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Morphological characterization and prevalence of ectoparasites in goats in and around Guwahati, Assam, India

DEBJANI BORAH[1], RANJEET NEOG[1], KANTA BHATTACHARJEE[1], KUNTOLA ROY[1], SOUVIK SARMA[1] and PRATIK BHOWMIK[2]✉

College of Veterinary Science, Khanapara, Assam Agricultural University, Guwahati 781 022, Assam, India.

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Supplementary Table 1. Sex and age-wise prevalence of various ectoparasites in goat

Prevalence parameter/ number	Sex-wise prevalence				Age-wise prevalence			
	Female	Male	TOTAL	χ2 values	<6 months	>6 months	TOTAL	χ2 values
No. of goats examined	504	212	716		203	513	716	
No. of goats positive for ticks	366 (72.62%)	116 (54.72%)	482 (67.32%)	21.74**	90 (44.33%)	392 (76.41%)	482 (67.32%)	68.03**
No. of goats positive for lice	224 (44.44%)	84 (39.62%)	308 (43.02%)	1.42^{NS}	85 (41.87%)	223 (43.47%)	308 (43.02%)	0.15^{NS}
No. of goats positive for fleas	358 (71.03%)	132 (62.26%)	490 (68.43%)	5.31*	169 (83.25%)	321 (62.57%)	490 (68.43%)	28.79**
No. of goats positive for mites	79 (15.67%)	24 (11.32%)	103 (14.39%)	2.30^{NS}	19 (9.36%)	81 (15.79%)	103 (14.39%)	5.00*

**p<0.01, *p<0.05, NS: Non-significant

Supplementary Table 2. Seasonal prevalence of various ectoparasites in goat

Season	No. of goats examined	No. of goats positive for ticks (%)	No. of goats positive for lice (%)	No. of goats positive for fleas (%)	No. of goats positive for mites (%)
Pre-monsoon (March, April and May)	256	197 (76.95%)	121 (47.27%)	177 (69.14%)	19 (7.42%)
Monsoon (June, July, August and September	208	146 (70.19%)	61 (29.33%)	115 (55.29%)	12 (5.77%)
Post-Monsoon (October and November)	94	55 (58.51%)	43 (45.74%)	67 (71.28%)	17 (18.09%)
Winter (December, January and February)	158	84 (53.16%)	83 (52.53%)	131 (82.91%)	55 (34.81%)
Total	716	482 (67.32%)	308 (43.02%)	490 (68.43%)	103 (14.39%)
χ^2 values		29.28**	23.90**	32.38**	77.18**

**p<0.01

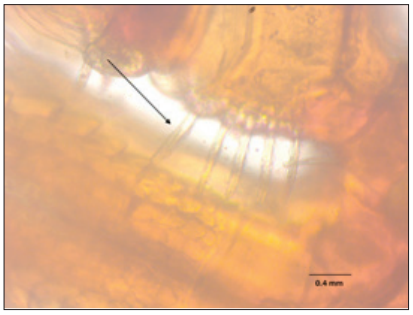

Fig. 1a. *H. bispinosa* with 5 infrainternal setae (Black arrow). Scale: 0.4 mm

Fig. 1b. *H. bispinosa* with 4/4 dental formula (Black arrow). Scale: 0.1 mm

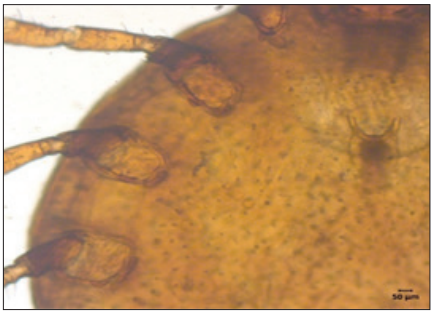

Fig. 1c. *H. bispinosa*. Coxal spurs blunt except coxa I spur (Black arrow). Scale: 50 µm

Fig. 1d. *H. bispinosa*. Spurs on palpal segment III (Black arrows) Scale: 0.2 mm

Fig. 1e. *H. bispinosa.* festoons and sub-oval spiracle (Black arrow). Scale: 20 µm

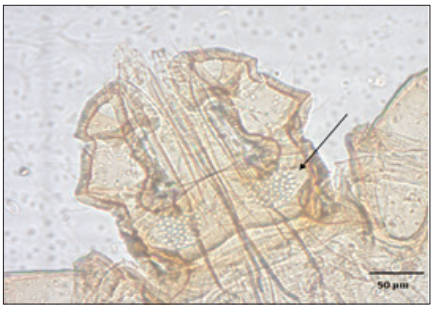

Fig. 1f. *H. bispinosa* female.Circular and widely spaced porose areas (Black arrow). Scale: 50 µm

Fig. 1. Morphological identification of *Haemaphysalis bispinosa*.

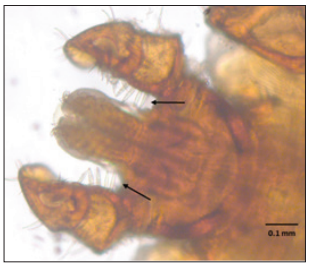

Fig. 2a. *H. hystricis*. Short infrainternal setae and 4 in number (Black arrows). Scale: 0.1 mm

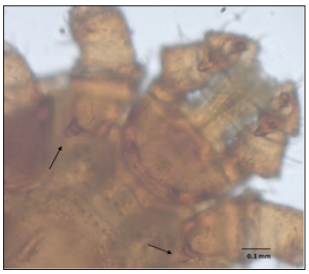

Fig. 2b. *H. hystricis.* Coxal spur broadly triangular and short (Black arrows). Scale: 0.1 mm

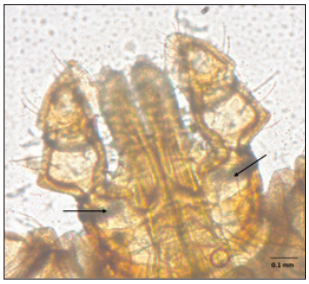

Fig. 2c. *H. hystricis*. Female. Porose areas inclined towards interior (Black arrows). Capitulum 2.2 times as wide as long. Scale: 0.1 mm

Fig. 2d. *H. hystricis*. Female. Cornua widely triangular with roundly pointed apex (Black arrows). Scale: 0.2 mm

Fig. 2. Morphological Identification of *Haemaphysalis hystricis*

Fig. 3a. *Rhipicephalus (Boophilus) microplus*. Coxa I bifid (Black arrows). Scale: 100 µm

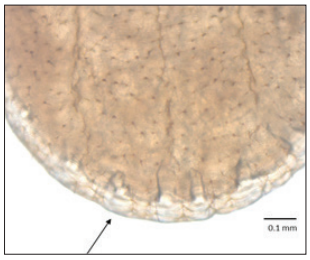

Fig. 3b. *R. microplus*. Festoons absent (Black arrow). Scale: 0.1 mm

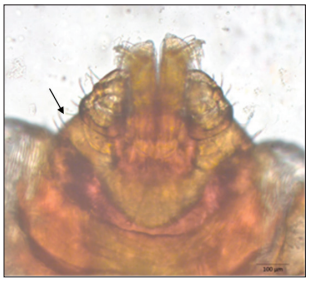

Fig. 3c. *R. microplus.* Hexagonal basis capitulum (Black arrow). Scale: 100 µm

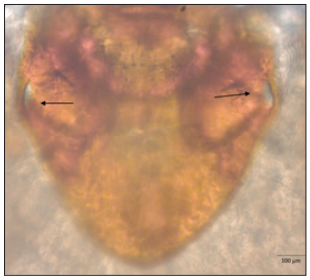

Fig. 3d. R. microplus with eyes in scutum laterally (Black arrows). Scale: 100 µm

Fig. 3. Morphological Identification of *Rhipicephalus* (*Boophilus*) *microplus*

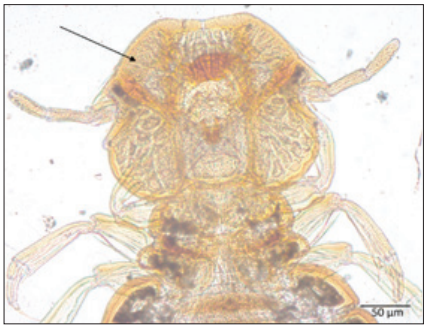

Fig. 4a. *Damalinia caprae*. Broad, round head with slight concavity anteriorly and a triangular area in-between the 3-segmented antennae. (Black arrow). Scale: 50 µm

Fig. 4b. *D. caprae*. One claw in each tarsus. Scale: 20 µm

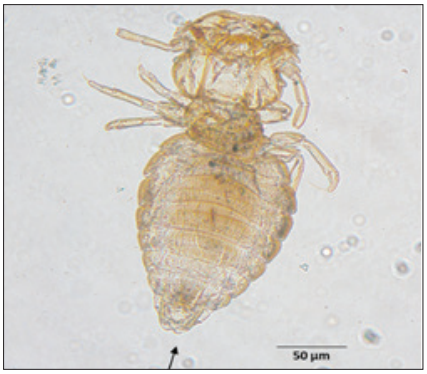

Fig. 4c. *D. caprae*. Male with pointed or conicalv posterior. (Black arrow). Scale: 50 µm

Fig. 4d. *D. caprae*. Female with round posterior. (Black arrow). Scale: 50 µm

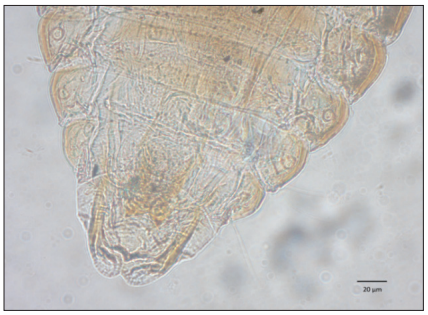

Fig. 4e. *D. caprae*. Male with two terminal flaps covering the genital opening (Black arrows) abdominal spiracles (Red arrow). Scale: 20 µm

Fig. 4. Morphological Identification of *Damalinia* (*Bovicola*) *caprae*

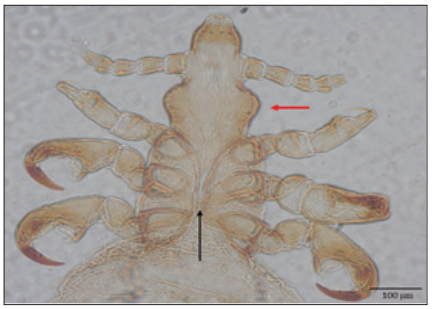

Fig. 5a. *Linognathus africanus*. (Ventral view). Round head with a protrusion behind 5-segmented antennae (Red arrow). Narrow sternal plate (Black arrow). Scale: 100 µm

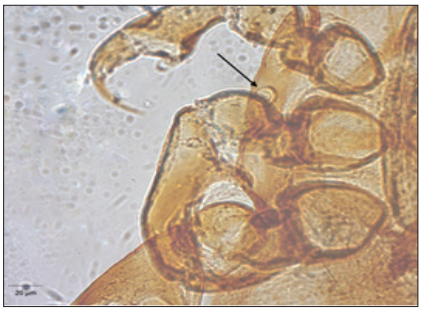

Fig. 5b. *L. africanus*. Spiracle present on mesothorax (Black arrow). Scale: 20 µm

Fig. 5c. *L. africanus* female. Posterior end is split (Red arrow). Gonopods are round (Black arrows). Scale: 20 µm

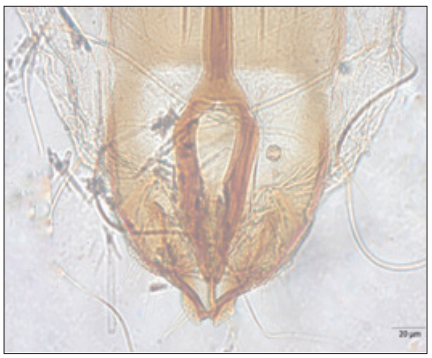

Fig. 5d. *L. africanus* male. Posterior end is not split and is round. Scale: 20 µm

Fig. 5e. *L. africanus* female. Abdomen is larger and devoid of paratergal plates. Scale: 50 µm

Fig. 5f. *L. africanus* male. One claw in each leg. Scale: 50 µm

Fig. 5. Morphological identification of *Linognathus africanus*

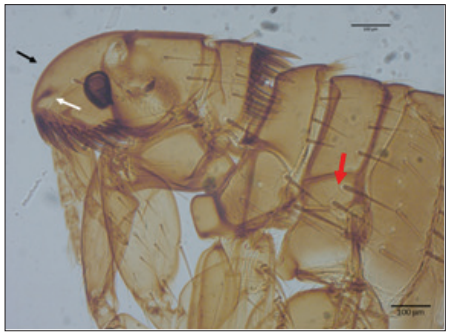

Fig. 6a. *Ctenocephalides felis orientis*. Frons short and broad (black arrow). Short club-shaped dorsal incrassation at the anterior end of the head (white arrow). Lateral metanotal area (LMA) with two bristles (Red arrow). Scale: 100 µm

Fig. 6b. *C.felis orientis*. Hind tibiae with 7 dorsal notches with a single stout bristle in its 3rd and 6th notches. (Black arrows). Scale: 50 µm

Fig. 6f. *C. felis orientis* male. Widened manubrium apically (Black arrow). Scale: 100 µm

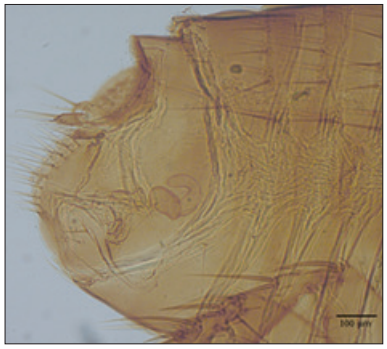

Fig. 6c. *C. felis orientis* female. First genal comb shorter than other combs. Scale: 50 µm

Fig. 6d. *C. felis orientis* female. C-shaped spermatheca(Black arrow). Scale:100 µm

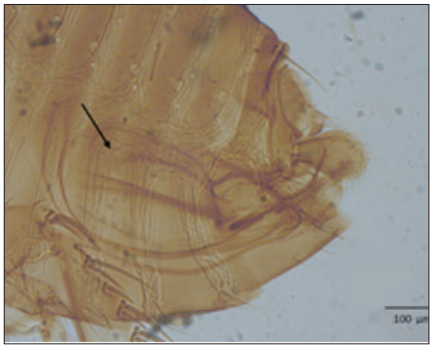

Fig. 6e. *C. felis orientis* male. Scale: 50 µm

Fig. 6. Morphological Identification of *Ctenocephalides felis orientis*

Fig. 7a. *C. felis felis* female. Elongated head. Length of the first genal comb nearly as long as the other genal combs (black arrow). Scale:100µm

Fig. 7b. *C. felis felis*. Six dorsal notches with a single stout bristle on the 5th notch (Black arrow). Scale: 100µm

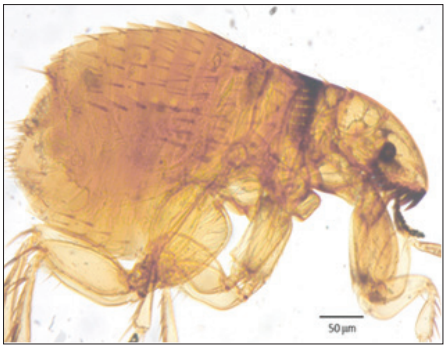

Fig. 7c. *C. felis felis* female. Scale: 50µm

Fig. 7. Morphological Identification of *Ctenocephalides felis felis*

Fig. 8a. *C. canis*. Length of the first genal comb was shorter than the subsequent genal combs. Scale: 20 µm

Fig. 8c. *C. canis*. Male. Scale: 100 µm

Fig. 8b. *C. canis*. Hind tibiae with 8 dorsal notches. Scale: 20 µm

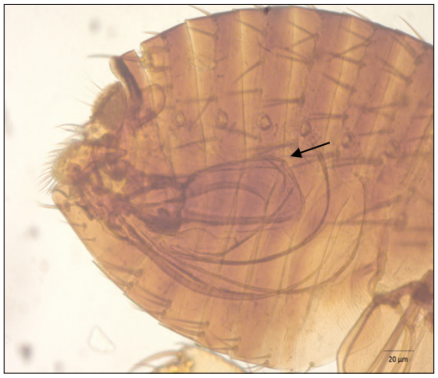

Fig. 8d. *C. canis*. Male. widened manubrium apically (Black arrow). Scale: 20 µm

Fig. 8. Morphological identification of *Ctenocephalides canis*

Fig. 9a. *Sarcoptes scabiei* var. *caprae* female. Bell-shaped suckers on 1st and 2nd pair of legs. Scale: 100 µm

Fig. 9b. *S. scabiei* var. *caprae* male.Small in size.Scale: 200 µm

Fig. 9. Morphological identification of *Sarcoptes scabiei* var. *caprae*

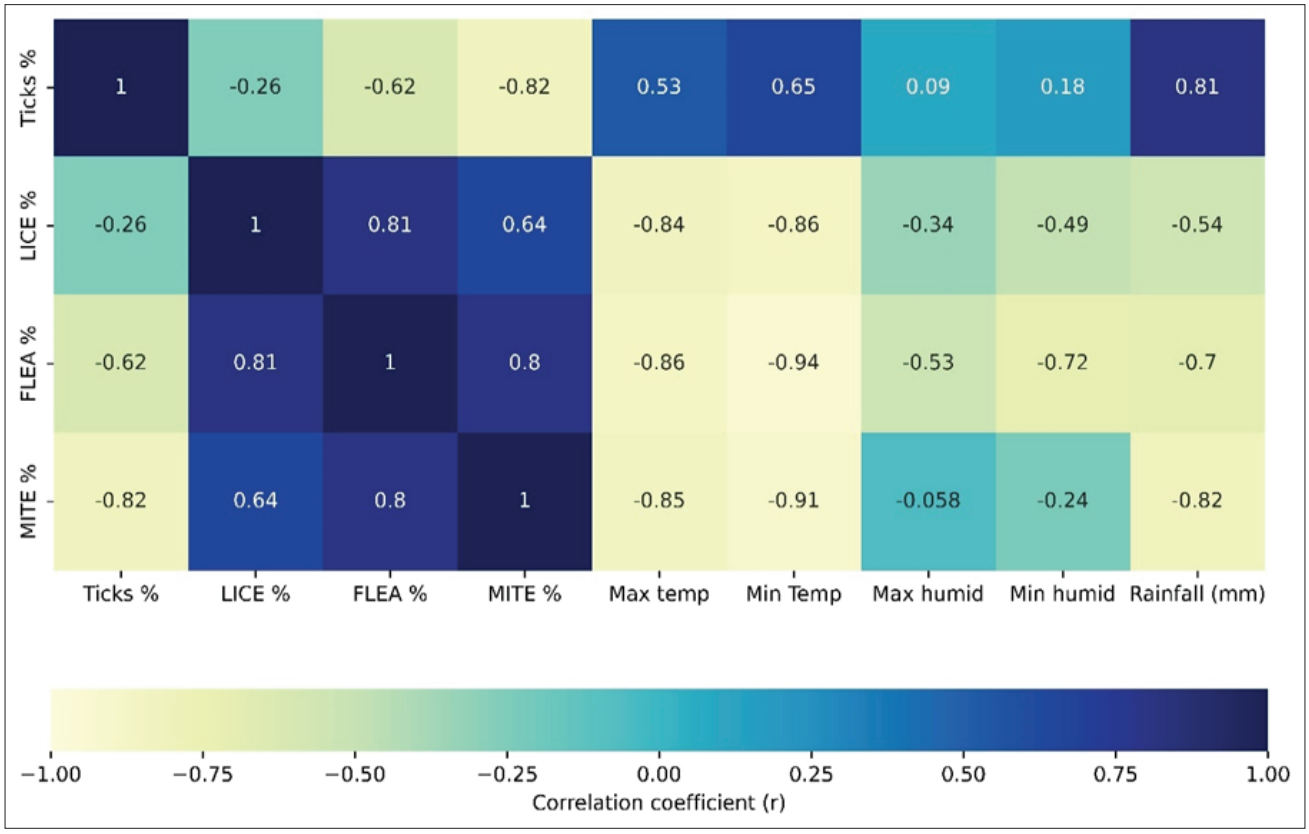

Fig. 10. Correlation among the prevalence of different ectoparasites and their prevalence with climatic conditions