

Ministry of Higher Education
and Scientific Research
Al-Muthanna University
College of Science

**Diagnostic study for distribution of *Cryptosporidium
parvum* in diarrhoeic children in Al- Muthanna
Province-Iraq**

**A Thesis
Submitted to the Council of the College of Science -AL-Muthanna
University in Partial Fulfillment of the Requirements for the
Degree of Master Science in
Biology/ Microbiology**

By
Nouran Raad Jomah AL-Barakat
B.Sc. College of Science - AL-Muthanna University
2011

Supervised by
2015 A.D 1436 A.H
Assist. Prof. Dr.
Muhammed Oda Mallah

Summary

The aim of study was to assess of prevalence of *Cryptosporidium parvum* among children less than 10 years by traditional microscopic examination techniques

and detection of *Cryptosporidium parvum* by using Ziehl-Neelsen (Z-N) stain and detection and confirmation *Cryptosporidium parvum* oocysts by using RT-PCR .

This study was carried out in AL-Muthanna province during the period from October 2013 to May 2014 in the Educational - AL- Hussein hospital in AL-Samawa , General AL-Rumaiytha hospital , Feminine and children's hospital in AL-Samawa and AL-Rumaiytha health centers . A total of 100 stool samples were taken from children aged 1 month to less than 10 years who suffering from acute or persistent diarrhea and it examined by Direct , Flotation Sedimentation methods and Ziehl- Neelsen stain and RT- PCR assay .

The present study recorded the prevalence percent of *Cryptosporidium parvum* that detected in 100 fecal samples examined by direct , flotation and sedimentation methods were 30% , 36% and 40% respectively .

In direct method , the present study showed non significant differences at level ($P>0.05$) between male and female , the highest rate of infection in male (43.33%) compared with female (23.33%) in age group (1-3) years old compared with other age groups . Also the results showed significant differences at level ($P<0.05$) between rural and urban regions in all age groups except (3-5) years old , the highest rate of infection in rural (50%) compared

II

with urban (16.67%) in age group (1-3) years old compared with other age groups .

While in flotation method , The present study showed significant differences at level ($P<0.05$) between male and female in age group (1-3) and (5-7) years old compared with other age groups , the highest rate of the infection in male (50%) compared with female (22.22%) in age group (1-3) years old . Also the results showed significant differences at level ($P<0.05$) between rural and urban region in age group (1-3) and (5-7) years old compared with other age groups . The highest rate of infection in rural (55.56%) compared with urban (19.4%) in age group (1-3) years old .

In sedimentation method , the present study showed significant differences at level ($P<0.05$) between male and female in age group (1-3) and (5-7) years old compared with other age groups , the highest rate of the infection in male (50%) compared with female (22.5%) in age group (1-3) years old . Also the results showed significant differences at level ($P<0.05$) between rural and urban regions in all age groups compared with other age groups except (7-9) years old . The highest rate of infection in rural (55%) compared with urban

Summary

(17.5%) .

Also in this study , a total of 100 fecal samples of children were examined by Ziehl-Neelsen , out of which 21 fecal samples had suspected *Cryptosporidium parvum* with percent 21% . The results showed oocysts stained purple bodies against a dark blue back ground , with a clear halo around the oocyst . Also the present study recorded non significant differences at level I II

($P>0.05$) in the all age groups between male and female , the highest rate of the infection in male (42.86%) compared with female (32.80%) in age group (1-3) years old . The results showed significant differences at level ($P<0.05$) between rural and urban regions in age groups (1-3) years old compared with other age groups , the highest rate of infection in rural (47.62%) compared with urban (19.05%) .

In this study , a total of 100 fecal samples of children were examined by real time PCR out of which 18 fecal samples had found *Cryptosporidium parvum* with percent 18% . The present study showed non significant differences at level ($P>0.05$) between male and female in all age groups , the highest rate of the infection in male (44.44%) compared with female (22.22%) in age group (1-3) years old . Also the results showed significant differences at level ($P<0.05$) between rural and urban regions in all age groups compared with other age groups except (7-9) years old . the highest rate of infection in rural (50.5%) compared with urban (16.67%) .

The present study showed that high percentage of positive cases was recorded in microscopical examination while 18% of positive cases were detected by molecular assay .

The present study recorded that highest rate of the infection in the November and December months while the lower rate of the infection in the January and February months in all examination methods .