

University of Baghdad

| | | | |
|----------------------------------|--|--------------------------------------|--|
| College Name | College of Veterinary Medicine | | |
| Department | Public health | | |
| Full Name as written in Passport | Fadia Abd Al-muhsin AL-Khayat | | |
| e-mail | twna_2011@yahoo.com | | |
| Career | <input type="radio"/> Assistant Lecturer | <input type="radio"/> Lecturer | <input checked="" type="radio"/> Assistant Professor <input type="radio"/> Professor |
| | <input type="radio"/> Master | <input checked="" type="radio"/> PhD | |
| Thesis Title | Some Epidemiological Aspects and Molecular Diagnosis of <i>Giardia duodenalis</i> in Human and Cattle | | |
| Year | 2014 | | |
| Abstract | <p>The objective of the study was to determine prevalence and genetic diversity of <i>Giardia duodenalis</i> isolates from human stool samples and cattle fecal samples, during a period started from September 2012 to May 2013 in Al-Karkh region/Baghdad by using Real-Time Polymerase Chain Reaction and Polymerase Chain Reaction- Restriction Fragment Length Polymorphism techniques to detect the genotypes and subgenotypes of <i>G. duodenalis</i> respectively, the concentration of serum immunoglobulin of anti-giardia IgM, IgG, and IgA in 50 infected patients were detected by Enzyme Linked Immunosorbent Assay (ELISA). The effect of ozone on <i>Giardia</i> cyst viability was also determined by using vital stain (Eosin Y).</p> <p>Results revealed, from 1194 human stool samples <i>Giardia duodenalis</i> was detected in 256 samples and the infection rate was 21.44% , highly rate was recorded in September and October 33.5%, 31.6% respectively. Sex of the patients had significantly influence on the total infectivity rate, in males, females were 20.58% , 22.93% respectively. A significant effect of age on incidence of infection was noticed, the higher rate was recorded in children aged ≤ 10 years old 27.18% in comparison with 14.54% of patients aged > 10 years old. A total of 54 <i>Giardia</i> isolates from 100 fecal samples (54%) were observed from cattle, 55.55% of isolates were detected in calves aged ≤ 6 months, while 44.44% recorded in cattle aged > 6 months. Significant differences were seen according to sex, 42.59% of the isolates belong to males and 57.4% belong to females .</p> <p>Molecular characterization of <i>Giardia duodenalis</i> isolates was determined by using Real-Time Polymerase Chain Reaction with specific kit to detect only the genotypes A and B. Among 120 human isolates, the percentage of detection was 90.84%. According to sex, the detection rate was observed in males 59.63% and females 40.36%. Also 44.9% of the isolates belong to patients aged ≤ 10 years old and 55.04% in patients aged > 10 years old. In cattle all the 54 isolates were analyzed, the detection percentage was appeared in 31.48% in which 35.29% belong to males and 64.7% belong to females, also the detection percentage was 58.82% which referred to calves aged ≤ 6 months and 41.17% referred to cattle aged > 6 months.</p> | | |

Subgenotyping of *Giardia duodenalis* was processed by polymerase chain reaction-restriction fragment length polymorphism(PCR-RFLP). The glutamate dehydrogenase gene (gdh) was amplified by using specific primers(GDHiF and GDHiR) in **60%** human isolates, The positive samples including **17** male (**56.66%**) and **13** female samples (**43.33%**). Also **18** samples (**60%**) belong to children under or equal to **10** years old and **12** samples (**40%**) belong to person more than **10** years old. Subgenotype **A1** was detected in **30%** isolates while subgenotype **B1V** was detected in **70%** by using the restriction enzymes **NlaVI** and **RsaI**. According to sex, most of subgenotype **A1** samples were belong to males **77.77%** and **22.22%** belong to females, while for **B1V** subgenotype **47.6%** belong to male and **52.38%** recorded in females.

Under age category, subgenotype **A1**, **B1V** was seen in **22.22%** and **77.77%** respectively in patients aged ≤ 10 years old while, **41.6%** and **58.33%** were recorded under age > 10 years old respectively. In cattle isolates, all **17** samples were recorded as subgenotype **A1**.

Antibodies specific for *Giardia duodenalis* in serum samples of infected humans showed Significant differences ($p < 0.05$) between infected and non infected humans and also among age groups of infected patients. The higher concentrations of **IgM**, **IgG**, and **IgA** were obtained in patients aged **2-12** years old in comparison with other age category .

The higher inactivation rate **98.5%** for *Giardia duodenalis* cysts was recorded at Ozone concentration **0.2mg/L** for **5** minutes exposure time.