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**CRYPTOSPORIDIUM INFECTION IN BUFFALOES AND CATTLE
WITH SPECIAL REFERENCE TO FACTORS CONTRIBUTING
TO INFECTION**

PROJECT REPORT PRESENTED BY

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ABSTRACT**CRYPTOSPORIDIUM INFECTION IN BUFFALOES AND CATTLE
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TO INFECTION****Ajeema B.S.H. Jameel**

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Cryptosporidium is a coccidian protozoan parasite which causes considerable morbidity and mortality in young animals and in the immunocompromised host. Diagnosis of *Cryptosporidium* infection is generally done by means of detection of oocysts in faeces using different faecal concentration techniques and staining techniques. This study was carried out to compare staining techniques: modified Ziehl Neelsen (MZN) and Giemsa; faecal concentration techniques: modified Sheathers sucrose flotation (MSSF) and modified salt flotation (MSF), to identify the most sensitive faecal concentration and the staining technique to diagnose *Cryptosporidium* infection in buffaloes.

Twenty faecal samples were tested by both MZN and Giemsa staining techniques. Number of *Cryptosporidium* oocyst positivity and oocyst recovery rate were high in MZN method compared to Giemsa staining technique.

Both MSSF and MSF faecal concentration methods were performed on 65 buffalo faecal samples. *Cryptosporidium* oocyst positivity for both MSSF and MSF methods was approximately the same (60 % and 50.8 % respectively). However, *Cryptosporidium* oocyst recovery was high with MSSF method compared to MSF method.

Cryptosporidium oocyst positivity was compared in regard to temperature, rainfall, calving season and age of the buffalo. Low incidence of *Cryptosporidium* infection was observed in both high and low rainfall months.

An investigation into the effect of temperature on *Cryptosporidium* infection was done from November 2009 to February 2010. Low incidence of *Cryptosporidium* infection was observed during the month of high average temperature (November and February).

The last week of November 2009 to the third week of December 2009 was the calving season for the buffalo farm. Incidence of *Cryptosporidium* infection was at its highest 9 days after calving season, followed by a steady decline for a period of 2 months. *Cryptosporidium* oocyst positivity was high in animals < 6 months old.

The effect of *Cryptosporidium* infection on diarrhoea among buffaloes was done in a buffalo farm in the Badulla district. Incidence of *Cryptosporidium* infection was found to be equal in both normal and diarrhoeal buffaloes. However, the oocyst shedding among diarrhoeic buffaloes was found to be high (268116/g of faeces).

The effect of *Cryptosporidium* infection on diarrhoeic cattle was done in Kalmunai, (the Eastern Province of Sri Lanka) and no animals showed positivity for *Cryptosporidium* oocysts. Thus, this study showed that cryptosporidiosis is not a cause of diarrhoea in cattle in the Kalmunai area.

This study concluded that MSSF and MSF faecal concentration methods are equally efficient in diagnosing severe *Cryptosporidium* infection with high oocyst counts. Moreover *Cryptosporidium* infection with low *Cryptosporidium* oocyst counts can be efficiently detected by the MSSF method.

Cryptosporidium oocyst can be easily identified with the MZN staining method due to the acid fast characteristic of *Cryptosporidium* oocysts. Giemsa staining intricate the oocysts differentiation from other *Cryptosporidium*-like bodies; it took the similar colour as that of the background. Thus, Giemsa staining can be used for screening and MZN for the conformation of *Cryptosporidium* infection.

Cryptosporidium infection was detected in a wide range of age groups extending from 2 week- old buffalo calves up to buffaloes > 1 year. Oocyst positivity declined with age and had no apparent association with rainfall while low temperature showed high susceptibility of *Cryptosporidium* infection. This is the only study carried out in the Eastern part of Sri Lanka to identify the role of *Cryptosporidium* on diarrhoea in cattle. According to this study *Cryptosporidium* was not identified as an aetiological factor for diarrhoea among cattle in the Kalmunai area. This study showed the presence of *Cryptosporidium* in this area, indicating the need for future studies on epidemiological aspects of *Cryptosporidium* infection in the Eastern part of Sri Lanka.