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## IDENTIFICATION AND CHARACTERIZATION OF PARASITE *NEOPHARYNGODON* SP. FROM WALL LIZARD (GECKO) OF NEPAL

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### ABSTRACT

A total of 25 wall lizards (15 *Hemidactylus brookii brookii* and 10 *H. platyurus*) were examined for nematode parasite *Neopharyngodon* sp. from Kirtipur, Nepal. *Neopharyngodon* sp. were taxonomically identified and showed characteristics like small size (1.375-1.5mm x 0.225-0.25mm), mouth with two lips, oesophagus (0.35mm x 0.03mm), oesophagus bulb (0.092mm) and pointed tail with size one-third of the whole body length. Twenty percent of *H. brookii brookii* harbored the nematode parasite with average parasitic intensity of 4.3 while 80% of *H. platyurus* showed *Neopharyngodon* sp with parasitic intensity of 4.

**Keywords:** *Neopharyngodon* sp., Nematode, *Hemidactylus brookii brookii*, *Hemidactylus platyurus*

### INTRODUCTION

Nepal is a biodiversity rich country. As far as present knowledge is concerned, there are four genera and 10 species of geckos belonging to family Gekkonidae in Nepal (Shah & Tiwari 2004). *Hemidactylus brookii brookii* (Fig. 1A) and *Hemidactylus platyurus* (Fig. 1B) are the commonly distributed house lizards of Terai and hills of Nepal. Less information is available regarding the parasites of amphibians and reptiles. However, recently herpeto fauna parasites *Rhabdias* sp. and *Aplectana* in toads (Pun & Maharjan 2015 & 2016b), and *Kalicephalus* sp. in snakes have been reported (Pun & Maharjan 2016a). Nematode subfamily cosmocercinae includes two genera: *Neopharyngodon* and *Aplectana* (Yamaguti 1961). *Neopharyngodon gekko* was reported from Indian lizard (Chakravorty & Bhaduri 1948) and *Neopharyngodon* sp. was recorded in toads and frogs from Bangladesh (Ahmed *et al.* 2006a & 2006b, Begum *et al.* 1996, Begum *et al.* 2012). However, this nematode species has not been reported in reptiles of Nepal. In this study, we examined the wall lizards (Gecko) and reported the prevalence and intensity of nematode parasite *Neopharyngodon* sp. with its characteristics for the first time from Nepal.

### MATERIALS AND METHODS

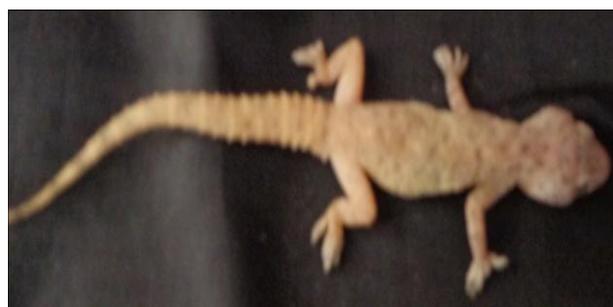
Twenty five wall lizards including fifteen *H. brookii brooki* and ten *H. Platyurus* were

collected and identified on the basis of morphological characteristics (Shah and Tiwari 2004) from Kirtipur, Nepal. *H. brookii brooki* have some basic traits such as light brown or greyish on above dark, strip along the side of the head and white dirty ventral portion (Shah & Tiwari 2004). *H. platyurus* have grey or greyish brown dorsal, dirty or yellow white ventral portion, tail flat and seldom red (Shah & Tiwari 2004). The wall lizards were collected using net from human settlements particularly, dining room, study room, bedroom etc. The live animals were kept in cloth bag or transparent jar with sufficient ventilation. Each lizard was anaesthetized using chloroform, dissected longitudinally from ventral portion and rectum was thoroughly examined for nematode parasites. Collected parasites were kept in saline solution and parasites were stored in 70% ethanol and cleared in lactophenol as per the methods described previously (Pun & Maharjan 2015). The comparisons of morphological traits were done with the help of taxonomic key (Yamaguti 1961). The prevalence and parasitic intensity were determined as follows:

Prevalence = (Number of host infected / total number of host examined) × 100

Parasitic intensity = Total number of parasites observed / total number of hosts infected

(Pun & Maharjan 2016b).



(A)



(B)

**Fig. 1. A- *Hemidactylus brookii brookii*,  
B- *Hemidactylus platyurus***

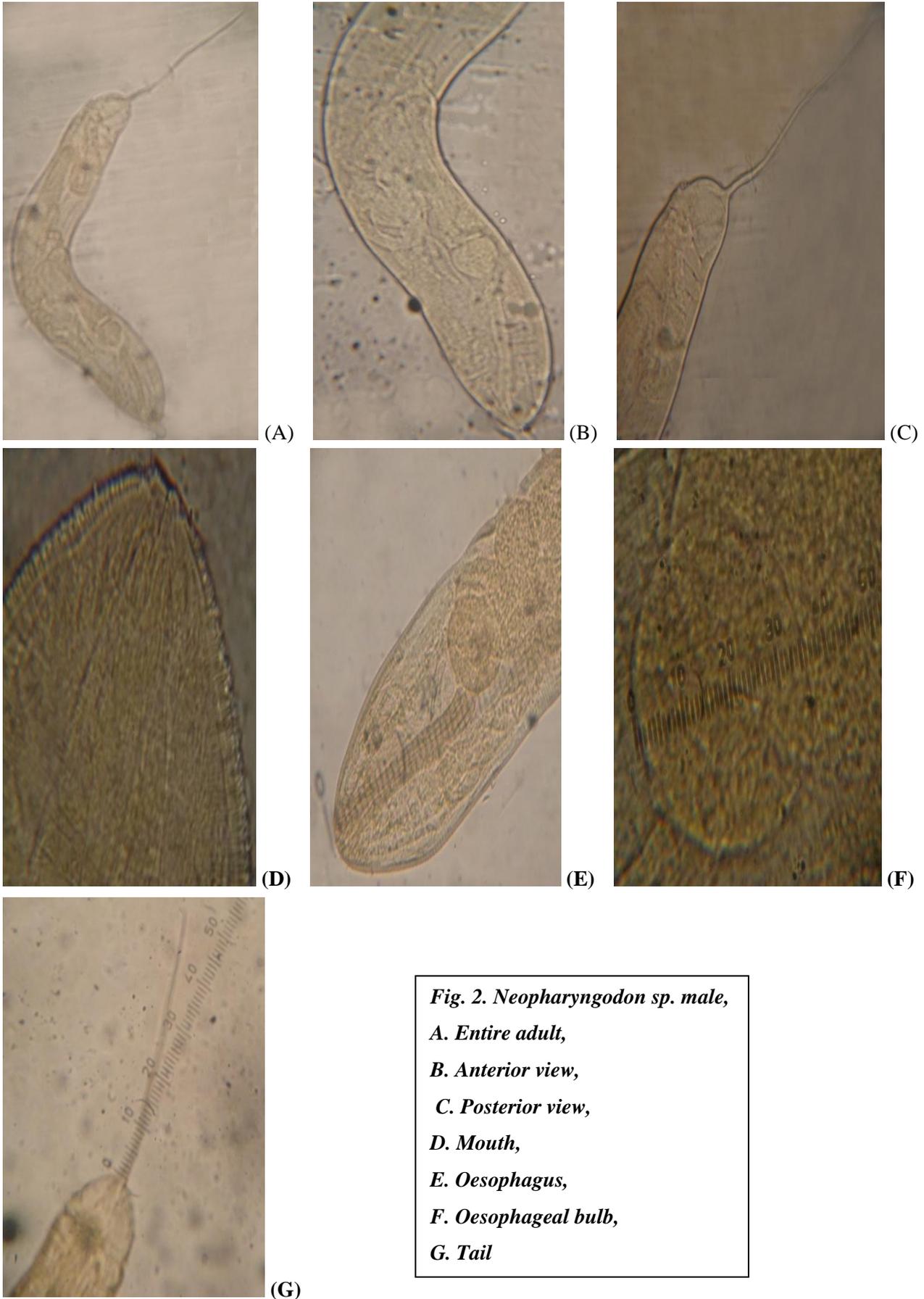
**RESULTS**

The nematode parasites were collected from the rectum of *H. brookii brookii* and *H. platyurus*. Taxonomic characteristics on the basis of morphometric measurement revealed smaller (1.375-1.5 mm long by 0.225-0.25 mm wide) (Fig. 2A) size of the nematodes. They had lateral cuticular ridges, but no membranous flanges. Mouth had two lips. Anterior and posterior extremities were obliquely truncated ventrally and dorsal end was produced into a fine pointed process (Fig. 2B-2D). Oesophagus was 0.35 mm longer and 0.03 mm wider (Fig. 2E) and oesophagus bulb was 0.0925 mm in diameter (Fig. 2F). Tail was pointed with the length 0.52 mm which is one-third of the whole body length (Fig. 2G). During the study period, only male nematodes were collected, no female nematodes were found for the further identification. The characters observed in these nematodes resembled with the genus *Neopharyngodon* described earlier with unidentified species.

*Neopharyngodon* sp had higher prevalence (80%) in *H. platyurus* in comparison to *H. brookii brookii* which had 20% prevalence. The intensity of infection however was comparable among *H. brookii brookii* (4.3) and *H. platyurus* (4) (Table 1).

**Table 1. Prevalence and parasitic intensity of *Neopharyngodon* sp. male in *Hemidactylus brookii brookii* and *Hemidactylus platyurus*.**

Month	No. of <i>Hemidactylus brookii brookii</i> dissected	No. of host infected by <i>Neopharyngodon</i> sp.	No. of <i>Neopharyngodon</i> sp. collected	Prevalence	Parasitic intensity	No. of <i>Hemidactylus platyurus</i> dissected	No. of host infected by <i>Neopharyngodon</i> sp.	No. of <i>Neopharyngodon</i> sp. collected	Prevalence	Parasitic intensity
April	7	2	3	20%	4.3	2	2	10	80%	4
May	6	-	-			4	2	2		
July	2	1	10			4	4	20		
Total	15	3	13			10	8	32		



**Fig. 2. *Neopharyngodon* sp. male,**  
**A. Entire adult,**  
**B. Anterior view,**  
**C. Posterior view,**  
**D. Mouth,**  
**E. Oesophagus,**  
**F. Oesophageal bulb,**  
**G. Tail**

## DISCUSSION

The parasite *Neopharyngodon* sp. has been recorded from amphibians (Begum & Banu 2012) and reptiles (Yamaguti 1961) previously. Similar species of nematode parasite has been recorded from *Gekko gecko* from Calcutta (Chakravorty & Bhaduri 1948). The *Neopharyngodon* spp. reported from *Bufo melanostictus* (Begum & Banu, 2012) and from reptiles (Yamaguti 1961) had similar characteristics such as small size, two lips, body measurements, oesophagus position and long pointed tail.

According to Begum & Banu (2012), the prevalence of *Neopharyngodon* spp in *Bufo melanostictus* from Bangladesh was 68% with intensity of infection 24.29. The intensity of infection in present study was lower than that of Begum & Banu (2012) while the prevalence was lower in *H. brookii brookii* but higher in *H. platyurus*. We reported the nematode parasite *Neopharyngodon* spp. male for the first time from the wall lizards of Nepal which has physical characteristics similar to those described by others previously with variable prevalence and intensity of infection.

## CONCLUSION

*Neopharyngodon* sp. male recorded in this study shows the first report from *H. brookii brookii* and *H. platyurus* from Nepal. *H. platyurus* were found highly infected compared to *H. brookii brookii*.

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