

Supplementary data

Table S1. Species-wise prevalence rate of *Eimeria* spp. in cattle and buffalo calves

| Age groups | Species | Prevalence of <i>Eimeria</i> spp. | | | | | P- value |
|--------------------------------|--------------|-----------------------------------|-------------------|-------------------------|-----------------------|-------------------------|----------|
| | | <i>E. bovis</i> | <i>E. zurenii</i> | <i>E. ellipsoidalis</i> | <i>E. alabamensis</i> | <i>E. bukidnonensis</i> | |
| Suckling calves (1d-60d) | Cattle (70) | 26 (37.14%) | 26 (37.14%) | 23(32.86%) | 21 (30%) | 16 (22.86%) | 0.595 |
| | Buffalo (49) | 20 (40.82%) | 16 (32.65%) | 12 (24.49%) | 12 (24.49%) | 7 (14.29%) | |
| Post weaning calves (below 6m) | Cattle (63) | 18 (28.57%) | 18 (28.57%) | 16 (25.40%) | 14 (22.22%) | 11 (17.46%) | 0.810 |
| | Buffalo (42) | 14 (33.33%) | 11 (26.19%) | 8 (19.04%) | 8 (19.04%) | 5 (11.90%) | |
| Total | 224 | 78 (34.82%) | 71 (31.69%) | 59 (26.34%) | 55(24.55 %) | 39 (17.41%) | |

*P-value > 0.05 is non-significant (NS)

Table S2. Prevalence of internal parasites in diarrheic calves according to the types of infections

| Type of Parasites | No. of Mono-infections | No. of mixed infections | | | | |
|-----------------------------|------------------------|-------------------------|-------------------|-----------------------------|---------------------|----------------------|
| | | <i>Eimeria</i> spp. | <i>B. sulcata</i> | <i>Cryptosporidium</i> spp. | <i>T. vitulorum</i> | <i>Moneizia</i> spp. |
| <i>Eimeria</i> spp. | 37 (16.51%) | - | 21 (9.38%) | 5 (2.23%) | 9 (4.02) | 6 (2.68%) |
| <i>B.sulcata</i> | 35 (15.62%) | | 21 (9.38%) | 3 (1.34%) | 12(1.09%) | 1 (0.45%) |
| <i>Cryptosporidium</i> spp. | 10 (4.46%) | 5 (2.23%) | 3 (1.34%) | - | - | - |

| | | | | | |
|----------------------|-----------|-----------|-----------|---|------------|
| <i>T. vitulorum</i> | 17(7.59%) | 9 (4.02) | 12(5.36%) | - | 5 (2.23%) |
| <i>Moneizia</i> spp. | 1(0.45%) | 6 (2.68%) | 1 (0.45%) | - | 5(2.23%) - |

Table S3. Prevalence rate of parasitic diarrhea in relation to gender

| Internal Parasites | Sex | Cow calves | | | | Buffalo calves | | | | <i>P</i> -value* |
|-----------------------------|--------|----------------------|-------|--------------------------|------|---------------------|------|-------------------------|-------|------------------|
| | | Suckling calves (70) | | Post weaning calves (63) | | Suckling calves(49) | | Post weaning calves(42) | | |
| | | No. | % | No. | % | No. | % | No. | % | |
| <i>Eimeria</i> spp. | Male | 16 | 22.85 | 11 | 17.4 | 12 | 24.4 | 9 | 21.43 | 0.822 |
| | Female | 10 | 14.29 | 7 | 11.1 | 8 | 16.3 | 5 | 11.90 | |
| <i>Buxtonella sulcata</i> | Male | 15 | 21.43 | 13 | 20.6 | 11 | 22.4 | 7 | 16.67 | 0.913 |
| | Female | 8 | 11.43 | 6 | 9.52 | 7 | 14.2 | 5 | 11.90 | |
| <i>Cryptosporidium</i> spp. | Male | 3 | 4.29 | 1 | 1.59 | 2 | 4.08 | 1 | 2.38 | 0.706 |
| | Female | 4 | 5.71 | 2 | 3.17 | 3 | 6.12 | 2 | 4.76 | |
| <i>Toxocara vitulorum</i> | Male | 5 | 7.14 | 7 | 11.1 | 2 | 4.08 | 3 | 7.14 | 0.459 |
| | Female | 9 | 12.86 | 8 | 12.7 | 4 | 8.16 | 5 | 11.90 | |
| <i>Moneizia</i> spp. | Male | - | - | 5 | 7.94 | - | - | 3 | 7.14 | No value |
| | Female | - | - | 3 | 4.76 | - | - | 2 | 4.76 | |

*P-value > 0.05 is non-significant (NS)

Table S4. Prevalence rate of parasitic diarrhea in relation to housing system

| Internal Parasites | Housing system | Cow calves | | | | Buffalo calves | | | | P-value* |
|-----------------------------|----------------|---------------------|-------|--------------------------|------|---------------------|------|-------------------------|-------|----------|
| | | Suckling calves(70) | | Post weaning calves (63) | | Suckling calves(49) | | Post weaning calves(42) | | |
| | | No. | % | No. | % | No. | % | No. | % | |
| <i>Eimeria</i> spp. | Paved | 10 | 14.29 | 7 | 11.1 | 8 | 16.3 | 5 | 11.90 | 0.432 |
| | Dirt yard | 16 | 22.86 | 11 | 17.4 | 12 | 24.4 | 9 | 21.43 | |
| <i>Buxtonella sulcata</i> | Paved | 3 | 4.29 | 6 | 9.52 | 7 | 14.2 | 4 | 9.52 | 0.749 |
| | Dirt yard | 15 | 21.43 | 13 | 20.6 | 11 | 22.4 | 8 | 19.05 | |
| <i>Cryptosporidium</i> spp. | Paved | 2 | 2.86 | 1 | 1.59 | 2 | 4.08 | 1 | 2.38 | 0.923 |
| | Dirt yard | 5 | 7.14 | 2 | 3.17 | 3 | 6.12 | 2 | 4.76 | |
| <i>Toxocara vitulorum</i> | Paved | 6 | 8.57 | 6 | 9.52 | 2 | 4.08 | 3 | 7.14 | 0.924 |
| | Dirt yard | 8 | 11.43 | 9 | 14.2 | 4 | 8.16 | 5 | 11.90 | |
| | Paved | - | - | 4 | 6.35 | - | - | 2 | 4.76 | No value |

| | | | | | | | | | |
|----------------------|-----------|---|---|---|------|---|---|---|------|
| <i>Moneizia</i> spp. | Dirt yard | - | - | 4 | 6.35 | - | - | 3 | 7.14 |
|----------------------|-----------|---|---|---|------|---|---|---|------|

**P*-value > 0.05 is non-significant (NS)

Table S5. Seasonal prevalence rate of internal parasites among diarrheic calves

| Internal Parasites | Season | Cow calves | | | | Buffalo calves | | | | Total % | <i>P</i> -value* |
|---------------------------|--------|---------------------|-------|--------------------------|------|---------------------|-------|-------------------------|-------|-------------|------------------|
| | | Suckling calves(70) | | Post weaning calves (63) | | Suckling calves(49) | | Post weaning calves(42) | | | |
| | | No. | % | No. | % | No. | % | No. | % | | |
| <i>Eimeria</i> spp. | Winter | 4 | 5.71 | 4 | 6.35 | 3 | 6.12 | 2 | 4.76 | 13 (5.80%) | 0.924 |
| | Spring | 9 | 12.86 | 5 | 7.94 | 7 | 14.29 | 6 | 14.29 | 27 (12.05%) | |
| | Summer | 5 | 7.14 | 4 | 6.35 | 4 | 8.61 | 3 | 7.14 | 16 (7.14%) | |
| | Autumn | 8 | 11.43 | 5 | 7.94 | 6 | 12.24 | 3 | 7.14 | 22 (9.82%) | |
| <i>Buxtonella sulcata</i> | Winter | 5 | 7.14 | 5 | 7.94 | 3 | 6.12 | 3 | 7.14 | 16 (7.14%) | 0.841 |
| | Spring | 8 | 11.43 | 6 | 9.52 | 7 | 14.29 | 4 | 9.52 | 25 (11.16%) | |

| | | | | | | | | | | | |
|-----------------------------|--------|---|------|---|------|---|------|---|------|------------|----------|
| | Summer | 4 | 5.71 | 3 | 4.76 | 3 | 6.12 | 2 | 4.76 | 12 (5.36%) | |
| | Autumn | 6 | 8.57 | 5 | 7.94 | 5 | 10.2 | 3 | 7.14 | 19 (8.48%) | |
| | Winter | 2 | 2.86 | 0 | 0 | 1 | 2.04 | 1 | 2.38 | 4 (1.79%) | |
| <i>Cryptosporidium</i> spp. | Spring | 2 | 2.86 | 2 | 3.17 | 1 | 2.04 | 1 | 2.38 | 6 (2.68%) | |
| | Summer | 1 | 1.43 | 0 | 0 | 1 | 2.04 | 0 | 0 | 2 (0.89%) | 0.437 |
| | Autumn | 2 | 2.86 | 1 | 1.59 | 2 | 4.08 | 1 | 2.38 | 6 (2.68%) | |
| | Winter | 5 | 7.14 | 5 | 7.94 | 3 | 6.12 | 2 | 4.76 | 15 (6.70%) | |
| <i>Toxocara vitulorum</i> | Spring | 3 | 4.29 | 4 | 6.35 | 1 | 2.04 | 1 | 2.38 | 9 (4.02%) | 0.922 |
| | Summer | 2 | 2.86 | 1 | 1.59 | 1 | 2.04 | 1 | 2.38 | 5 (2.23%) | |
| | Autumn | 3 | 4.29 | 2 | 3.17 | 1 | 2.04 | 1 | 2.38 | 8 (3.57%) | |
| | Winter | 0 | 0 | 3 | 4.76 | 0 | 0 | 3 | 7.14 | 6 (2.68%) | |
| <i>Moneizia</i> spp. | Spring | 0 | 0 | 3 | 4.76 | 0 | 0 | 3 | 7.14 | 6(2.68%) | No value |
| | Summer | 0 | 0 | 2 | 3.17 | 0 | 0 | 1 | 2.38 | 3 (1.34%) | |
| | Autumn | 0 | 0 | 2 | 3.17 | 0 | 0 | 2 | 4.76 | 4 (1.79%) | |
| | Winter | 0 | 0 | 3 | 4.76 | 0 | 0 | 3 | 7.14 | 6 (2.68%) | |

**P*-value > 0.05 is non-significant (NS)

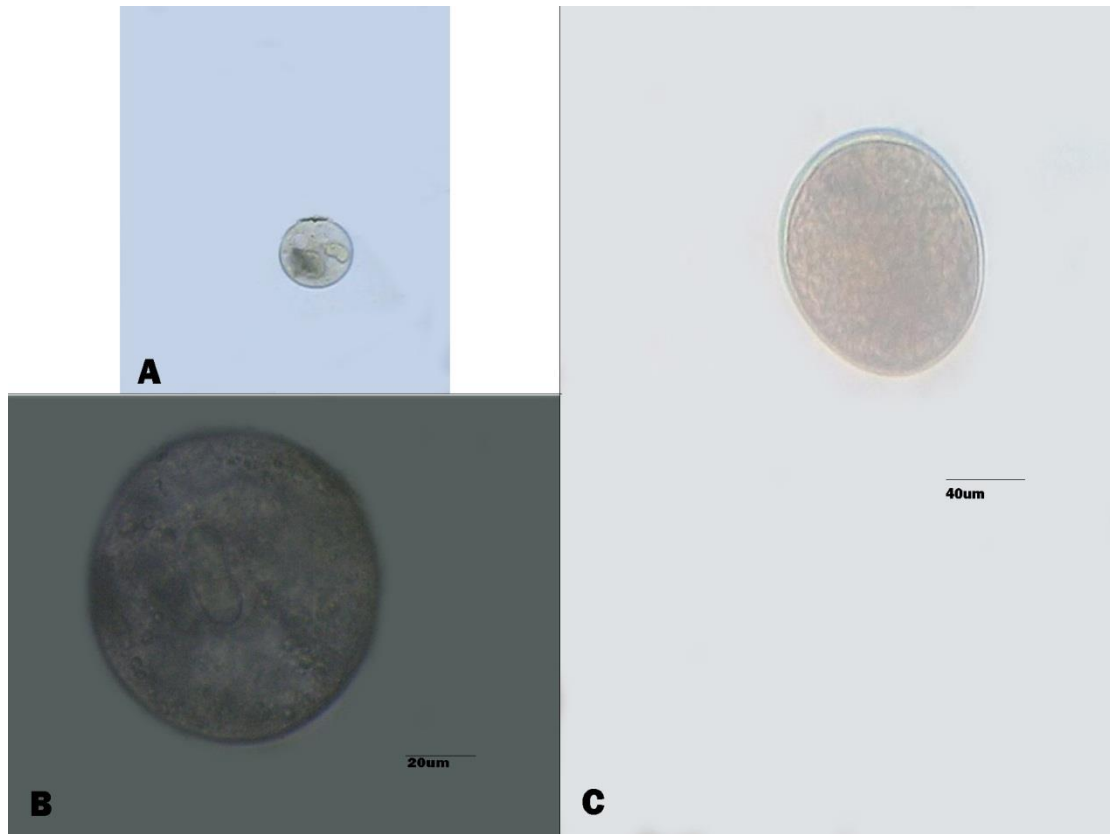


Figure.S1. *Buxtonella sulcate*. A. Trophozoite form (low magnification). B. Trophozoite (Higher magnification). C. Cyst form

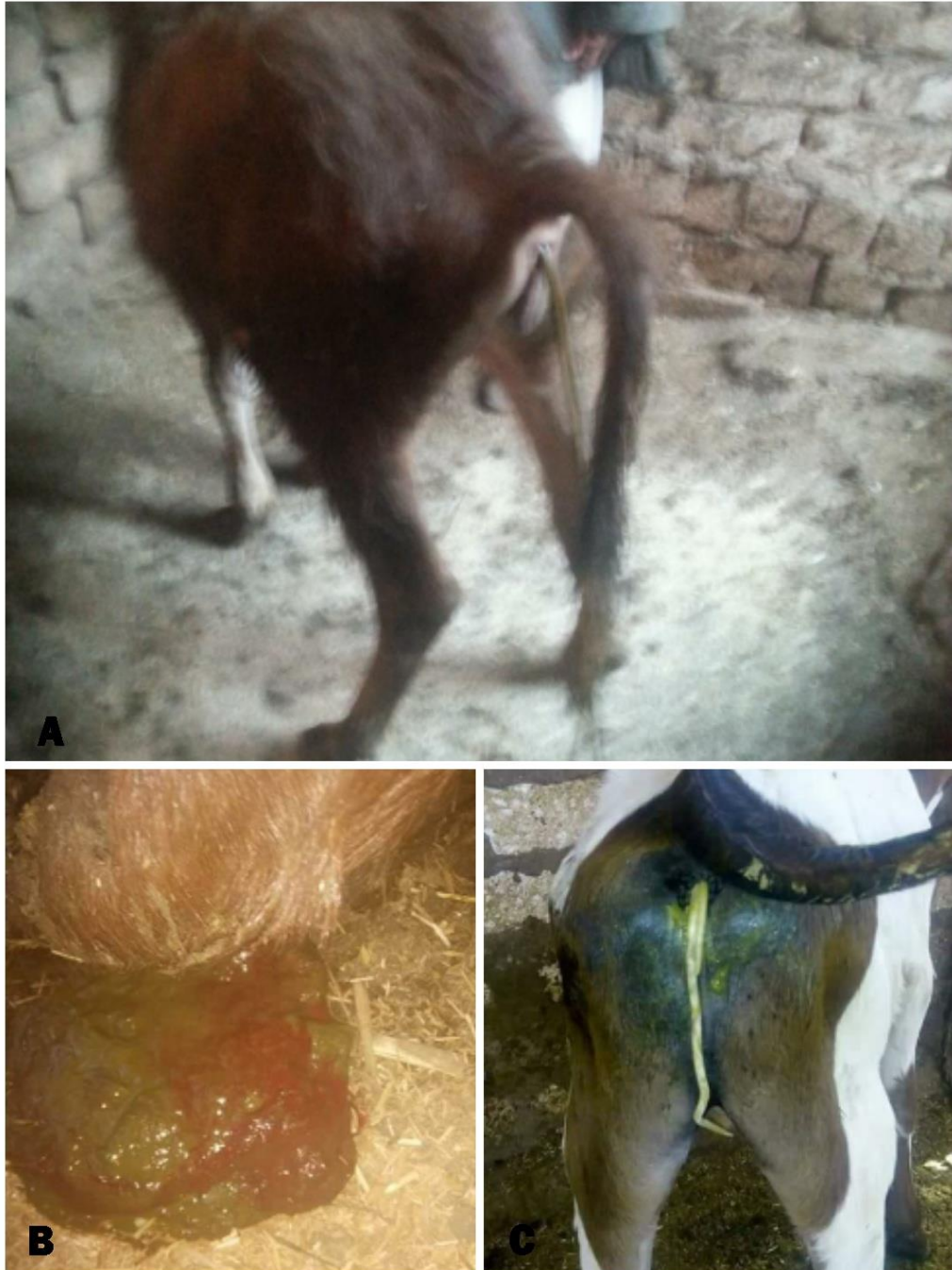


Figure. S2. Calves suffering from diarrhea, (A) Arched back position due to *B. sulcate*, (B) Bloody diarrhea due to *Eimeria* spp, (C) *Toxocara vitulorum* protruded from anal opening in calf

