INTRODUCTION

Diarrheal diseases are extremely common in the developed and developing worlds, and are major causes of morbidity and mortality affecting millions of individuals each year ***(Kosek et al., 2003).***

The causes of diarrhea include viruses, as ***Enteric adeno virus***, bacteria as ***Entero toxigenic eschrichia coli*** (E.coli) and parasites as ***G.lamblia (Amin, 2002)***. ***G.lamblia*** is a cosmopolitan parasite frequently involved in human parasitic gastroenteritis and the incidence of giardiasis world wide may be as high as 1000 million case every year ***(Wright et al., 2003)***.

Transmission of ***G.lamblia*** to human occurs mainly following ingestion of the cyst with contaminated food or water, and the clinical effects of giardiasis range from an asymptomatic carrier state to a severe malabsorption syndrome with chronic diarrhea ***(Adam, 2001)***.

Laboratory diagnosis of giardiasis is performed classically by direct microscopic stool examination, but this method is not accurate and depends highly on the number of the examined samples, the use of concentration techniques and finally on the skills and experience of the technician ***(Cartwright, 1999)***.

More sensitive and specific methods for detection of soluble antigen of ***G.lamblia*** in stool are available and include enzyme linked immunosorbent assay (ELISA) while this assay is rapid, with detection of the parasite within 1-2 hours, but this assay is qualitative and can not distinguish between genotypes of the organism ***(Johnston et al., 2003)***.

ELISA is not sensitive enough to detect low level of infection and false negatives have been obtained**,** also false positives possibly occur due to

the presence of cross-reacting faecal antigens seems likely ***(Lequin,2005).***

Molecular techniques such as Polymerase chain reaction (PCR) provide alternative methods for specific detection of the pathogen in stool, the sensitivity of detection by PCR is greater than direct microscopy and ELISA, making it of great use for detection of low numbers of parasites in stool samples ***(Bialek et al., 2002***).

Moreover, with the recent introduction of real-time PCR that could detect even less than 2pg of genomic DNA of the parasite**,** so it is more sensitive than microscopic stool examination ***(Caccio et al., 2002).***

It is possible to detect ***G.lamblia*** DNA by real- time PCR technique in the early course of infection before detection of the antigen by ElISA or before microscopic visualization of the intact parasite became positive ***(Verweij et al.,2003).***

Real-time PCR is able to detect the carrier states which is important to avoid empirical treatment with metronidazole to reduce the hazardous of its side effects, also it is able to determine the quantitative aspects of the parasite**,** in addition to genotyping of the parasite which are important in the study of the virulence, infectivity and drug sensitivity of different strains of ***G.lamblia*** which are significant in the epidemiology and control of giardiasis ***(Verweij et al.,2004)***.