

TWO NEW SPECIES OF DORYLAIMIDA (NEMATODA) FROM  
KASHMIR VALLEY, INDIA

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INTRODUCTION

During a survey of Kashmir Valley, large number of soil samples were collected from around roots of vegetables and fruit trees. These yielded several nematode species belonging to different groups. The present paper deals with two new species of Dorylaimida, one of which belongs to the genus *Lordellonema* Andrassy, 1960 (Qudsianematidae : Dorylaimoidea) and the second to the genus *Paravulvulus* Heyns, 1968 (Nygolaimidae : Nygolaimoidea).

MATERIALS AND METHODS

The nematodes were killed and fixed in hot 4% formalin and processed to glycerine by slow method. The measurements were taken and observation made on specimens mounted in anhydrous glycerine.

***Lordellonema bashirensis* n. sp.**

*Dimensions :*

Paratype females (2) : L=1.2-1.3 mm ; a=29-33 ; b=4.0-4.3 ; c=41-53 ; c' = 0.95-1.1 ; V=49-51 ; G<sub>1</sub>=5-6 ; G<sub>2</sub>=5-7 ; Odontostyle=15-18 μm ; Odontophore= 22.5 μm ; Oesophagus=304-311 μm ; Prerectum=55-64 μm ; Rectum=18-19 μm ; Tail=25-30 μm ; ABD=26-27 μm.

Holotype female :  $L=1.3$  mm ;  $a=33$  ;  $b=4.0$  ;  $c=52$  ;  $c'=0.85$  ;  $V=49$  ;  $G_1=5$  ;  $G_2=5$  ; Odontostyle= $18\ \mu\text{m}$  ; Odontophore= $22.5\ \mu\text{m}$  ; Oesophagus= $310\ \mu\text{m}$  ; Prerectum  $65\ \mu\text{m}$  ; Rectum= $18\ \mu\text{m}$  ; Tail= $25.5\ \mu\text{m}$  ; ABD= $30\ \mu\text{m}$ .

**Description :** Body slender slightly curved upon fixation. Cuticle smooth,  $1.5\ \mu\text{m}$  thick at midbody and  $2-3\ \mu\text{m}$  at tail. Subcuticle fine ; body pores visible all over the

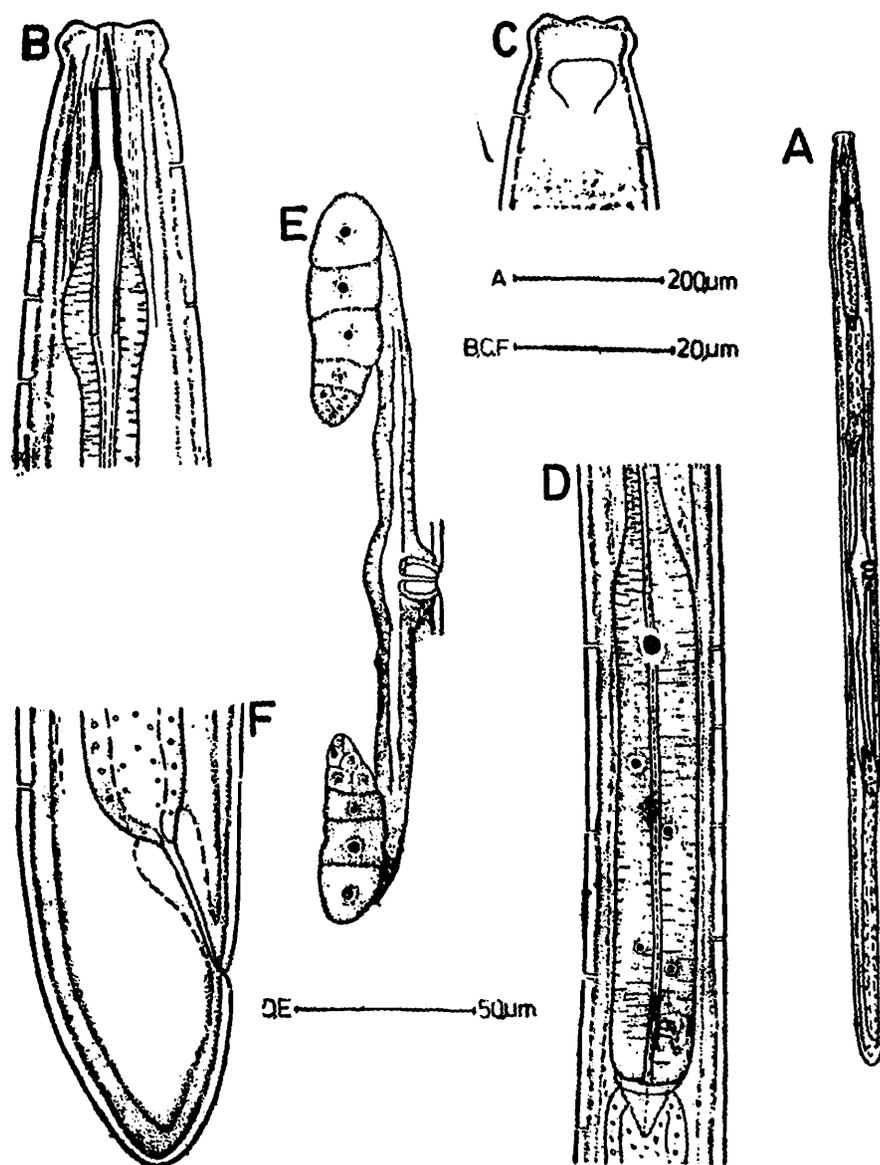


Fig. 1 : *Lordellonema bashirensis* n. sp

A, Entire female ; B, Anterior region ; C, Anterior region showing Amphids ; D, Female gonad.

body, 50-56 on ventral side and 30-40 on dorsal side. Lateral chords about 1/4th of body-width at midbody.

Lip region offset, 11-12  $\mu\text{m}$  wide and 6-7  $\mu\text{m}$  high. Amphids stirrup-shaped with aperture 7.5  $\mu\text{m}$  or slightly more than half of lip region width. Odontostyle about 1.3-1.5 lip region-widths long with wide lumen and aperture. Odontopore simple rod-like, about 1.5 times the odontostyle length. Guiding ring single, 9-10  $\mu\text{m}$  or 0.8 lip region-width from anterior end. Expanded part of oesophagus 114-150  $\mu\text{m}$  or about 37-49% of total oesophageal length. Cardia conoid, 10.5  $\mu\text{m}$  or about 1/4th of the corresponding body-width. Cardiac disc present. Oesophageal gland nuclei and orifice located as follows :

DO	= 54-56	$S_1N_1 = 74-78$	$S_2N = 89-90$
DN	= 58-60	$S_1N_2 = 78-80$	$S_2O = 90-92$
DO-DN	= 4.1-4.5		

Female reproductive system amphidelphic. Vulva transverse. Vagina half or more corresponding body-width long. Prerectum 2.0-2.4 anal body-width long. Rectum about 0.6-0.7 anal body width long. Tail short conoid, 0.9-1.1 anal body-width long. 3-4 pairs of caudal pore present.

*Male* : Not found.

*Type habitat and locality* :

Soil around roots of Soyabeans (*Glycine max*) from Safapora, Kashmir.

*Type material* :

Collected in June 1988 ; holotype female on slide *Lordellonema bashirensis* n. sp./1 ; paratype females on slide *Lordellonema bashirensis* n. sp/2-3 ; deposited in nematode Collection of Zoology Department, Aligarh Muslim University, Aligarh. A paratype female deposited with National Zoology Collection, Zoological Survey of India, Calcutta.

*Differential diagnosis* :

*Lordellonema bashirensis* n. sp. comes close to *L. parvum* Thorne, 1974 ; *L. porosum* Heyns, 1963 ; *L. annulata* Jairajpuri, 1966. It differs from *L. parvum* in having differently shaped lip region, amphids and vulva ; slightly longer odontostyle, anterior position of vulva and more number of body pores (lip region angular, amphids duplex, vulva with four lip-like asymmetrical labia, odontostyle=15  $\mu\text{m}$  ; V=59 ; and body pores 30 in *L. parvum*). From *L. porosum* and *L. annulata* it differs in having a longer body, less 'V' value and shorter tail (L = 0.55-0.59 mm ; V=58-61 ; c=26-27 in *L. porosum* and L=0.62-0.75 mm ; V=65 ; c=25 in *L. annulata*). It further differs from *L. porosum* in having a longer odontostyle and from *L. annulata* in having amphidelphic gonads (odontostyle=12-13  $\mu\text{m}$  in *L. porosum*, gonad prodelphic in *L. annulata*).

**Paravulvus confusus n. sp.****Dimensions :**

Paratype female (3) L=1.18-1.42 mm ; a=31-39 ; b=4.1-4.8 ; c=25-35 ; c = 1-3 ; V=44-47 ; G<sub>1</sub>=9-13 ; G<sub>2</sub>=10-14 ; Tooth=7.5-10.0 μm ; Oesophagus=254-304 μm ; Prerectum=39-45 μm ; Rectum=16-19 μm ; Tail=31-54 μm ; ABD = 18-26 μm.

Holotype female : L=1.3 mm ; a=31 ; b=4.2 ; c=24 ; c'=2.4 ; V=44 ; G<sub>1</sub>' =13 ; Tooth=7.5 μm ; Oesophagus=304 μm ; Prerectum=42 μm ; Rectum=22 μm ; Tail=54 μm ; ABD=20 μm.

**Descriptions :**

Body ventrally curved upon fixation. Cuticle 1.5 μm thick at midbody and 2-3 μm at tail tip. Lateral hypodermal chords about 1/3rd of body-width at mid body.

Lip region angular, set off from body contour, 9-11 μm wide and 4.5 μm high. Amphids cup-shaped, their apertures slit-like, 3-6 μm or about half of lip region width. Mural tooth deltoid, 7.5-10.0 μm or 0.5-0.8 lip region width long. Expanded part of oesophagus 133-145 μm or about 52% of oesophageal length, enclosed in a thin muscular sheath. Nerve ring at 82-105 μm from anterior end. Cardia short, 9-10 μm or about 0.2-0.3 of corresponding body width long. Cardiac glands rounded, well developed. Oesophageal gland nuclei and their orifice are located as follows :

DO	=50-53	S <sub>1</sub> N <sub>1</sub>	=64-67	S <sub>2</sub> N	=87-92
DN	=52-55	S <sub>1</sub> N <sub>2</sub>	=66-70	S <sub>2</sub> O	=85-90
DO-DN	=2.0-2.4				

Female reproductive system amphidelphic. Vulva longitudinal. Vagina narrow, about 1/3-1/2 of corresponding body width long. Sphincter distinct at oviduct-uterus junction. Prerectum about 2-3 anal body widths long. Rectum about one anal body-width long. Tail elongate conoid, ventrally curved, 1-3 anal body-width long, with a pair of caudal pores on each side.

**Males :** Not found.

**Type habitat and locality :**

Soil around the roots of *Solanum melongena* L. from Baramulla, Kashmir.

**Type materials :**

Collected in April 1988 ; holotype female on slide *Paravulvus confusus* n. sp./1 ; Paratype females on slides *Paravulvus confusus* n. sp./2-3. Deposited in nematode collection

of Zoology Department, Aligarh Muslim University, Aligarh. A paratype female deposited with National Zoological Collection, Zoological Survey of India, Calcutta.

*Differential diagnosis :*

*Paravulvus confusus* n. sp. is distinctive in the genus because of the absence of paravulvae and the subdorsal organ at oesophagus base. However, in other characters it

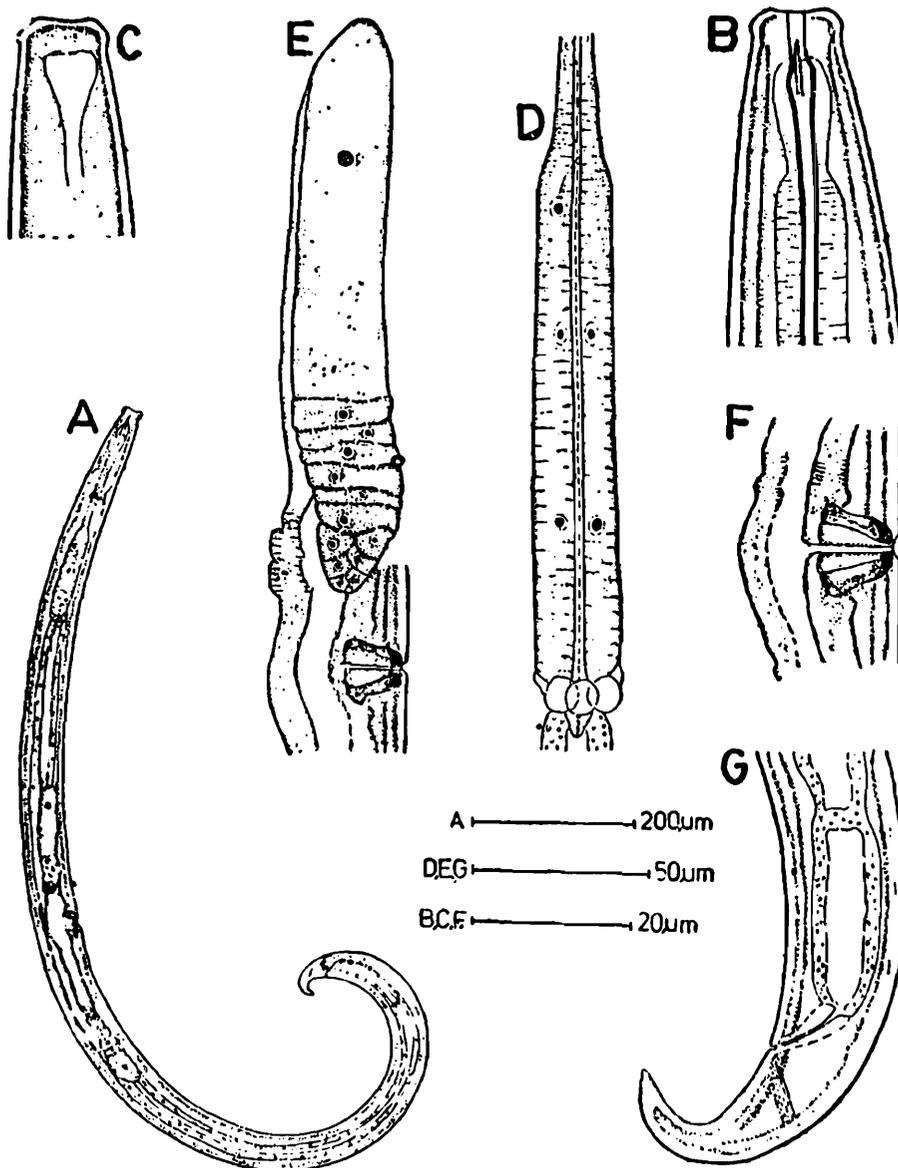


Fig. 2: *Paravulvus Confusus* n. sp.

A, Anterior region ; B, Anterior region ; C, Anterior region showing Amphid ; D, Expanded oesophageal region ; E, Female genital branch (anterior) ; F, Vulval region ; G, Posterior end.

comes close to *P. acuticaudatus* (Thorne, 1930) Thorne, 1974 and *P. hartingii* (de Man, 1880) Thorne, 1974. From the former it differs in having slightly shorter body, differently

shaped lip region and less c value ( $L=1.55-1.87$  mm ;  $c=49-53$ ). From *P. hartingii* it differs in the shape of lip region, wider amphidial fovea and in the shape of vaginal sclerotization (lip region continuous with body contour, amphidial fovea about 1/3rd of lip region width and vaginal sclerotization weakly developed in *P. hartingii*).

#### SUMMARY

Two new species of dorylaim nematode, one each belonging to the genus *Lordellonema* Andrassy, 1960 (Family Qudsianematidae Jairajpuri, 1965) and *Paravulvulus* Heyns, 1968 (Family Nygolamidae Thorne, 1935) are described and illustrated. *Lordellonema bashirensis* n. sp. has 1.2-1.3 mm long body,  $a=29-33$  ;  $b=4.0-4.3$  ;  $c=41-53$  ;  $V=49-51$ ; odontostyle=15-18  $\mu\text{m}$  and odontophore 22.5  $\mu\text{m}$ . *Paravulvulus confusus* n. sp. has 1.1-1.4 mm long body,  $a=31-39$  ;  $b=4.1-4.8$  ;  $c=25-35$  ;  $v=44-47$  ; and tooth=7.5-10.0  $\mu\text{m}$ .

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