



NEW DATA OF TWO *Coomansus* SPECIES (Mononchida: Mononchidae) FOR NEMATODE FAUNA IN VIETNAM

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AUTHOR'S CONTRIBUTION

The sole author designed, analyzed and interpreted and prepared the manuscript.

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ABSTRACT

Two species of *Coomansus*, *C. arvensis* (Eroshenko, 1972) Jairajpuri & Khan, 1977 and *C. ouinnensis* (Yeates, 1992) Andrassy, 1993 were recorded, described and illustrated for the first time from Vietnam. *Coomansus arvensis* was collected from Phia Oac natural reservation area, Cao Bang province, their measurements and description correspond well with the type population from Far-East, Russia except for a slightly slenderer body ($a = 27-28$ vs $17-21$); they also agree with the specimen from Uttarakhand, India apart from a slightly shorter tail and a slightly narrower lip region width. *Coomansus ouinnensis* was found in Hoang Lien National Park, Lao Cai province. Measurements and description of the Vietnamese specimens fit well the type population from Ouinne Valley as well as population from Mt Dzumac (New Caledonia) with the exception for a slightly higher than in C' ratio ($c' = 4.5$ vs $3.2-3.5$) and slightly higher position of apex of dorsal tooth from the base of buccal cavity ($86-87\%$ vs $73-79\%$).

Keywords: Mononchidae; *Coomanus*; new records; nematode; Vietnam.

1. INTRODUCTION

In Vietnam, the first species of genus *Coomansus* (family Mononchidae) as *C. parvus* was report from some provinces in Northern by Nguyen in 2007 [1]. And recently, the second species as *C. venezolanus* was revealed from Lang Son province with the first description of male [2]. In the present paper, two additional *Coomansus* species were identified from Cao Bang and Lao Cai provinces; they represent new

records for the nematode fauna in Vietnam. *C. arvensis* was first identified as *Clarkus arvensis* Eroshenko, 1972 from the soil of Primorsk Territory (Far-East, Russia) [3]. In 1977, Jairajpuri & Khan proposed to new genus as *Coomansus* based on the character of buccal cavity without non-denticulate ventral ridge from *Clarkus* genus and 12 species were transferred to *Coomansus* genus including *C. arvensis* [4]. Recently, *C. arvensis* was recorded from Rajaji National Park, Uttarakhand, India though fitted well with the

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measurements and taxonomic identification from the type population from Far-East, Russia [5]. *C. ouinnensis* was originally described from Ouinne Valley and Mt Dzumac, New Caledonia under *Clarkus ouinnensis* Yeates, 1992 [6]. In 1993, Andrassy transferred *Clarkus ouinnensis* to *Coomansus* genus because of a weak ventral ridge and a buccal cavity more resembling to the *Coomansus* than *Clarkus* type [7].

2. MATERIALS AND METHODOLOGY

Soil samples were collected from natural forest areas in Cao Bang and Lao Cai provinces (Vietnam). Nematodes were extracted from soil samples by modified Baermann funnel technique [8], killed by heat, fixed in formaldehyde 4%, transferred to anhydrous glycerol according to Seinhorst (1959) [9], and mounted on glass slides for microscopic observation. Photographs and measurements were taken with an Nikon DS Fi2 digital camera on an Nikon Eclipse Ni microscope and edited by Adobe Photoshop CS6 at the Institute for Epidemiology and Pathogen Diagnostics, JKI Muenster, Germany. Permanent slides were stored at the Department of Nematology, Institute of Ecology and Biological Resources, Vietnam.

3. RESULTS AND DISCUSSION

3.1 *Coomansus arvensis* (Eroshenko, 1972) Jairajpuri & Khan, 1977

Material: 3 females in good condition. Measurements: see Table 1.

Female: Moderately slender nematodes of small size, 1-1.3 mm long. Habitus after fixation ventrally arcuate, particularly toward posterior end. Under light microscope: cuticle smooth, around 2 µm thick at the

base of oesophagus. Lip region offset from the body contour by slight depression, its width 23µm. Buccal cavity medium size, 24-28µm long by 13-14µm wide, funnel shaped, tapering at base; its wall strongly sclerotized. Amphideal fovea cup-shaped, situated at the same level or slightly lower than of dorsal tooth apex. Dorsal tooth massive, with fine apex, pointing forward. Apex of dorsal tooth situated at 85-92% of buccal cavity length from its base. No evidence of longitudinal ridge on subventral wall of buccal cavity. Oesophagus cylindroid, 267-320µm long, nerve ring at 40-45% of its length from anterior end. Oesophago-intestinal junction non-tuberculate. Cardia projecting into intestinal lumen. Reproductive system didelphic-amphidelphic, both branches equally developed with ovary reflexed. Vulva, a transverse slit in ventral view. Vagina occupied less than half body width with *pars refringens vaginae* sclerotized, visible as 2 pieces in optical section. Rectum straight, thick-walled, 19-21µm. Tail bends ventrad; 64-77µm long or 2.3-3.1 anal body width, conical shape, tapered towards tail terminal and bluntly terminus. Caudal glands poorly developed and spinneret opening absent.

Remark: The measurements and description of Vietnamese specimens correspond well with holotype and paratype specimens from type population from Primorsk Territory (Far-East, Russia) [3] and the female from Rajaji National Park, Uttarakhand, India [5] with the exception for a slightly slenderer body ($a = 27-28$ vs 17-21).

Distribution: Primorsk Territory (Far-East, Russia), Rajaji National Park (Uttarakhand, India).

Locality: Phia Oac natural reservation area, Cao Bang province.

Male: Not found.

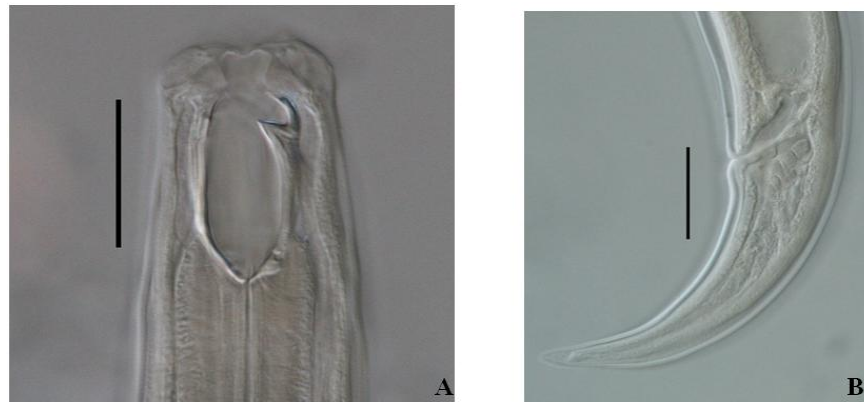


Fig. 1. *Coomansus arvensis* (Eroshenko, 1972) Jairajpuri & Khan, 1977
A. Head region; B. Female tail region (Scale bars: A, B = 20 µm)

Table 1. Morphometric data of *Coomansus arvensis* (Eroshenko, 1972) Jairajpuri & Khan, 1977

Local	<i>Coomansus arvensis</i>			
	Far-East, Russia		Uttarakhand, India	Cao Bang, Vietnam
	Eroshenko (1972)		Paul & Sharma (2016)	Present paper
n	Type	3♀♀	1♀	3♀♀
L (mm)	1.13	1.07-1.13	1.19	1.02-1.29
a	17	17-21	18	27-28
b	3.5	3.5	3.2	3.5-3.9
c	15.9	13.7-15.9	14	15-19
c'	2	2-2.5	2.3	2.3-3.1
V (%)	61	61-62	63	62-65
Buccal cavity length (µm)	23	23-24.5	31	24-28
Buccal cavity width (µm)	12	12-13.3	17	13-14
Apex of dorsal tooth position from base of buccal cavity (%)	85	83-85	84	85-92
Lip region width (µm)	-	-	31	23
Neck length (µm)	-	-	373	267-320
Body width (µm)	-	-	-	37-41.4
Anal body width (µm)	-	-	-	22.4-25
Tail length (µm)	71	65-71	87	64-77
Rectum (µm)	-	-	-	19-21
- no information				

3.2 *Coomansus ouinnensis* (Yeates, 1992) Andrassy, 1993

Material: 2 females in enough condition for identification. Measurements: see Table 2.

Female: Moderately slender nematodes of small size, 1 mm long. Habitus after fixation ventrally arcuate, particularly toward posterior end. Lip region slightly offset from the body contour by depression, its width 22-22.4 µm. Buccal cavity medium size, almost twice as long as wide with 25-26.6 µm long and 13.6-14 µm wide, funnel shaped, tapering at base. Amphideal fovea opening was not seen. Dorsal tooth is large with apex situated at 86-87% of buccal cavity length from its base, anterior edge of tooth perpendicular to body axis. Oesophagus cylindroid, 311-315 µm long, oesophago-intestinal junction non-tuberculate. Cardia projecting into intestinal lumen. Reproductive system didelphic-amphidelphic, both branches equally developed with ovary reflexed. Vulva, a transverse slit in ventral view. Vagina short, occupied around one-third of body width with *pars refringens vaginae* sclerotized, visible as 2 pieces in optical section.

Rectum straight, thick-walled, 16-17 µm, slightly shorter than anal body width long. Tail curves ventrally, 86-87.5 µm long or 4.5 anal body width long, conical shape, tapered towards tail terminus. No caudal glands and spinneret opening absent.

Male: Not found.

Remark: The measurements and description of Vietnamese specimens correspond well with holotype and paratype specimens from type population from Ouinne Valley and population from Mt Dzumac, New Caledonia [6] with the exception for a slightly higher than in C' ratio (c' = 4.5 vs 3.2-3.5) and the portion of dorsal tooth apex slightly higher from its base (73-79% vs 86-87%).

Distribution: Ouinne Valley, Mt Dzumac (New Caledonia).

Locality: Hoang Lien National Park, Lao Cai province.

Male: Not found.

Table 2. Morphometric data of *Coomansus ouinnensis* (Yeates, 1992) Andrassy, 1993

Local	<i>Coomansus ouinnensis</i>			
	Quinne Valley, New Caledonia	Mt Dzumac, New Caledonia		Lao Cai, Vietnam
		Yeates (1972)		Present paper
n	Type	5♀♀	4♀♀	2♀♀
L (mm)	1.07	096-1.08	1.08-1.15	1.04;1.04
a	25	22-26	24-29	29;33
b	3.5	3.3-3.6	3.6-3.9	3.3;3.4
c	12	10-12	11-12	12;12
c'	3.4	3.2-3.5	3.2-3.5	4.5;4.5
V (%)	65	63-35	62-64	62;61.5
Buccal cavity length (μm)	25	25-28	26-28	26.6;25
Buccal cavity width (μm)	14	13-14	14-15	14;13.6
Apex of dorsal tooth position from base of buccal cavity (%)	76	73-78	75-79	86;87
Lip region width (μm)	-	-	-	22.4;22
Neck length (μm)	-	-	-	315;311
Body width (μm)	-	-	-	36;31
Anal body width (μm)	-	-	-	19.3;19
Tail length (μm)	92	86-95	94-100	87.5;86
Rectum (μm)	-	-	-	17;16
- no information				

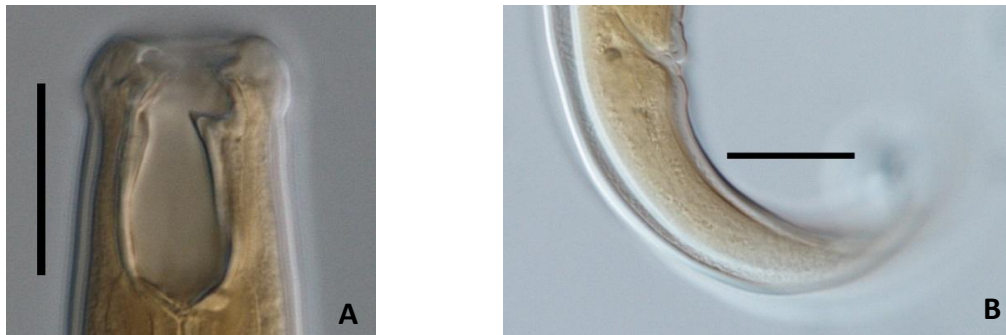


Fig. 2. *Coomansus ouinnensis* (Yeates, 1992) Andrassy, 1993

A. Head region; B. Female tail region. (Scale bars: A, B = 20 μm)

4. CONCLUSION

In this present paper, two species of *Coomansus* as *C. arvensis* and *C. ouinnensis* (Mononchida, Mononchidae) are first time to report for Vietnamese's nematode fauna. *C. arvensis* was recorded from Phia Oac natural reservation area, Cao Bang province, their measurements and description correspond well with the type population from Far-East, Russia and specimen from Uttarakhand, India. *C. ouinnensis* was reported from Hoang Lien National Park, Lao Cai province. Measurements and description of the Vietnamese specimens fit well the type population from Quinne Valley as well as population from Mt Dzumac (New Caledonia).

In Vietnam up to now, four species of *Coomansus* genus were recorded including *C. parvus* and *C. venezolanus* in previous papers.

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COMPETING INTERESTS

Author has declared that no competing interests exist.

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