

Lice Infestation in Mithun (*Bos frontalis*) of Nagaland

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Abstract

Mithun, a semi-domesticated bovine species living in the forests of North-East India is known to share some of the helminths and ticks parasitizing domesticated cattle. The present investigation conducted to ascertain lice infestation in mithun revealed identification of *Linognathus vituli*, a sucking louse of cattle. One male mithun calf out of 53 animals had infestation with this species. Non-detection of other bovine species of lice such as *Damalinia bovis* and *Hematopinus eurysternus* in this forest dwelling animal necessitates further study in a larger group of animals particularly during winter season.

Key words: Lice infestation, *Linognathus*, Mithun, Nagaland.

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Introduction

Mithun (*Bos frontalis*) is an important bovine species found in India's hilly North-East region which experiences a cool and tropical rain forest climate. Farmers rear mithun in the forest areas under open grazing condition without any shelter and additional feed. Diseases of semi-domesticated mithun have been reviewed by Rajkhowa *et al.* (2003). So far parasitic diseases are concerned, few reports are available on the occurrence of gastro-intestinal helminths (Rajkhowa *et al.*, 2005; Chamuah *et al.*, 2009) and scanty reports on haemoprotezoa (Das *et al.*, 1999) and on ticks as external parasites (Pathak and Chabra, 2012; Chamuah *et al.*, 2013). Therefore, the present investigation was undertaken to ascertain lice infestation in mithuns.

Materials and Methods

The study was carried out in the hilly Porba village under Phek district of Nagaland, India. During the month of April, 2014 a total of 53 free ranging mithuns were examined for lice infestation. Entire body surface of the animals irrespective of age and sex was searched for the ectoparasites. Live specimens were collected in glass tubes containing 70% alcohol and thereafter processed in the laboratory by standard procedure using 10% potassium hydroxide solution. Morphological identification of the specimens was done with the help of available keys (Sen and Fletcher, 1962; HMSO, 1979).

Results and Discussion

During the investigation one male calf was found to have infestation with lice on the ventral surface of the abdomen and inner aspect of thigh. All the collected specimens grossly looked similar in appearance. Morphological features of the specimens observed under microscope were elongated body with eyeless pointed head, 5-segmented antennae, membranous hollow and hairy abdomen, 1 pair of spiracle dorsally on the mesothoracic region of fused thorax, first pair of legs smallest, tarsi with single claw, presence of thumb-like tibial pad and 6 pairs of abdominal spiracles without any paratergal plate.

Morphological findings agreed to the description of sucking louse, *Linognathus* (Sen and Fletcher, 1962; HMSO, 1979; Soulsby, 1986) and at species level it was presumptively identified as *Linognathus vituli* (Fig 1-2).



Fig 1: Anterior portion of *Linognathus vituli*



Fig 2: Posterior portion of *L. vituli*

The bovine species of lice occurring in India are *L. vituli* and *Haematopinus eurysternus* as the sucking type and the biting louse- *Damalinea bovis* (Sen and Fletcher, 1962). Mithun is considered to be a cross between gaur (*Bos gaurus*) and domestic cattle (*Bos indicus*). Infestation of this animal with *L. vituli* recorded in the present study agrees to Pathak and Chabra (2012) who opined sharing of same internal and external parasites by mithun and cattle. Non-detection of louse other than bovine species in mithun living in the forest together with non bovine wild animals also justifies its host specificity. Saravanan *et al.* (2007) also recorded only *Damalinea*, a bovine species of biting louse in yak and its hybrids living in Arunachal

References

- Chamuah JK, Das M, Islam S, Rajkhowa S, Rajkhowa C and Chakraborty A (2009). Studies on gastrointestinal helminthes of mithun (*Bos frontalis*). *Journal of Veterinary Parasitology*, 23 (1): 37-40.
- Chamuah JK, Dutta PR, Prakash Ved, Raina OK, Sakhrise A, Borkotoky D, Perumal P, Neog R and Rajkhowa C (2013). Comparative efficacy of some plant extracts on *Rhipicephalus (Boophilus) microplus* infestation in mithun (*Bos frontalis*) in the Northeast. *Journal of Veterinary Parasitology*, 27(1): 5-7.
- Das BC, Sarkar M, Das DN, Mohanty TK, Mondal DB and Pal RN (1999). Babesiosis in a crossbred mithun (*Bos frontalis*)-A case study. *Indian Veterinary Journal*, 76: 443-444.
- HMSO (1979). Manual of veterinary parasitological laboratory techniques. *Ministry of Agriculture, Fisheries and Food*, 110-111 pp.
- Pathak KML and Chabra MB (2012). Parasites and parasitic diseases of Indian elephant, Mithun and Yak: an overview. *Indian Journal of Animal Science*, 82(12): 1444-1467.
- Pradesh. *H. eurysternus* and *D. bovis*, other two bovine lice reported from India could not be observed in mithun and this might be due to variation in geographical location.
- L. vituli* is a sucking louse of bovines and it appears to be of common occurrence in India. Heavy infestation of young animals results irritation, annoyance, anaemia, loss of condition, emaciation and death (Sen and Fletcher, 1962). Present record of infestation in a calf also agrees to previous opinion of common occurrence of this louse species in young bovines. However, least number of animal infestation (1/53=1.89%) observed in the present study conducted during April month might be due to seasonality of lice which are common in winter.

Conclusion

Identification of *L. vituli* in the present study forms baseline information on lice infestation in mithun. Further studies would be required to ascertain possible occurrence of *D. bovis* and *H. eurysternus*, the other bovine species of lice found in India.

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