

OBSERVATIONS ON *RAFIQIUS BODENHEIMERI* (STEINER 1936) KHAN AND HUSSAIN 1998 AND *DISCOLAIMUS LAHORENSIS* KHAN, 1998 FROM KARACHI, SINDH

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Rafiqius bodenheimeri (Steiner 1936) Khan and Hussain 1998 *Discolaimus lahorensis* are described from Karachi, *R. bodenheimeri* (Steiner 1936) Khan and Hussain 1998 is different in size and shape of post vulval uterine sac which is being 70.2µm in length, whereas, uterine sac is collapsed in *R. saeedi*. Males are present, in *R. bodenheimeri* while males not found in *R. saeedi*. *R. bodenheimeri* is different from *R. amurensis* (Truskova 1971, Siddiqi, Deley and Khan 1992) Khan and Hussain 1998 in body length, shape of spicules and size of gubernaculum.

Key words: Soil, Nematodes, Systematics.

Introduction

During a survey, nematodes were isolated from soil sample identified as *Rafiqius bodenheimeri* (Steiner 1936) Khan and Hussain, 1998 and *Discolaimus lahorensis*. It appeared to be first record of these nematodes from Karachi and described in detail.

Material and Methods

Soil samples were collected from various localities of Karachi and carried to the laboratory. All samples were sieved by Cobb's gravity method (1918) and later improved by Baermann's method. Nematodes were collected under the stereoscopic binocular and killed by gentle heat. Nematodes were processed by slow method to glycerine and mounted on glass slides in a drop of anhydrous glycerine according to Siddiqi (1986). Measurements were taken from preserved specimens. Some specimens were also studied in freshly killed conditions, specimens were deposited in Common Wealth Institute of Parasitology England and are rested in Nematology Laboratory, Food and Marine Resources Research Centre PCSIR Labs. Complex, Karachi.

Genus *Rafiqius* Khan and Hussain 1998: Diagnosis (Emended) *Acrobelinae*. Body more than 0.5 mm in length; Cephalic probolae was present; axils as a deep cleft boarded by flap, like usually drawn out a set, located laterodorsally on lateral lips. Stoma constituted on chelorrhabdion and pro-rhabdion slightly swollen behind the middle. Lateral field was prominent with five to seven incisures on mid body. Isthmus short and broad, less in length adjacent to body; basal bulb strongly valvate. Post vulval uterine sac was well developed, usually longer than body width. Ovary monodelphic. Female

tail was subcylindrical with rounded truncate or notched terminus. Phasmids distinct on tail. Lateral field extending beyond phasmid, but in some specimens stopped at phasmids. Male rare, equal to female. Oesophagus, spicules, gubernaculum and tail were typically cephaloboid type.

Type species:

Rafiqius saeedi (Siddiqi, Deley and Khan 1992)

Syn. *Acrobeloides saeedi* (Siddiqi, Deley and Khan 1992)

Other species: *R. bodenheimeri* (Steiner, 1936)

Thorne 1937, Siddiqi, Deley, Khan 1992, Khan and Hussain 1998 n. Comb.

Syn: *Acrobeloides bodenheimeri* (Steiner 1936) Siddiqi, Deley and Khan 1992. *R. camberensis* Khan and Hussain 1998

Syn: *Acrobeloides camberensis* (Deley, Geraert and Coomans 1990) Siddiqi, Deley and Khan 1992

Syn: *Cephalobus camberensis*, Deley, Geraert and Coomans 1990.

***Rafiqius bodenheimeri* n. Comb.** Measurement. ♀♀ L = 0.60 - 0.64 (0.62 ± 0.77) mm; a = 15.30 - 16.00 (15.60 ± 3.70); b = 4.50 - 4.60 (4.40 ± 3.70); c = 15.70 - 17.00 (16.40 ± 2.70); c¹ = 19.50 - 20.00 (19.70 ± 3.50); V = 66.00 - 70.00 (6.80 ± 7.50). ♂♂ L = 0.64 - 0.71 (0.67 ± 1.10) mm; b = 4.20 - 4.50 (4.30 ± 1.80); c = 23.00 - 24.60 (23.80 ± 3.10); c = 19.50 - 20.00 (19.60 ± 4.40); spicules = 45.60 - 46.20 (44.90 ± 6.40)µm; gubernaculum = 24.60 - 25.30 (24.60 ± 4.20) µm.

Description: Body of the heat relaxed specimens cylindrical narrow at both ends just behind vulva tapering. Cuticle prominently annulated, 2.30 µm at mid body; lateral field distinct, 6.50 - 90.00 µm and have five distinct incisures. Cephalic region expended with six slightly separated lips making a hexagonal shape; labial probolae three, asymmetrical, rounded anteriorly slightly elevated above the head contour; cephalic

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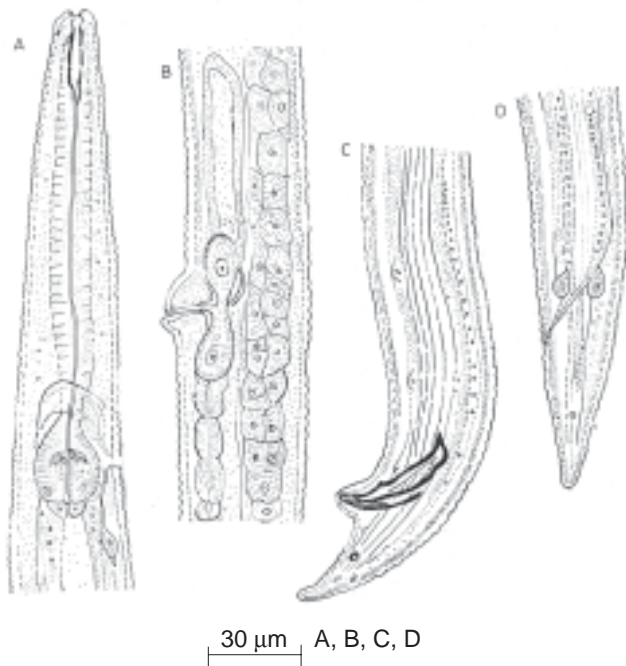


Fig 1. *Rafiqius bodenheimeri*, A. Female head; B. Female reproductive region (Female organs); C. Male tail; D. Female tail.

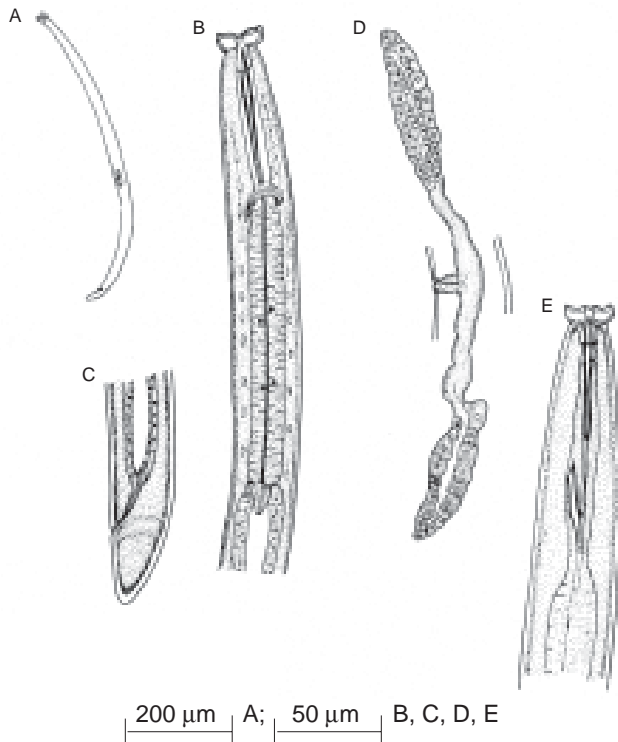


Fig 2. *Discolaimus lahorensis*. A. Entire female; B. Female head; C. Female tail; D. Vulval region; E. Juvenile head.

probolae present in three pairs, each pair separated by flap like tines per cleft. Amphid slit like in middle. Oesophagus 133.00 - 175.00 µm in length; corpus cylindroid, slightly swollen in the middle. Isthmus 23.00 - 26.30(24.60 ± 4.70) µm in

length with a large triquotorius valve anterior to its center. Cardia is prominent 4.50 x 18.00 µm; Nerve ring located at the distance of 108.00 µm from anterior region. Excretory pore 117.00 - 119.00 (117.50 ± 9.20) µm from anterior region. Hemizo-nids located just anterior to excretory pore. Vulva, a transversely oval slit; vulval lips prominently raised above the body surface; posterior lip larger than anterior lip and broadly rounded; vagina thick walled, more than 2/5th the body width in length. Two pairs of vaginal glands (One anterior and other posterior). Post vulval uterine sac is prominently 49.00 - 70.20 (59.50 ± 7.30) µm long; uterus, strong tube. Spermathica oval 30.00 - 39.00 (34.10 ± 4.10) µm long and 18.00 - 21.00 (19.40 ± 6.10)µm wide. Ovary relaxed with double flexure 1 - 2 body behind vulva. Anus, a large backwardly directed aperture containing one dorsal and two subventral rectal glands near rectum intestine junction. Tail subscylindroid to conoid rounded terminus. Phasmids located just behind the mid tail at the distance of 20.70 µm from tail; lateral field extending past phasmids.

Male: Similar to female in general body shape and cuticular annulation; lateral field contains five incisures. Testis reflexed in the middle of the body. Spermatogonium round and sufficient in number. Three retal glands were observed near spicular head. Three pairs ventrolateral supplementary papillae anterior to cloacal apertures; four pairs of caudal papillae present, two anterior and two posterior to phasmids. Four papillae are lateral and four other ventro-sublateral in position. Phasmid located just behind the middle of tail. Spicules paired, 43.00 - 46.00 (44.30 ± 6.40)µm in length, head directed antero-ventrally; spicular opening located behind head on dorsal side and posteriorly on ventral side near pointed tip. Gubernaculum straight to slightly arcuate, 20.70 - 24.00 (22.40 ± 3.20)µm long orura prominent, about half of the length of spicule. Cloacal aperture on large ventral elevation of the body; anterior lip pointed, posterior lip large and round. Tail conoid, slightly arcuate ventrally with pointed tip.

Relationship: *Rafiqius bodenheimeri* n. Comb. is recognized by its length, tail, postvulva-uterine sac (body length in *R. saeedi* 0.86 - 1.20 mm; *Rafiqius bodenheimeri*: 0.45 - 0.65 mm). *R. bodenheimeri* also differs from *R. saeedi* (Siddiqi, Deley and Khan 1992) Khan and Husain, 1998 in shape of the post-vulval uterine sac which is well develop and 70.20 µm long while it is collapsed in *R. saeedi*. *R. bodenheimeri* lacks metacarpus, whereas, prominent in *R. saeedi*. Males are present in *R. bodenheimeri* while lacking in *R. saeedi*. *R. bodenheimeri* is also different from *R. amurensis* in body length (L = 0.50 - 0.80 mm in *R. bodenheimeri*: L = 0.61 - 0.76 mm in *R. amurensis* (Truskova 1971); Siddiqi *et al* 1992; Khan and Hussain 1998).

Spicules in *R. bodenheimeri* is 16.00 μm and *R. amurensis* = 32.00 μm . A detailed work on biology is necessary to solve some critical points in this connection.

Discolaimus lahorensis Khan 1998: ♀♀ 1.60 - 1.80 (1.30 \pm 0.20) mm; a = 39.00 - 40.00 (40.10 \pm 0.50); b = 3.60 - 3.90 (3.70 \pm 0.20); c = 36 - 44 (40.50 \pm 4.50); V = 50.00 - 51.00 (50.50 \pm 0.70); odontostyle = 17.00 - 18.30 (17.60 \pm 0.30) μm ; Odon-topophore = 37.00 - 38.50 (38.00 \pm 0.30) μm .

Description: Body stout and curved posteriorly after relaxing by gentle heat. Cuticle contains transverse striations near head and tail. Head not separated from the body; lips typical, somewhat angular, 56.00 μm in breadth with 16 papillae. Amphids of stirrup shape, 8.00 μm in breadth. Odontostyle prominent 17.00 - 18.30 (17.30 \pm 0.20) μm long with apertur, 1/2 of its length. Odontophore 37.00 - 38.20 (37.00 \pm 0.82) μm in length; guiding ring single; Oesophageal extension starts before the mid point. Cardia oval, 16.00 μm long. Dorsal gland nucleus located more than one width behind the beginning of oesophageal expansion; other gland nuclei inconspicuous. Nerve ring located at 180.00 - 195.00 (187.00 \pm 1.00) μm . Gonads amphidelphic; Vulva transverses slit; vagina less than half of corresponding body with ovaries paired and opposed; prerectum more than 13 times of the rectum length. Tail convexconoid with broadly rounded terminus.

Conclusion

Discolaimus lahorensis, Khan (1998) was originally collected from Poagrass, West Regional Laboratories, Lahore. Four samples collected from various localities of Sindh were found positive for *Discolaimus lahorensis*. There is sufficient variation in shape of odontostyle length of oesophagus, shape of the body and is compared to the original description. *Discolaimus lahorensis*, Khan 1998 except in shape and length of odontostyle and length of oesophagus. These

variations may be due to environmental conditions of this province.

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