

## PREVALENCE OF LICE ON BUFFALOES AT PRIVATE CATTLE FARM

Z. TASAWAR, I. BANO, C. S. HAYAT<sup>1</sup> AND M. H. LASHARI

Institute of Pure and Applied Biology, Bahauddin Zakariya University, Multan;

<sup>1</sup>Faculty of Veterinary Sciences, Bahauddin Zakariya University, Multan, Pakistan

### ABSTRACT

During the present survey, 100 buffaloes were examined for lice infestation at a private cattle farm, situated in Multan, Pakistan. Ninety two percent buffaloes were infested with *Haematopinus* spp., 6% with *Damalinea* spp. and 2% with *Linognathus* spp. The relationship between sex of animal and different lice was also determined. It was 94.1% in females for *Haematopinus* spp., 5.8% for *Damalinea* spp. and 2.35% for *Linognathus* spp., while in males it was 80, 6.66 and 0 percent, respectively. The relationship between age and different species of lice was also studied and in case of *Haematopinus* spp., it was significantly ( $P < 0.05$ ) higher (100%) in age group of 41 to 100 months compared to 14.2% in age group of 21 to 40 months. For *Damalinea* spp. it was 14% in the age group of 21 to 40 months, while it was 0% in age group of 1-20 months. At total of 8.33% buffaloes were infested with *Linognathus* spp. in age group of 61-80 months.

**Key words:** Buffaloes, age, sex, lice, prevalence.

### INTRODUCTION

Ectoparasitic arthropods live on, or burrow into, the surface of their host's epidermis for feed or shelter. As a result, there may cause direct damage to skin and other sub-cutaneous tissues. When present at high intensities, ectoparasites may cause harm indirectly, causing disturbance, increasing levels of behavior such as rubbing, leading to reduced time spent for grazing or ruminating and, self-wounding (Weeks *et al.*, 1995). The ectoparasites have a major effect on the husbandry and productivity of livestock, weight gain (Gibney *et al.*, 1985; Devaney *et al.*, 1992), milk production and quality of hide (Coles *et al.*, 2003). They can cause harm due to their blood feeding activities and can transmit many pathogenic organisms (Geden *et al.*, 1990; Watson *et al.*, 1997; Milnes and Green, 1999; Nafstad and Gronstol, 2001; Colwell and Himsl-Rayner, 2002). The present study was conducted to investigate the overall prevalence of lice and its relationship with age and sex in buffaloes kept at a private cattle farm.

### MATERIALS AND METHODS

The present survey was conducted on buffaloes varying in age from 1 to 120 months and kept at a private cattle farm, located in Multan, Pakistan. Lice were collected from 100 buffaloes, placed in vials containing 70% alcohol and brought to the Parasitology Laboratory, Baha-ud-Din Zakariya University, Multan. Age and sex of the animals were also recorded.

#### Preparation of permanent mounts of lice

The lice were washed with distilled water to remove the fixative. The washed specimens were kept

in 10% KOH until their bodies became transparent. Then they were washed to remove the alkali. After washing, the lice were dehydrated through a graded series of alcohol i.e. 30, 50, 70, 90 and 100% for 10-15 minutes. Following dehydration, the specimens were cleared in xylene and mounted in Canada balsam. The mounted specimens were identified according to the keys given by Soulsby (2006). Results were expressed in percentages and the values among various age and sex groups were compared by Chi Square test (Chaudhery and Kamal, 2000).

### RESULTS AND DISCUSSION

During the present study, the overall prevalence of three species of lice recovered were 92% for *Haematopinus* spp., 6% for *Damalinea* spp. and 2% for *Linognathus* spp. (Table 1). Sanjay and Prasad (2004) reported 33.22% overall prevalence of lice in India. Geden *et al.* (1990) reported that 27.6% cattle were infested with lice with prevalence of 23.6% for *Damalinea bovis*, 2.5% for *Solenopotes capillatus* 1.9% for *Haematopinus eurytarnus*, 1.6% for *Linognathus vituli* and 0.3% for *Haematopinus quardripertusis*. Colwell *et al.* (2002) studied the prevalence of sucking and chewing lice on cattle entering feedlots in Southern Alberta. The long-nosed sucking louse, *Linognathus vituli*, was the most commonly encountered species, with prevalence of 57.8 to 95.6% in calves. The short-nosed sucking louse, *Haematopinus eurytarnus*, was present at very low intensities, 1-2 lice per animal, on 2.6 to 4.4% of the calves. Rawat *et al.* (1992) reported that out of 373 buffaloes, 60.58% were found infested with *Haematopinus tuberculatus*.

George *et al.* (1992) studied the lice infestation in domestic animals. Records of domestic animals brought

to the Veterinary Entomology Laboratory for diagnosis of suspected lice infestation over a 10 years period were analyzed. From a total of 794 suspected cases, 137(17.3%) were infested with lice. The most common lice species recorded was *Linognathus vituli* (66.7%). The high prevalence rate of *Haematopinus* spp. recorded during the present survey may be due to less resistance of the hosts to this parasite.

The prevalence of *Haematopinus* spp. was significantly ( $P<0.05$ ) more (100%) in age groups 41-60, 61-80 and 81-100 months, compared to age group of 21-40 months (14.2%). The prevalence of *Damalinia* spp. was maximum (16.6 and 14.2%) in age groups of 61-80, 21-40 months respectively, and minimum (0%) in the age group 1-20 months. The prevalence of *Linognathus* spp. was maximum (8.33%) in age group of 61-80 months and minimum (6.25%) in age group of 101-120 months (Table 2). Sanjay and Prasad (2004) reported that the cattle and buffaloes up to 1 year of age were found to have a higher degree of ectoparasite infestation than the animals aged over 2 years. Rawat *et al.* (1992) reported that the infestation was higher on adults than in younger animals. Milnes and Green (1999) conducted a survey in England on cattle lice and reported that lice were less prevalent in adult cattle. It is generally observed that younger animals are more susceptible to parasite infestation compared to adults. According to the results of the present study, some lice species were more prevalent in younger animals and others in older animals. This may be explained on the basis that when the animals are younger, their resistance is low and it increases with the age of the animals and then it decreases as the age of the animal increases (Cummins and Graham, 1982).

The prevalence of *Haematopinus* spp. was significantly ( $P<0.05$ ) higher (94.1%) in female hosts compared to male hosts (80%). The prevalence of *Damalinia* spp. was 5.8% in female hosts and 6.66% for male hosts. For *Linognathus* spp, prevalence was 2.35% in females and 0% in males. It shows that the males have low prevalence for *Haematopinus* spp. and *Linognathus* spp. which could be explained on the basis that the male hosts were more resistant to these lice and less resistance to *Damalinia* spp. (Bilbo and Nelson, 2001). However, in sheep, sex or age of the animal has been shown to have no effect on the prevalence of *Psoroptes ovis* (Tasawar *et al.*, 2007).

## REFERENCES

- Bilbo, S. D. and R. J. Nelson, 2001. Sex steroid hormones enhance immune function in male and female Hamsters. *Amer. J. Physiol. Regul. Integr. Comp. Physiol.*, 280: 207-213.
- Chaudhry, S. M. and S. Kamal, 2000. Introduction to Statistical Theory. 6<sup>th</sup> Ed., Ilmi Kitab Khana, Lahore, Pakistan.
- Coles, G. C., P. J. Hadley, A. S. Milnes, L. E. Green, P. J. Stosic and P.C. Garnsworthy, 2003. Relationship between lice infestation and leather damage in cattle. *Vet. Rec.*, 153: 255-259.
- Colwell, D. D. and C. Himsel-Rayner, 2002. *Linognathus vituli* (Anoplura: Linognathidae): population growth, dispersal and development of humoral immune responses in naive calves following induced infestation. *Vet. Parasitol.*, 108: 237-246.

**Table 1: The overall prevalence of lice in buffaloes**

Name of parasite	No. of animals examined	No. of animals infected	Prevalence (%)
<i>Haematopinus</i> spp.	100	92	92
<i>Damalinia</i> spp.	100	6	6
<i>Linognathus</i> spp.	100	2	2

**Table 2: The relationship between age and lice in buffaloes**

Name of parasite	No. of animals examined	Age (month) groups of the buffaloes					
		1-20 (n=28)	21-40 (n=7)	41-60 (n=10)	61-80 (n=12)	81-100 (n=27)	101-120 (n=16)
<i>Haematopinus</i> spp.	100	27 (96.4%)	1(14.2%)	10(100)	12(100)	27(100)	15(93.7%)
<i>Damalinia</i> spp.	100	0	1(14.2%)	1(10%)	2(16.6%)	1(3.7%)	1(6.25%)
<i>Linognathus</i> spp.	100	0	0	0	1(8.33%)	0%	1(6.25%)

**Table 3: The relationship between sex and lice in buffaloes**

Name of parasite	No. of female animals			No. of male animals		
	Examined	Infested	Prevalence (%)	Examined	Infested	Prevalence (%)
<i>Haematopinus</i> spp.	85	80*	94.1	15	12	80.0
<i>Damalinia</i> spp.	85	5	5.8	15	1	6.66
<i>Linognathus</i> spp.	85	2*	2.35	15	0	0

\*Two animals showed mixed infestation of *Haematopinus* spp and *Linognathus* spp.

- Cummins, L. J. and J. F. Graham, 1982. The effect of lice infestation on the growth of Hereford calves. *Australian Vet. J.*, 58: 194-96.
- Devaney, J. A., T. M. Craig, L. D. Rowe, C. Wade and D. K. Miller, 1992. Effects of low levels of lice and internal nematodes on weight gain and blood parameters in calves in central Texas. *J. Econ. Entomol.*, 85: 144-149.
- Geden, C. J., D. A. Rutz and D. R. Bishop, 1990. Cattle lice (Anoplura, Mallophaga) in New York: seasonal population changes, effects of housing type on infestations of calves and sampling efficiency. *J. Econ. Entomol.*, 83: 1435-1438.
- George, J. B., S. Ootobo, J. Ogunleye and B. Adediminyi, 1992. Louse and mite infestation in domestic animals in northern Nigeria. *Trop. Anim. Hlth. Prod.*, 24: 121-124.
- Gibney, V. J., J. B. Campbell, D. J. Boxler, D. C. Clanton and G. H. Deutscher, 1985. Effects of various infestation levels of cattle lice (Mallophaga: Trichodectidae and Anoplura: Haematopinidae) on feed efficiency and weight gain of beef heifers. *J. Econ. Entomol.*, 78: 1304-1307.
- Milnes, A. S. and L. E. Green, 1999. Prevalence of lice on dairy cattle in England and the bordering countries of Wales. *Res. Vet. Sci.*, 47: 497-510.
- Nafstad, O. and H. Gronstol, 2001. Eradication of lice infestation. *Acta. Vet. Scand.*, 42: 81-89.
- Rawat, B. S., M. C. Trivedi, A. K. Saxena and A. Kumar. 1992. Incidence of phthirapteran infestation upon the buffaloes of Dehradun (India). *Angew Parasitol.*, 33(1):17-22.
- Sanjay, K. and K. D. Prasad, 2004. Prevalence of common ectoparasites infecting cattle and buffaloes in some areas of Jharkhand. *Indian J. Anim. Sci.*, 74(9): 938-939.
- Soulsby, E. J. L., 2006 *Helminths, Arthropods and Protozoa of Domesticated Animals*. 7<sup>th</sup> Ed., Bailliere Tindall and Cassel Ltd., London, UK.
- Tasawar, Z., B. Rauf, C. S. Hayat and M. H. Lashari, 2007. Prevalence of *Psoroptic ovis* in sheep around Multan, Pakistan. *Pakistan Vet. J.*, 27(4): 199-200.
- Watson, D. W., J. E. Lloyd and R. Kumar, 1997. Density and distribution of cattle lice (Phthiraptera: Haematopinidae, Linognathidae, Trichodectidae) on six steers. *Vet. Parasitol.*, 69: 283-296.
- Weeks, C. A., C. J. Nicol and R. N. Titchener, 1995. Effects of the sucking louse (*Linognathus vituli*) on the grooming behavior of housed calves. *Vet. Rec.*, 137: 33-35.