

**NEW RECORD OF THE GENUS *Parkellus* Jairajpuri, Tahseen & Choi, 2001
(Mononchida: Mononchidae) WITH REDESCRIPTION OF
Parkellus menzeli MALE IN VIETNAM**

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ABSTRACT

The genus *Parkellus* with a redescription of *Parkellus menzeli* male is recorded and illustrated for the first time from Vietnam. One male of *Parkellus menzeli* was collected from Y Ty Commune, Bat Xat natural conservation area, Lao Cai Province, northwest Vietnam; its measurements and features corresponded well with the type population from Crasta im Textal, Switzerland and other populations from Poland.

Keywords: Free-living soil nematodes, natural conservation area, new record, Vietnam.

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INTRODUCTION

The genus *Parkellus* (Mononchidae, Prionchulinae) was elected as a new genus by Jairajpuri et al. (2001), based on a new species *P. parkus* from Korea, which Choi & Choi (1997) previously described as *Iotonchus zschokkei* (Menzel, 1913). The genus *Parkellus* is close to the genus *Coomansus* Jairajpuri & Khan, 1977 but differs in having a large and spacious buccal cavity, posterior placed dorsal tooth and complex of gubernaculum in the male. However, Zullini & Peneva (2006) and Andrassy (2009) did not support to separate the genus *Parkellus* because the distinguishing characters, such as larger and spacious buccal cavity; posteriorly situated dorsal tooth and a complex gubernaculum can be observed also in some species of *Coomansus* and regarded the genus *Parkellus* as a synonym of *Coomansus*. More recently, the genus *Parkellus* was reviewed by Ahmad & Jairajpuri (2010) and nine species of *Coomansus zschokkei* group were transferred to this genus (Ahmad & Jairajpuri, 2010).

The species *Parkellus menzeli* was first described by Loof and Winiszewska-Slipinska (1993) as *Coomansus menzeli* based on some specimens with very great body size among population of *C. zschokkei* of Menzel's collection. Also in their article, eight other *Iotonchus* species were transferred from *Iotonchus* to the genus *Coomansus*, and belonging to the *zschokkei*-group, viz. *I. arcuticaudatus* Eroshenko, 1975; *I. cobbi* Eroshenko, 1975; *I. monticola* Eroshenko, 1975; *I. mucronatus* Eroshenko, 1975; *I. paraamphigonicus* Eroshenko, 1975; *I. silvius* Eroshenko, 1975; *I. simmenensis* (Kreis, 1924) Schneider, 1939 and *I. zschokkei* (Menzel, 1913) Cobb, 1917. This species, *C. menzeli*, is distinguished from *C. zschokkei* by the large body size, larger buccal cavity (65–78 µm), the sub-acute spicule head and bifurcate spicule tip (Loof & Winiszewska-Slipinska, 1993). More recently, *C. menzeli* and those related species were transferred to the genus *Parkellus* Jairajpuri, Tahseen & Choi, 2001 by Ahmad & Jarajpuri (2010) in their

book of “Mononchida: The predaceous nematodes”. Up to now, of ten already described species in this genus worldwide (Ahmad & Jairajpuri, 2010), three species from Europe; eight species from Asia including Far East, Kazakhstan, Korea, Japan 8 species and one species from North America. The species *P. menzeli* was recorded only in Europe including Poland, Switzerland, Czech Republic, Romania, Ukraine and Bulgaria (Ahmad & Jairajpuri, 2010; Mladenov et al., 2019).

Until now, the genus *Parkellus* is unknown among predaceous nematodes of the order Mononchida from Vietnam (Nguyen, 2007). The record of *P. menzeli* from Lao Cai Province is the first report of the genus *Parkellus* Jairajpuri, Tahseen & Choi, 2001 for the nematode fauna in Vietnam.

MATERIALS AND METHODS

Soil samples were collected randomly around the base of trees from Bat Xat natural conservation area in Lao Cai Province, Northern Vietnam. Nematodes were extracted from soil samples using modified Baermann funnel technique (Southey, 1986). They were killed by heat, fixed in 4% formaldehyde, transferred to anhydrous glycerol (Seinhorst, 1959), and mounted on glass slides for microscopic observation. Photographs were taken with Nikon digital camera connected onto a Nikon Eclipse Ni microscope and the images were edited using Adobe Photoshop CS6. Permanent slide was stored at the Department of Nematology, Institute of Ecology and Biological Resources, Vietnam Academy of Science and Technology (VAST), Ha Noi, Vietnam.

RESULTS AND DISCUSSION

Parkellus menzeli (Loof & Winiszewska-Slipinska, 1993) Ahmad & Jairajpuri, 2010

Materials: only one male in good condition. Measurements: see table 1.

Male: Body large size. Habitus after fixation ventrally arcuate, particularly toward posterior end. Under light microscope: cuticle smooth, 7 µm thick at the base of

oesophagus, numerous irregular spaced cuticular pores all over the body. Lip region 54 μm wide, offset from the body contour, rounded head with arrangement of labial and cephalic papillae in two circles. Amphideal

fovea cup-shaped, at 5 μm from the anterior end of buccal cavity. Buccal cavity large size, ventral ridge present with 72 μm long and 36.4 μm wide, barrel shaped, narrowing at base; its wall strongly sclerotized.

Table 1. Comparison of morphometric data of *Parkellus menzeli* (Loof & Winiszewska-slipinska, 1993) Ahmad & Jairajpuri, 2010

Local	<i>Parkellus menzeli</i>		
	Crasta im Textal, Switzerland	Poland	Lao Cai, Vietnam
Characters	Loof and Winiszewska-Slipinska (1993)		Present paper
n	1 ♂ (topotype)	9 ♂♂*	1 ♂
L (mm)	3.23	2.51–3.40	3.32
a	33	23–32	30.8
b	4.2	3.8–4.7	4.0
c	33	17–25	27.7
c'	1.1	1.6–2.1	1.6
Buccal cavity length (μm)	72	66–74	71.8
Buccal cavity width (μm)	41	28–34	36.4
Apex of dorsal tooth position from base of buccal cavity (μm)	43	34–48	37
Lip region width (μm)	58	52–56	54.2
Neck length (μm)	776	705–892	833.6
Body width (μm)	98	94–131	107.8
Anal body width (μm)	86	72–88	73.6
Tail length (μm)	98	124–168	120
Spicule length (μm)	136	108–148	121.2
Supplement number	25	19–26	20
Rectum (μm)	-	52–76	50.9

Notes: -: No information; *: From several populations.

Dorsal tooth large, with sharp apex, pointing forward. Apex of dorsal tooth situated in posterior half of buccal cavity, at 37% of buccal cavity length from its base. Oesophagus cylindroid, 834 μm long, nerve ring located at 203 μm or approximately 24% of its length from anterior end. Excretory pore is very conspicuous with distinctly sclerotized terminal duct and large sac; situated just after nerve ring about 227 μm or approximately 27% of its length from anterior end. Oesophago-intestinal junction non-tuberculate. Cardia projecting into intestinal lumen. Rectum straight, thick-walled and muscular, 50.9 μm .

Reproductive system two testis. Spicule curved, 121 μm long with sub-acute head and bifurcate terminus. Gubernaculum thick, 37 μm long; lateral guiding piece 22 μm long, bifurcate tip. The series of 20 supplements occupying approximately 13% of the body length. The distance in between cloacal opening and posteriormost supplement 16.5 μm .

Tail conoid shape, curved, 120 μm long or about 1.6 anal body diameter. Caudal gland inconspicuous without gland opening. Tail tip fine, slightly round with hyaline as 14 μm long.

Female: Not found.

Remarks: The measurements of Vietnamese specimens corresponded well with those of topotype and paratype specimens from type population from Crasta

im Textal, Switzerland and Poland (Loof & Winiszewska-Slipinska, 1993).

Locality: Y Ty Commune (altitude at 2090 m), Bat Xat natural conservation area, Lao Cai Province, Vietnam.



Figure 1. *Parkellus menzeli* (Loof & Winiszewska-Slipinska, 1993) Ahmad & Jairajpuri, 2010
A, B. Head region; C, D. Male tail region; E: Spicule subacute head and bifurcate tip

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