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of
to Mary Seely

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with compliments

Juan Heyns.

THREE *MONHYSTRELLA* SPECIES FROM INLAND WATERS IN
SOUTH WEST AFRICA-NAMIBIA
(NEMATODA: MONHYSTERIDAE)

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Three species of *Monhystrella* Cobb, 1918 are recorded from inland waters in South West Africa-Namibia, constituting the first record of these species from southern Africa. Detailed descriptions and figures are provided for the three species, viz. *M. lepidura* (Andrássy, 1963), *M. parvella* (Filipjev, 1931) and *M. paramacrura* (Meyl, 1954). A new subspecies is proposed for the southern African population of *M. lepidura*. *M. lepidura seelyae* n. subsp. is more slender than *M. lepidura lepidura* (from Argentina) and *M. lepidura altherri* (from Switzerland and Ghana), and there is no distinct basal bulb as in the other two subspecies. The two subspecies of *M. parvella*, proposed by Jacobs (1987c) are not recognized.

Keywords: taxonomy, Monhysteridae, *Monhystrella*, southern Africa, fresh water nematodes.

During July 1986 the authors collected several samples in South West Africa-Namibia, following a previous survey in this territory by the senior author. During the second survey one of the team members, L. J. Jacobs, also collected some samples from inland waters. Nematode specimens obtained during these surveys are being jointly studied at the Rand Afrikaans University, Johannesburg and the Rijksuniversiteit Gent. The present study is based on part of the material from inland waters, and deals with three *Monhystrella* species reported here from southern Africa for the first time. Identification of the species was simplified by the recently published work of Jacobs (1987b) on the genus *Monhystrella*.

MATERIALS AND METHODS

The samples were taken by scraping up the top few cm of sediment from streams or ponds, sieving these through a 1 mm sieve to remove debris and then a 25 µm sieve to remove fine silt. The sediment was then concentrated by decantation, and fixed on the spot with hot formaldehyde (70°C) to a final concentration of about 4%. Specimens were afterwards extracted in the laboratory using standard extraction techniques involving centrifugation-

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flotation with silicagel, then processed into anhydrous glycerine and mounted on aluminium double-coverslip slides (Southey, 1970).

All measurements in Tables I-III are in μm . Measurements were done with the aid of a flexible ruler or curvimeter, and were taken along the median line for all curved structures such as entire body, tail, spicules etc. The bulk of the material on which this study was based is housed in the Institute for Zoology at the Rijksuniversiteit Gent, but some specimens of all three species have been deposited at the Rand Afrikaans University, Johannesburg and the British Museum for Natural History, London.

Monhystrella lepidura (Andrássy, 1963) Andrásy, 1968

Synonymy and bibliography: see Jacobs (1987c)

Jacobs (1987b; 1987c) recognises two subspecies of *Monhystrella lepidura*, viz. *M. lepidura lepidura* (Andrássy, 1963) and *M. lepidura altherri* Juget, 1969. The former was described from freshwater in Argentina, and the latter from freshwater in Switzerland, as *Monhystrella altherri* by Juget (1969). *M. lepidura* recorded from Ghana by Andrásy (1965) is regarded by Jacobs as *M. lepidura altherri*. The present specimens (102 females and several juveniles) were collected in the Namib desert close by the Research Station of the Desert Ecological Research Unit at Gobabeb, in shallow water seeping from small springs in a salt pan, saturated with salts, and at a temperature of about 30° . As will be explained in the discussion, we regard this population as a new subspecies of *M. lepidura*, and we dedicate this new subspecies to Dr. Mary Seely, head of the Research Unit at Gobabeb.

Monhystrella lepidura seelyae n. subsp.

(Fig. 1A-M; Table I)

Female. Body slender, rather cylindroid from middle of neck to anus: 6.0 (5.5 - 6.5) μm wide at level of outer labial setae, 12.5 (11.5 - 13) μm at base of neck, 15.0 (14 - 16) μm at widest part anterior to vulva, and 11.0 (10 - 12) μm at anus. Cuticle about 0.5 μm thick. Inner labial papillae not seen. Outer labial setae about 1 μm long, apparently implanted in a single circle with the four cephalic setae. Amphideal fovea circular, about 2 μm in diameter, i.e. about one fourth the corresponding body diameter. Foveae at both sides of the body mostly more or less at the same level, and the mean distance from the anterior rim of the foveae to the anterior body end 15.0 (14 - 16) μm or about 2.5 times the lip region diameter.

Somatic setae about 1.5 μm long. Three pairs of setae on the neck, situated as follows: first pair dorsosublaterally, about 28 μm from anterior end; second pair ventrosilaterally, anterior to nerve ring, about 45 μm from anterior end; and third pair also ventrosilaterally, about halfway between nerve ring and base of pharynx, about 75 μm from anterior end. The next pair of setae to be

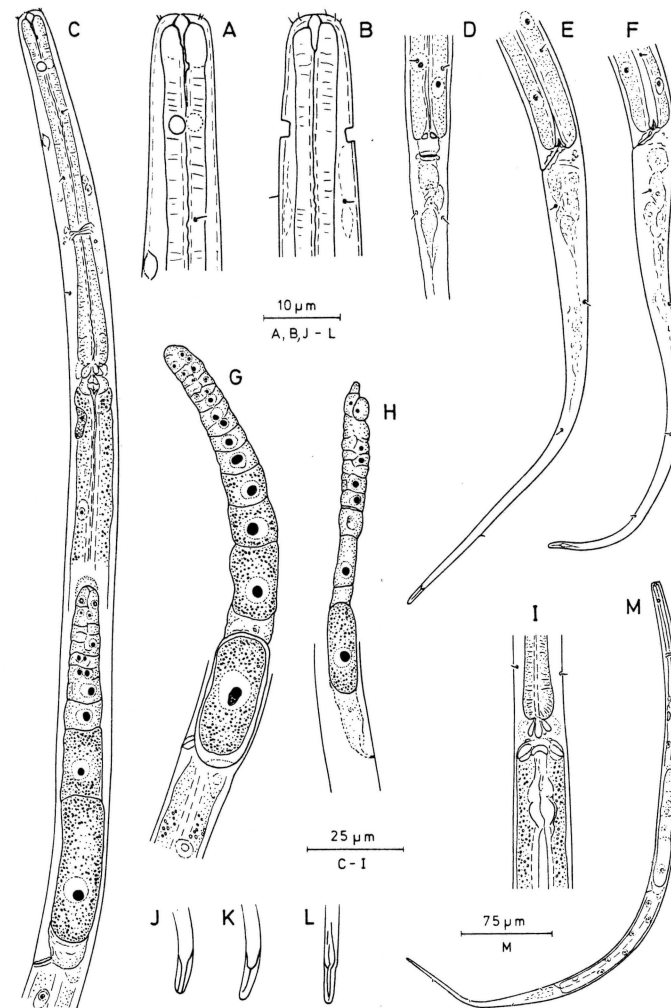


Fig. 1. A-L: *Monhystrella lepidura seelyae* subsp. n. A & B. Head end, lateral and dorso-ventral view. C. Anterior body region as far as vulva. D. Ventral view of anal region. E & F. Tails of two specimens. G. Reproductive system with intra-uterine egg. H. Reproductive system of young female. I. Ventral view of cardia region (ventral gland not shown). J-L. Tail end in three specimens. M. Habitus.

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TABLE I

Biometrical data of different subspecies and populations of *Monhystrella lepidura*

	<i>M. lepidura lepidura</i> from Argentina (Andrássy, 1963)	<i>M. lepidura altherri</i> from Ghana (Andrássy, 1965)	<i>M. lepidura altherri</i> from Switzerland (Juget, 1969)	<i>M. lepidura seelyae</i> from SWA-Namibia
n	5	5	4	10
L	530-580	380-420	420-440	532 (503-563)
a	24.5-27.1	30-32	24-29	35.7 (33.0-41.6)
b	5.3-6.1	5.4-5.8	4.9-5.5	5.7 (5.3-5.9)
c	3.7-4.2	3.6-3.7	3.0-3.9	3.8 (3.6-3.9)
V	50.0-53.1	49-50	46-51	50.5 (49-51)
Tail	135-141*	110-125*	—	141 (130-158)
c'	9-10	11-13	10.5**	12.9 (11.3-15.8)
Vulva-anus	—	—	—	127 (116-147)
Tail/vulva-anus	1.09-1.14*	1.2-1.3	—	1.12 (0.97-1.27)
Vulva-anus/tail	—	—	—	0.90 (0.78-1.03)
Cuticle	Very thin	0.3-0.4	0.7	0.5
Labial setae	0.8	—	about 1.5	about 1
Fovea diameter	1.5-2	1.8-2.1	2	2
Spinneret	5-6	6-7	—	4.5
Egg	28-33 × 16-18	—	35 × 13	37-38 × 15

* From Jacobs (1988). ** Calculated from Juget's (1969) illustration Fig. 2C.

seen is 1-1.5 times the anal body diameter anterior to the anus, dorso-sublaterally. There are four pairs on the tail, as follows: first pair ventro-sublaterally, one anal body diameter posterior to the anus; second pair dorso-sublaterally, 35-40 μm posterior to anus; third pair ventro-sublaterally, 70-75 μm posterior to anus; last pair 25-28 μm from the tail terminus. The positions of all these setae are quite constant within the population.

Lip region flatly rounded. Stoma consisting of a dome-shaped anterior part not surrounded by pharyngeal tissue, and a longer, narrower, funnel-shaped posterior part embedded in pharyngeal tissue. Slightly beyond this part, at about 7 μm from the anterior end, a small, somewhat rectangularly shaped chamber can be seen in the dorsal wall of the lumen of most specimens (Fig. 1A). Pharynx 94 (90-100) μm long, muscular over its entire length, cylindrical but slightly swollen anteriorly where it surrounds the stoma, and gradually broadened towards its base, more so in some specimens than in others, but never with a distinct terminal bulb (Fig. 1C, I). Nerve ring 58 (55-62) μm from anterior end, encircling the pharynx at 61.5 (58-63) % of its length from the anterior body end. Pharyngeal gland nuclei not observed. Cardia consisting of a rosette of several elongate cells, and surrounded by several loosely associated cells. Posterior part of cardia embedded in well-developed progaster. Intestine apparently only two cells in circumference, the cells differentiated into an interior clear part bordering the lumen, and a larger exterior part containing

numerous dark granules, the latter diminishing in size and numbers posteriorly. Nuclei of intestinal cells large and conspicuous; one nucleus seen between cardia and ovary, and seven or eight nuclei between vulva and rectum (Fig. 1C, M). Rectum shorter than anal body diameter. At the junction between the rectum and the intestine a small conoid valve projects into the intestinal lumen (Fig. 1E, F).

Ventral gland conspicuous, compressing the intestine ventrally just behind the progaster (Fig. 1C). About 33 μm from the anterior end an ampulla can be seen ventral to the pharynx. However, no excretory pore and no connection between the ampulla and the ventral gland could be traced.

Tail elongate-conoid for more than one half to about two thirds its length, with the last third somewhat more cylindroid in appearance, although this part is also gradually tapered almost to the bluntly rounded terminus. Three caudal glands not very distinct. Spinneret weakly developed, about 4.5 μm long, with the terminal duct mostly difficult to discern.

Promonodelphic, the ovary outstretched and reaching 75 (57-97) μm from the base of the pharynx. Total length of reproductive system 98 (91-108) μm , comprising 18.5 (16-21) % of the body length. Vulva and vagina rather difficult to observe in most mature females, but more easily seen in young females (Fig. 1H); vulva transverse; vagina anteriorly directed. Fully developed oocytes in proximity of vulva measure (n = 10) 27-42 × 11-14 μm . Only three females seen with intra-uterine eggs, these measuring 37-38 × 15 μm including the egg shell which varies in thickness from 1.5-2.5 μm . Reproductive system lying to the right of the intestine.

Male. Not found.

Discussion. With the key of Jacobs (1987b) our specimens key out at *M. lepidura altherri* and indeed our species fits the descriptions of *M. lepidura sensu lato* better than any other species in the genus. However, in addition to several minor differences in biometrics as can be seen in Table I, our population differs from the other two subspecies mainly in the absence of a pharyngeal bulb. A distinct bulb is clearly shown in the illustrations of both Andrássy (1963: Fig. 7B) and Juget (1969: Fig. 2A). Also, our specimens are much more slender (a = 33-42 compared with 24.5-27, 30-32 and 24-29 in the populations respectively from Argentina, Ghana and Switzerland). This difference is also reflected in the c' values as shown in Table I. It is therefore not possible to assign our population to either of the other two subspecies, and we thus regard the population from Gobabeb as a third subspecies of *M. lepidura*.

Monhystrella parvella (Filipjev, 1931) Jacobs, 1987
(Fig. 2A-P; Table II)

Synonymy and bibliography: see Jacobs (1987a, 1987c)

Jacobs (1987a) redescribed *Monhystera parvella* Filipjev, 1931 from the type specimens, reinstated it as a valid species, and transferred it to *Monhystrella*. In

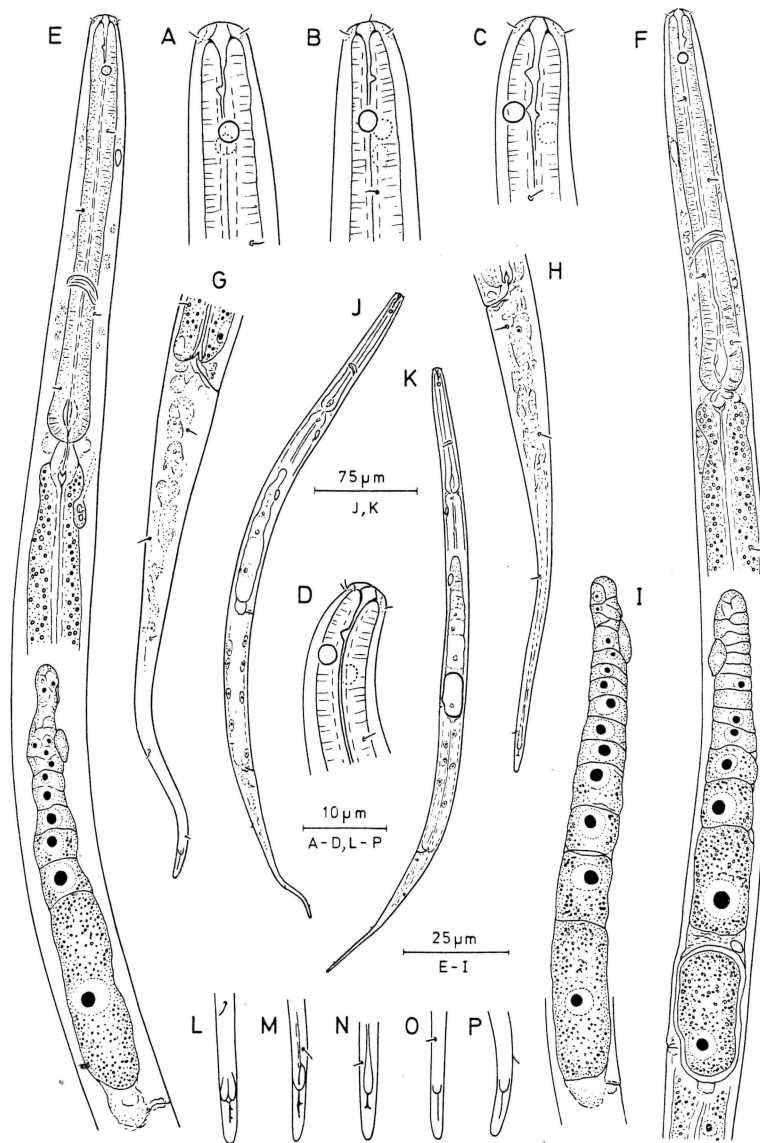


Fig. 2. A-P: *Monhystrella parvella*. A-D. Head end. E & F. Anterior body region as far as vulva. G & H. Tail. I. Reproductive system. J & K. Habitus. L-P. Tail end. A, B, E, G, J, O, P: Population from Namutoni. C, D, F, H, I, K, L-N: population from Ai-Ais.

TABLE II
Biometrical data of different populations of *Monhystrella parvella*

	Ethiopia <i>M. parvella parvella</i> para-lectotypes*	Black Sea <i>M. parvella</i> <i>gerlachi</i>	South West Africa-Namibia Ai-Ais	Namutoni
n	11/12	7	10	6
L	445 (396-486)	380-460**	438 (427-478)	472 (406-505)
a	18.2 (15-20)	21-27**	27.5 (23.8-29.5)	27.6 (27.1-28.9)
b	5.1 (4.6-5.4)	5.4-6.8**	5.5 (5.2-6.0)	5.2 (5.1-5.4)
c	4.7 (4.0-5.3)	3.9-4.4**	4.2 (4.0-4.4)	4.2 (4.0-4.4)
V	55.9 (51-59)	50-55**	51.7 (50.5-52.9)	52.1 (50.5-52.8)
Pharynx	88 (76-101)	69*	79 (72-83)	91 (80-99)
Body diameter at:				
lip region			5.3 (5-6)	5.8 (5.5-6)
base of neck			13.1 (12-14)	14.9 (14.5-15.5)
widest part			15.9 (14.5-17)	17.1 (15-17)
anus			10.9 (10-11.5)	12.6 (11.5-13.5)
Tail	96 (80-117)	101*	106 (94-112)	112 (101-120)
c'	5.9 (5.0-7.5)	10*	10.0 (9.0-10.8)	9.0 (7.9-9.6)
Vulva-anus	100 (82-124)	98.3*	106 (93-113)	115 (94-123)
Tail/vulva-anus	1.0 (0.7-1.2)	1.0*	1.01 (0.93-1.16)	0.98 (0.93-1.07)
Cuticle	0.8	—	<1	<1
Labial setae	1.5	—	>1	1.5
Fovea diameter	2.9 (2.2-3.3)	—	2.4-2.6	2.4-2.6
Spinneret	3.2 (2.4-4.8)	—	4.1 (3-4.5)	5.7 (5.5-6)
Egg	n = 2	—	33.1 (31-37) ×	—
	24 & 30 × 29 & 29		15.7 (15-16.5)	

* From Jacobs (1987a). ** From Gerlach (1951).

the same paper he synonymized *Monhystera filiformis sensu* Gerlach, 1951 (*nec* Bastian, 1865) with *Monhystrella parvella*. Still in 1987 however Jacobs (1987c) assigned Gerlach's specimens to a new subspecies of *M. parvella*, viz. *M. parvella gerlachi*. He thus recognizes two subspecies, *M. parvella parvella* (Filipjev, 1931) from Ethiopia and *M. parvella gerlachi* Jacobs, 1987 from the Black Sea.

The present specimens represent two populations from South West Africa-Namibia. One population (92 females plus some juveniles) was collected in the sediment of shallow pools among reedbeds in the sandy course of the Fish River, opposite the restaurant in the Ai-Ais Restcamp at the southern exit of the Fish River Canyon. The second population (7 females, 8 juveniles) was found in bottom sediment of a drinking hole with *Sphagnum* sp. and much detritus, just outside the Namutoni restcamp and towards the west of the old German fort in this restcamp in the Etosha Game Reserve. The reedbeds in this waterhole serve as roosting place for large numbers of *Quelea* finches.

Description. — *Female.* Body cylindroid, increasing in width very gradually and regularly from lip region towards broadest part just before vulva, thence very gradually decreasing again towards tail region. Cuticle less than 1 µm

thick. Inner labial papillae indistinct. Outer labial setae and four cephalic setae apparently implanted in a single circle, short, slightly more than 1 μm in the Ai-Ais population, and up to 1.5 μm in the Namutoni population. Amphideal fovea circular, about 2.4-2.6 μm in diameter, varying from less than one third (Ai-Ais population) to one fourth (Namutoni population) the corresponding body diameter. Amphids often not quite opposite each other. Mean distance from anterior rim of fovea to anterior body end 10.3 (9-11.5) μm in Ai-Ais population, 10.8 (10-12) μm in Namutoni population, i.e. slightly less to slightly more than twice the lip region diameter.

Arrangement and position of somatic setae differ slightly in the two populations. In the following description the figures refer to the Ai-Ais population, with those for the Namutoni population between brackets. Four pairs of setae on the neck, about 2 μm (1.5-2 μm) long, arranged as follows: ventrosublateral 19-21 μm (20-28 μm) from anterior end, or 3.2-3.6 (3.4-4.7) times the lip region diameter from anterior end; dorsosublateral, before the nerve ring, at 33-40 μm (33-38 μm) from the anterior end; ventrosublateral, behind the nerve ring, at 52-63 μm (66-70 μm) from the anterior end; dorsosublateral, opposite the beginning of the basal swelling of the pharynx, at 65-79 μm (84-88 μm). One dorsosublateral pair occurs 30-37 μm , or 2.5-2.8 times the corresponding body diameter posterior to the base of the pharynx (apparently absent in Namutoni population). Another dorsosublateral pair occurs 19-35 μm (17 μm) or 1.8-3.0 (1.3) times the anal body diameter anterior to the anus. There are four pairs of setae on the tail, 2.5-3 μm long, arranged as follows; ventrosublateral, less than one anal body diameter posterior to anus; dorsosublateral, at 32-35 μm (25-41 μm) posterior to the anus; ventrosublateral, at 52-66 μm (60 μm) posterior to the anus; and dorsosublateral, at 10.5-16 μm (29-31 μm) from the tail terminus. In the Namutoni population there is a fifth pair (or perhaps only a single dorsal seta, short and inconspicuous) at 10-11.5 μm from the tail terminus.

Lip region confluent, evenly rounded. Stoma consisting of an anterior dome-shaped part not surrounded by pharyngeal tissue, followed by a longer, narrower cylindrical part embedded in pharyngeal tissue. This is followed by a short narrow section of the pharyngeal lumen, and then a small triangular chamber in the dorsal wall of the pharynx (Fig. 2A-D). Pharynx 79 (72-83) μm and 91 (80-99) μm in length in Ai-Ais and Namutoni populations respectively, cylindrical, not swollen anteriorly, but with a slight basal swelling without valvular apparatus; muscular over its entire length. Nerve ring 46 (43-48) μm from anterior end, encircling the pharynx at 58 (56-61) % of its length from the anterior body end in Ai-Ais population. Respective figures for Namutoni population: 55 (50-61) μm and 60.5 (58-63) %. Pharyngeal gland nuclei not observed. Cardia consisting of several elongate cells, surrounded by large, loosely associated cells. Posterior part of cardia embedded in progaster. Intestine apparently only two cells in circumference; cells with interior part

bordering lumen clear, without granules, and with larger exterior part filled with numerous large, dark granules. Nuclei of intestinal cells large, conspicuous, with seven or eight nuclei between vulva and rectum. Rectum shorter than anal body diameter. Where the intestine joins the rectum, a conspicuous tongue-shaped valve projects into the lumen of the intestine. Ventral gland present in area posterior to progaster. Ampulla visible in some specimens, ventrally about 25-32 μm from anterior end, and rarely an indistinct excretory duct can be seen anterior to the ampulla (Fig. 2F).

Tail regularly elongate-conoid for about two thirds or more of its length, then more cylindroid but still slightly tapered towards the bluntly rounded terminus. Caudal glands inconspicuous. Spinneret 4.1 (3-4.5) μm long in Ai-Ais population, 5.7 (5.5-6) μm in Namutoni population, the duct only visible in the basal part, often with a forked appearance in the Ai-Ais population.

Promonodelphic, outstretched ovary, with the tip 18-33 μm and 26-38 μm from base of pharynx in Ai-Ais and Namutoni populations respectively. Total length of reproductive system 107 (97-118) μm , comprising 24.4 (22.7-26.8) % of the total body length in Ai-Ais population, the respective figures for the Namutoni population being 94 (68-113) μm and 19.8 (16.7-23.1) %. Fully developed oocytes ($n = 12$) near the vulva measure 35.0 (32-39) \times 12.4 (11.5-14) μm in the Ai-Ais population and 32-46 \times 12.5-14 μm in the Namutoni population. Intra-uterine eggs ($n = 12$) measure 33.1 (31-37) \times 15.7 (15-16.5) μm , including the egg shell of about 1 μm thickness, in the Ai-Ais population. No intra-uterine eggs observed in Namutoni population. Vulva transverse. Vagina short, inconspicuous, almost perpendicular to body axis. Without posterior uterine sac or cell. A characteristic feature of this species, seen in both populations, is the presence of a single large coelomocyte lying closely associated on the ventral side of the ovary, near its tip (Figs 2E, F, I). Reproductive system lying to the right of the intestine.

Male. Not found.

Discussion. At the time of his redescription of *Monhystrella parvella* the following list of similarities and differences between the Ethiopian and Black Sea populations was given by Jacobs (1987a): "The Black Sea population of *Monhystera filiformis sensu* Gerlach, 1951 *nec* Bastian, 1865 resembles the Abyssinian population of *Monhystrella parvella* in the following features: shape of body, head and cheilostome; narrow stoma without tooth-like differentiations; length of labial setae; position of fovea and its diameter in relation to the corresponding body width; position of the vulva. Both populations occur in a similar habitat, but differ in length of pharynx and tail and in shape of tail and spinneret outlet".

However, Gerlach's illustration of his Black Sea specimens (1951, Fig. 13a) shows the amphideal fovea at about twice the lip region diameter from the anterior end, in contrast to the Ethiopian specimens where the fovea is located at 1.1 times the head diameter from the front end (Jacobs, 1987a, Fig. 2A, B,

D & F). On the other hand, tail length seems to be the same in the two populations (see Table II), while there is in fact a difference in c' (5.0-7.5 versus 10).

Our specimens seem to be very similar to the type population from Ethiopia, except for position of fovea which is more in agreement with the Black Sea specimens. The apparent differences between our specimens and the Ethiopian ones in a and c' values can be easily explained by the flattened condition of the latter. This in fact may also explain the above-mentioned difference in c' between the Black Sea and Ethiopian specimens as well as the difference in a value. The c' value for our specimens agrees with that of the Black Sea specimens.

Pharynx length, the other difference mentioned by Jacobs, can be seen from Table II to be exactly intermediate between the Ethiopian and Black Sea populations in the Ai-Ais population while in the Namutoni population it is similar to the Ethiopian specimens.

In view of the above we find it impossible to assign our populations to either of the subspecies. In fact, the various character combinations seem to bear no relation to the geographical distribution of the populations in which they occur, and with the information now available we see no justification for the recognition of subspecies in *Monhystrella parvella*.

Monhystrella paramacrura (Meyl, 1954) Andr ssy, 1968
(Fig. 3A-S; Table III)

For synonymy and bibliography see Jacobs (1987c)

Female. According to Jacobs (1988) this species has been recorded from freshwater and hot springs in Hungary, Italy, Mongolia, Mauritania and Rio de Oro (Spanish Sahara), which makes it the most frequently found species of *Monhystrella*. The present population (42 females, several juveniles) comes from a shallow, semi-permanent pool with numerous green algae in the dry sandy bed of the Kuiseb River, some 20 km east of the Desert Research Station at Gobabeb in the Namib Desert. Two other solitary specimens examined were found together with large populations of *Monhystrella parvella* at Ai-Ais and Namutoni (for details of localities and habitats, see *M. parvella*, p. 7).

Body cylindrical, reaching its greatest width just anterior to the vulva, then gradually diminishing in width to beyond the middle of the tail. Cuticle about 0.5 μm thick. Inner labial papillae not seen. Outer labial setae about 1 μm long, apparently implanted in a single circle with the four cephalic setae. Amphideal fovea circular, about 2 μm in diameter, i.e. somewhat less than one third the corresponding body diameter. Amphids at both sides of the body mostly nearly at the same level, with the mean distance between the anterior rim of the fovea and the anterior body end 10.7 (10-12) μm , which is about 2.3-3.0 times the lip region diameter.

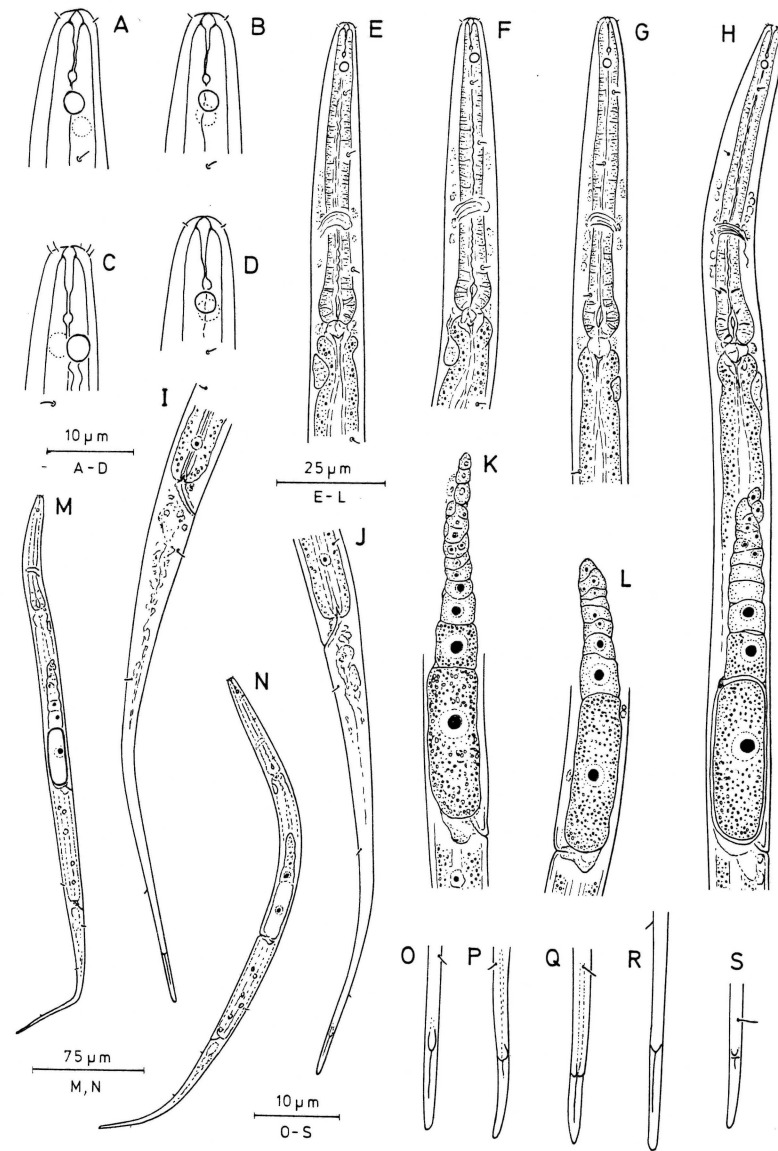


Fig. 3. A-S: *Monhystrella paramacrura*. A-D. Head end, specimens from Gobabeb. E & F. Anterior body region, specimens from Gobabeb. G. Anterior body region, specimen from Namutoni. H. Anterior body region and reproductive system with intrauterine egg, specimen from Gobabeb. I & J. Tails, specimens from Namutoni and Gobabeb respectively. K & L. Reproductive systems, specimens from Namutoni and Gobabeb respectively. M & N. Habitus, both specimens Gobabeb. O-Q. Tail end, specimens from Gobabeb. R. Tail end, specimen from Namutoni. S. Tail end, specimen from Ai-Ais.

TABLE III

Biometrical data of different populations of Monhystrella paramacrura

	Eurasia and Africa*	Specimens from South West Africa-Namibia		
		Gobabeb n = 20	Namutoni n = 1	Ai-Ais n = 1
L	314-487	386 (352-430)	408	390
a	20-35	27.3 (23.9-31.4)	27.2	27.9
b	5.0-6.3	5.0 (4.7-5.4)	5.4	5.3
c	3.0-4.0	3.7 (3.5-4.1)	3.4	3.7
V	47-52.5	51.5 (49.9-53.3)	49.1	51.8
Body diameter at:				
lip region		4.0 (3.5-4)	4	4
base of neck		12.0 (11-13)	13	11
widest part		14.1 (12.5-15.5)	15	14
anus		9.3 (8.5-10)	9	9.5
Tail	103-121	105 (95-115)	120	101
c'	10-13	11.3 (10.1-13.4)	13.4	10.6
Vulva-anus		81.8 (73-93)	87	87
Tail/vulva-anus	1.0-1.5	1.38 (1.10-1.38)	1.38	1.16
Vulva-anus/tail		0.78 (0.72-0.91)	0.72	0.86

* Jacobs (1988), composite measurements of populations from Hungary, Italy, Mongolia, Mauritania and Rio de Oro (= Spanish Sahara).

Somatic setae on neck slightly more than 1 μm long, on tail about 2 μm long. Three pairs of setae occur in the neck; the first pair lateral to ventrosublateral, somewhat posterior to the amphideal fovea, at 15-16.5 μm from the anterior end; second pair dorsosublateral at 29-35.5 μm from anterior end; third pair also dorsosublateral, near the beginning of the basal pharyngeal swelling, at 58-64 μm from the anterior end. A pair of dorsosublateral setae also occurs 23-32 μm , or about twice the corresponding body diameter posterior to the base of the pharynx. The next pair of setae can be seen dorsosublaterally at 2.5-3 times the anal body diameter anterior to the anus. Three pairs of setae occur on the tail: ventrosublaterally, one anal body diameter posterior to the anus; ventrosublaterally or dorsosublaterally, 40-50 μm posterior to the anus, towards the middle of the tail; and the third pair 20-21 μm before the tail terminus (13 μm and 27 μm in the specimens from Ai-Ais and Namutoni respectively). Apart from this slight difference in position of the final pair of setae in these two specimens, the positions of all setae are remarkably constant in all specimens studied.

Lip region narrowed, evenly rounded, and confluent with neck. Stoma consisting of a small dome-shaped anterior part not surrounded by pharyngeal tissue, and a longer cylindroid posterior part embedded in pharyngeal tissue, leading to a small, roundish chamber some 7.5 μm from the anterior end (Fig. 3A-D). Pharynx 77 (68-88) μm in length, cylindrical, not swollen anteriorly

but gradually increasing in width towards the distinct basal bulb. Pharynx muscular over its entire length. Nerve ring 49.5 (40-56) μm from anterior end, encircling the pharynx at 62.5 (60-66) % of its length from the anterior body end. Pharyngeal gland nuclei not observed. Cardia consisting of a rosette of several elongate but rather indistinctly demarcated cells, and surrounded at the base of the pharynx by several loosely associated cells. Posterior part of cardia embedded in progaster. Intestine apparently only two cells in circumference; each cell consisting of a non-granular, clear interior part towards the lumen, and a larger exterior part containing numerous small darkish granules. Nuclei of intestinal cells large, conspicuous, especially in area between vulva and rectum, where five or more nuclei can be seen (Fig. 3M, N).

Rectum length about equal to anal body diameter. At the junction between the rectum and the intestine a small tongue-like valve projects into the base of the intestinal lumen. Ventral gland present in area just posterior to progaster. No excretory pore or ampulla seen in any of the specimens.

Tail elongate-conoid in anterior three fifths of its length, then more cylindroid but still slightly tapered in posterior two fifths, with the terminus bluntly rounded to (rarely) sharply pointed (Fig. 3I, J, O-S). Caudal glands indistinct. Spinneret about 9.1 (7-11) μm long, with only the terminal part of the gland duct visible.

Promonodelphic, the ovary outstretched but often with a few juxtapositioned cells at the apex giving the impression of a rudimentary flexure. Tip of ovary 36 (28-43) μm behind base of pharynx. Total length of reproductive system 84 (70-103) μm , comprising 22 (19-25) % of the body length. Fully developed oocytes close to the vulva measure 35-48 \times 10-12.5 μm (n = 20). Only one intra-uterine egg seen, measuring 40 \times 13.5 μm , including the egg shell about 0.5 μm thick. Vulva transverse; vagina inconspicuous, usually anteriorly directed, sometimes perpendicular; without posterior uterine sac. In some specimens there seems to be a postuterine cell (Fig. 3H) but in most specimens this could not be verified, and it is assumed to be absent. Reproductive system lying to the right of the intestine.

Male. Not found.

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RÉSUMÉ

Trois espèces de Monhystrella provenant des eaux continentales du Sud-Ouest-Africain-Namibie
(Nematoda: Monhysteridae)

Trois espèces de *Monhystrella* Cobb, 1918 sont signalées dans les eaux continentales du Sud-Ouest-Africain-Namibie, première observation de ces espèces en Afrique australe. Descriptions et illustrations détaillées sont données pour ces trois espèces: *M. lepidura* (Andrássy, 1963), *M. parvella* (Filipjev, 1931) et *M. paramacrura* (Meyl, 1954). Une nouvelle sous-espèce est proposée pour la population sud-africaine de *M. lepidura*. *M. lepidura seelyae* n. subsp. est plus élancé que *M. l. lepidura* (Argentine) et *M. l. altherri* (Suisse et Ghana) et le bulbe basal, présent chez ces deux dernières sous-espèces, n'y a pas été observé. Les deux sous-espèces de *M. parvella* proposées par Jacobs (1987c) ne sont pas retenues.

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