A STUDY ON PARASITIC PREVALENCE IN NEONATAL BUFFALO CALVES AT AN ORGANIZED HERD IN HARYANA

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SUMMARY

One hundred and forty two fecal samples were screened to establish the diversity of parasites in neonatal buffalo calves. Samples were examined by specific techniques including morphometry of oocysts and eggs to ascertain the identity of parasites involved. An overall prevalence of 3.52% was found for Cryptosporidium spp. with the highest infection during peak winters. Incidence of Eimeria spp. infection was the highest during monsoon season with an overall prevalence of 16.10%. Two cases (1.40 %) of Strongyloides papillosus were also recorded during the monsoon season.

Key words: Cryptosporidium spp., Eimeria spp., neonatal buffalo calves, Strongyloides papillosus

Parasitism is one of the major afflictions responsible for enormous economic losses in terms of calf mortality in buffaloes.

The present survey was carried out in 142 neonatal buffalo calves of up to one month of age at the Animal Farm of the Institute to elucidate the prevalence of parasitic infections. Faecal samples were directly collected per rectum from calves and were stored at 4-10°C in a refrigerator until examination. Each sample was studied macroscopically and processed both by direct and concentration (saturated salt floatation technique) methods and examined for the presence of helminthic eggs and coccidia oocysts. For specific identification of Cryptosporidium oocysts, microscopic slides after air drying of the fecal smears were subjected to Modified Ziehl-Neelsen staining or Kinyoun's acid-fast staining procedure (Dubey et al., 1992). Microscopic examination was followed by morphometry of the oocysts and eggs to establish the specific identity of the parasites involved.

Prevalence of different parasitic oocysts and eggs recovered from fecal samples has been depicted in Table 1. Major enteropathogens identified in neonatal buffalo calves belonged to Eimeria spp., Cryptosporidium spp. and Strongyloides papillosus with an overall positivity rate of 21.83%.

Zoonotic coccidia protozoan parasite belonging to the genus Cryptosporidium is a frequent agent of gastrointestinal infection in humans, domestic animals and other vertebrates. Cryptosporidiosis should not only be considered from the perspective of animal health, but also for its great zoonotic potential. Although the infection leads to few deaths, serious economic losses can occur due to costs involved in the treatment (de Graaf et al., 1999). Apparently, cryptosporidial infection in buffalo calves has not been reported previously in Haryana. Only a few published reports of cryptosporidiosis in animals are available from India (Kumar et al., 2005). The disease was reported for the first time by Dubey et al. (1992) followed by Jayabal and Ray (2005) in water buffaloes and cattle from Uttar Pradesh. In recent years, Mallinath et al. (2009) in bovines and Rajendran et al. (2011) in children and animals have reported Cryptosporidium infection from Southern part of India. The calves with Cryptosporidium infection in our study were suffering from diarrhoea which is a finding in contrast to that of Rinaldi et al. (2007) who rarely observed diarrhoea in Cryptosporidium infected animals. Incidence of Cryptosporidium spp. infection was high during the month of January with an overall prevalence of 3.52%.

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Increased calving during this period might have favoured the spread of infection due to overcrowding. This also corroborates with the finding of El-Khodery and Osman (2008) who recorded the highest prevalence of *Cryptosporidium* spp. during winters. The temperature in winters might have been conducive for viability and dissemination of these organisms. The kinetics of fecal shedding/excretion of *Cryptosporidium* spp. was studied over a period of one month. The excretion of oocysts in faeces stopped after three weeks and oocysts could not be recovered from the faeces after one month of calves’ age. El-Khodery and Osman (2008) reported the peak prevalence of *Cryptosporidium* in buffalo calves at 1-15 days of age with progressive decrease until two month of age. Singh *et al.* (2006) also regarded *C. parvum* as a potential pathogen for dairy calves, including buffalo calves, up to the age of one month in Punjab.

Incidence of *Eimeria* spp. infection (responsible for causing coccidiosis) was the highest during July to August with an overall prevalence of 16.10%. Infection of *Eimeria* spp. in neonatal buffalo calves (0-3 months) has also been documented earlier (Charan and Pawaiya, 1997; Singh *et al.*, 2008). Higher humidity and temperature during rainy and post-monsoon season might have been the precipitating factors for optimum sporulation of oocysts. Reduced immunotolerance in rainy season might also be responsible for higher incidence of coccidiosis during monsoon season. Our results corroborate with the findings of de Noronha *et al.* (2009) who reported *Eimeria* spp. infection during rainy season in water buffaloes in Brazil. Yadav and Sharma (1986) suggested that inadequate feeding of colostrum, exposure to contaminated environment, underfeeding and poor sanitation are some predisposing factors for higher occurrence of coccidiosis in calves.

Cases of strongyloidosis (*Strongyloides papillosus* infection) with ovoviviparous eggs were also recorded during the month of July. Recently, Samal *et al.* (2011) reported a case of strongyloidosis in a neonatal buffalo calf. The infection is mainly acquired vertically from dams through transcolostral route. In this study, *Toxocara vitulorum* eggs were not observed which may probably be due to deworming carried out immediately a few days after the birth of calves at the animal farm on routine basis. Periodic establishment of parasitic profile of neonatal calves would pave the way for instituting better managemental measures for their control.

**REFERENCES**


Rinaldi, L., Musella, V., Condoleo, R., Saralli, G., Veneziano, V.,

<table>
<thead>
<tr>
<th>Parasite</th>
<th>Empirical infection score</th>
<th>Size of oocysts/eggs (µm)</th>
<th>Prevalence (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>Cryptosporidium</em></td>
<td>+ to ++</td>
<td>4.8 x 5.2</td>
<td>5/142 (3.52)</td>
</tr>
<tr>
<td><em>Eimeria</em></td>
<td>+ to ++++</td>
<td>12.9-15.48 x 15.48-25.80</td>
<td>24/142 (16.10)</td>
</tr>
<tr>
<td><em>Strongyloides</em></td>
<td>++</td>
<td>51.6-54.18 x 33.54-46.44</td>
<td>2/142 (1.40)</td>
</tr>
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<td><em>papillosus</em> infection</td>
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**Table 1**

Parasitic oocysts/eggs in faecal samples of neonatal buffalo calves


