Y	Y	Y	Y	N	N	N	N	N	Hansen [1903]
<i>H. unichaetosa</i> Scheller, 1971	R	Y	N	N	N	N	N	N	N	N	N	N	N	N	Scheller [1971]
<i>H. vandykei</i> Michelbacher, 1939	R	Y	Y	Y	N	Y	Y	Y	Y	Y	N	Y	N	N	Michelbacher [1939]
<i>H. vulgata</i> Adam et Burtel, 1956	R	Y	Y	Y	N	Y	Y	Y	Y	Y	N	Y	Y	N	Adam, Burtel [1956]
<i>H.</i> from Yumba Rochaix, 1955	R	Y	Y	Y	N	Y	Y	Y	Y	N	N	N	N	Y	Scheller [1979a]