

Evaluation of knowledge about parasitosis and an educational intervention with students of a municipal school in Santana do Ipanema, state of Alagoas

Avaliação de conhecimento sobre parasitose e uma intervenção com estudantes de uma escola municipal em Santana de Ipanema, Alagoas

M. B. Santos¹; M. Oliveira²; A. S. Barreto²; J. M. Pereira²; M. C. F. S. Costa²;
K. C. G. M. Araújo¹

¹Postgraduate Program in Biology Parasitology/PROBP, Federal University of Sergipe, 49100-000, São Cristóvão-Se, Brazil

²Department of Biology, State University of Alagoas, 57500-000, Santana do Ipanema-Al, Brazil
marciobioparasito@gmail.com

As doenças parasitárias ainda representam um grave problema de Saúde Pública no Brasil. Estas infecções são mantidas como um resultado da falta de formação formal e conhecimento específico sobre a higiene pessoal e qualidade de vida. Os objetivos foram analisar o nível de conhecimento dos alunos sobre as doenças parasitárias e desenvolver uma proposta de intervenção com medidas de educação em saúde a fim de esclarecer os alunos sobre a importância de medidas para a profilaxia de doenças parasitárias. O estudo foi realizado em uma escola pública localizada na periferia da cidade de Santana do Ipanema. Foram selecionados 100 estudantes de diferentes graus de ensino e questionários foram aplicados para identificar seu nível de conhecimento sobre doenças parasitárias. Percebeu-se que 88% dos alunos sabem, pelo menos, um parasita. Os mais mencionados foram: ascariíase, mencionado por 80% dos entrevistados, seguido de Leishmaniose Visceral, com 59% e 34% com amebíase. A principal fonte de informações sobre doenças parasitárias, nomeado pelos alunos foi o. TV / Rádio (37%), enquanto a escola foi citada por apenas 24% dos entrevistados. Percebeu-se que 77% dos alunos não recebem instruções sobre os meios de prevenção de doenças parasitárias. Medidas de educação em saúde são importantes para que os estudantes tenham alguma prevenção e os cuidados básicos contra os parasitas mais comuns na região, especialmente no Nordeste, onde há uma grande prevalência dessas doenças.

Palavras-chaves: Estudantes; Doenças parasitárias; Educação em saúde

Parasitic diseases still represent a serious problem of Public Health in Brazil. These infections are maintained as a result of the lack of formal education and specific knowledge about personal hygiene and quality of life. The objectives were to analyze the level of knowledge of schoolchildren about parasitic diseases and develop a proposal for intervention with health education measures in order to enlighten the students about the importance of measures for prophylaxis of parasitic diseases. The study was conducted in a public school located in the suburbs of the city of Santana do Ipanema. We selected 100 students from different grades of education and questionnaires were applied to identify their level of knowledge about parasitic diseases. It was noticed that 88% of the students know at least one parasite. The most mentioned were: Ascariasis, mentioned by 80% of the interviewees, followed by Visceral Leishmaniasis with 59% and 34% with Amoebiasis. The main source of information on parasitic diseases, appointed by the students was the TV/Radio (37%), while the school was cited by only 24% of the interviewees. It was noticed that 77% of students did not receive instructions on means of prevention of parasitic diseases. Measures of health education are important for students to have some basic prevention and care against the most common parasites in the region, especially in the Northeast, where there is a great prevalence of these diseases.

Keywords: Schoolchildren; Parasitic Diseases; Health Education

1. INTRODUCTION

Parasitic diseases still represent one of the most serious public health problems in Brazil, mainly because of its correlation with the malnutrition of populations, especially affecting the physical, psychosomatic and cognitive development of schoolchildren (MOLINA *et al.*, 2011; FERREIRA E ANDRADE, 2005; SANTOS *et al.*, 1993). According to the World Health Organization, one in every four inhabitants of the planet is infested with helminths. Moreover, parasitic infections are among the most widespread disorders affecting children of school age living in poor areas of urban centers. It is also estimated that 12.3% and 11.4% of all diseases that affect boys and girls, respectively, from underdeveloped countries have helminthic infection as an underlying cause (PRADO *et al.*, 2001).

Despite extensive studies on parasitic diseases and their relationship to public health, especially inherent in children, little attention has been given to the issue of teachers' training in basic education (SANTOS *et al.*, 1993).

Another important aspect to be emphasized is that the public schools of Santana do Ipanema serve students, mostly poor. The families of the students, most of whom have not finished elementary school, have received benefits from the federal government programs, which includes a social profile of low incomes. In addition, the housing conditions in which these students live are inappropriate because there is no adequate sanitation in their houses (DAMASCENO *et al.*, 2009).

All these aspects, socioeconomic and environmental issues, raise the possibility of contamination by parasitic diseases. Different authors attest to a relationship between socioeconomic factors in a community and its level of contamination by parasitic diseases (JESEN *et al.*, 2009; FERREIRA E ANDRADE, 2005; NEVES *et al.*, 2005; MILLER *et al.*, 2003; REY 2001; SANTOS *et al.*, 1993).

According to Santos *et al.* (1993), by conducting a study on the prevalence of helminths in students and teachers from schools located in the suburbs of the city of Belo Horizonte, he noticed that high levels of parasites were associated with poor conditions of the students who lived in the suburbs of the city, identifying a statistics difference almost 50% in the levels of helminth infections in the populations studied. In conclusion, there is an increase in the prevalence of helminths related to housing standard and general living conditions.

Given the reported information above, the purpose of this study was to analyze the students' level of knowledge about parasitic diseases, interfering with measures of health education in order to enlighten the public inquired about the importance of measures to prevent these diseases.

2. MATERIALS AND METHODS

The research was realized from August to November 2009, in a municipal school in the city of Santana do Ipanema, located 207 km from state capital, in the semiarid region of Alagoas (IBGE, 2009). 100 students were selected, distributed in each year of teaching (6th to 9th grade), which represented 54% of all school students. From that on, an investigative questionnaire was applied in order to identify the level of students' knowledge about the general characteristics, means of infection, consequences, and prevention of parasitic diseases. The results were compiled in Excel (Microsoft Office Excel 2007) and analyzed by Epi-Info software, version 3.5.2.

After this, measures of health education were realized in the school environment with students, teachers and other employees, through workshops, seminars, lectures, pamphlets, among other ways of divulgation. These actions emphasized the implications which parasites can cause in infected individuals, the most common means of contamination by parasites in the region and, above all, the importance of prophylactic measures for the prevention of parasitic diseases.

3. RESULTS AND DISCUSSION

The survey results showed that 48% of students lived in urban areas and 52% in the rural area. Regarding the gender, it was observed that 37% were female and 63% male. According to the age group, 9% of the students were younger than 12 years, 66% were aged between 12 and 15 years and 25% were over 15 years.

The student was asked if he had already heard about parasitic diseases and, among those interviewed, 88% said yes. And as shown in Figure 01, among those cited the highlights are: Ascariasis, cited by 80% of interviewees, Kalazar (Visceral Leishmaniasis American) with 59%, followed by Amebiasis with 34%, Chagas Disease (American Trypanosomiasis) with 25% and Schistosomiasis, indicated by 23% of the students.

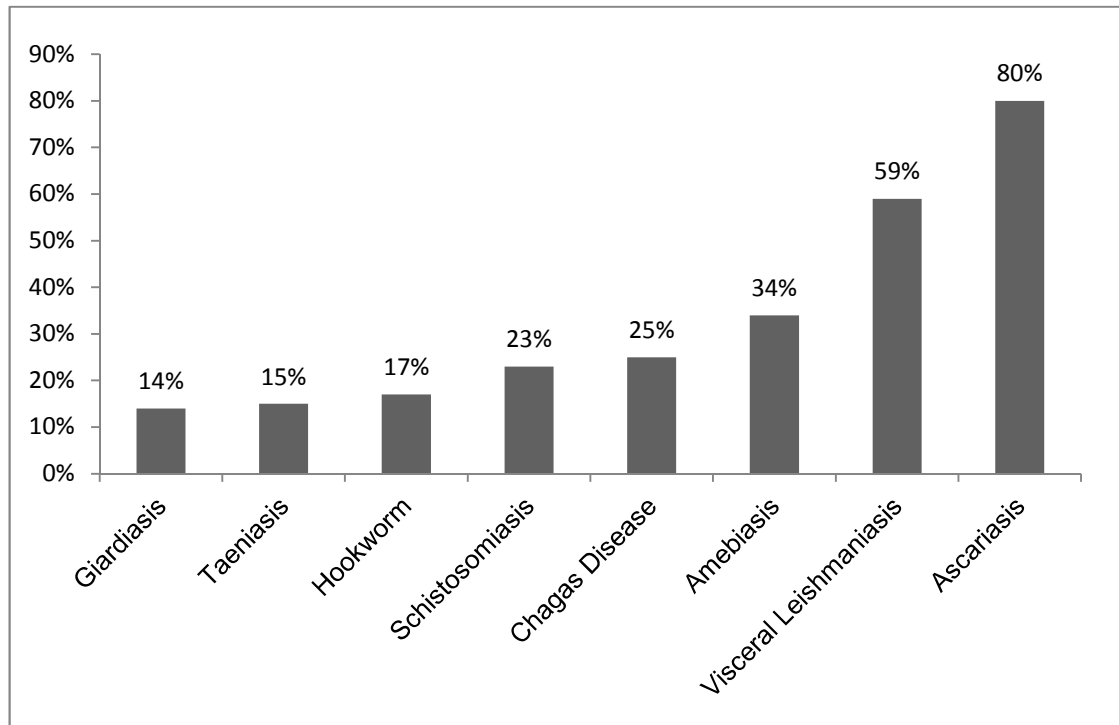


Figure 01. Representation of major parasitic diseases cited by the students of a municipal school in Santana do Ipanema, state of Alagoas, 2009.

Although in recent decades there has been an exponential increase in knowledge about parasitic diseases, reflecting the extensive research realized in the field of Parasitology and despite the vast literature, the rate of contamination of individuals, especially children of school age, still represents one of the most worrying health problems in developing countries (NEVES, 2009). According to Santos *et al.* (1993), about 54 million Brazilians are infected by parasitic diseases caused by helminths. Moreover, the high prevalence of parasitic diseases has a close correlation with the degree of malnutrition of a population, affecting individuals infected in educational, cultural and social aspects. Therefore, it is a continuation of the genesis of the state of shattered human (MOLINA *et al.*, 2011; DAMASCENO *et al.*, 2009; FERREIRA E ANDRADE, 2005; MILLER *et al.*, 2003; SANTOS *et al.*, 1993).

Furthermore, based on this research with students, it was noticed that the main sources of information on parasitic diseases are Television/Radio (37%) and at home through parents (33%) as shown in Figure 02. The school was mentioned in the 3rd place by only 24% of the interviewees, which raises questions about the role of teachers as mediator individuals of knowledge of parasitic diseases in the school environment.

This is the result of the little attention given to the teacher's training on health education and the importance of disease prevention. It is essential to invest in the training of the teacher as an individual to clarify the habits of prophylaxis of parasitic diseases, which becomes an especially

effective action in the current context of disease prevention (FERREIRA E ANDRADE, 2005). Investing in teachers' training as an individual to clarify the students about the habits of prophylaxis of parasitic diseases, it is a remarkably effective action in the current context.

In this sense, education and health are inseparable elements in the configuration of an ethical program, which has sanitation as one of its most important pillars (ROCHA, 2003).

However, it should be observed that health education is not only the acquisition of knowledge about health or the memorization of health "rules". More importantly, is the construction of the knowledge for desirable behavior leading to the prevention of various diseases (MARCONDES, 1971).

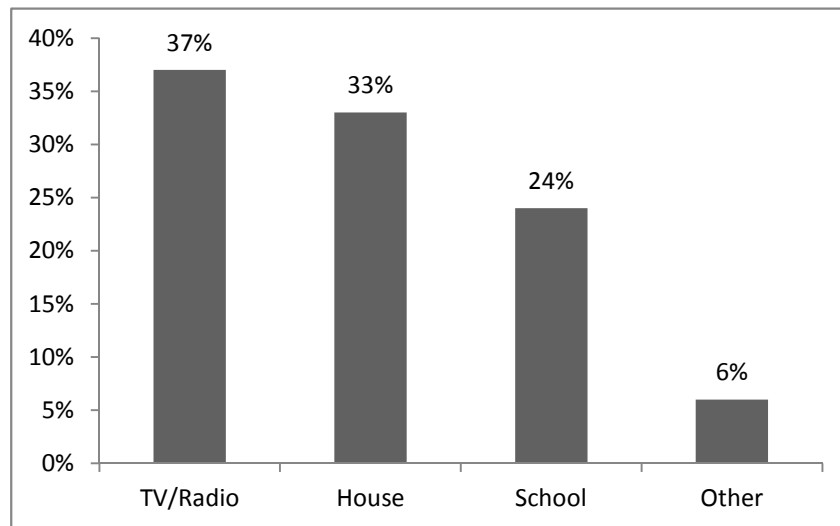


Figure 02. Percentage representation of where the students heard about parasitic diseases, Santana do Ipanema, state of Alagoas, 2009.

Another relevant piece of information among the issues analyzed was that 77% of the students surveyed did not receive instructions on means of prevention of parasitic diseases, revealing an alarming rate of uninformed students as for the parasites. The lack of information about preventive measures of diseases increases exponentially the chances of children getting infected by some parasite. Therefore, it is incontestable that when educational practices are applied properly, lead individuals to obtain knowledge for the prevention of parasitic infections and other diseases, achieving the proposed objectives and values of an educational orientation for public awareness.

In the Figure 03 there is the percentage of the main places where students received instruction on the prevention of parasitic diseases. And as it can be noticed, most students received guidance at home (45%). The school took the second place with 37.5%, which represents a low quantity, reinforcing the worry about the role of educational institutions in the construction of schoolchildren's knowledge on parasitic diseases.

When the student was asked if he knew the harm caused by the parasite to human health, 66% said they did not know them. However, among those who said they knew the consequences caused by these diseases, most of them proved to have little knowledge about these infections, suggesting only an overview of the clinical symptoms of these diseases such as abdominal pain, diarrhea and vomiting.

It was also asked the schoolchildren about some conditions of infrastructure and hygiene habits. Relating to the water treatment system was observed that 52% use filtered water, 40% use chlorine as a treatment, as shown in Figure 04. It was also noticed that 4% do not conduct any form of treatment at home, which increases the possibility of contamination by waterborne diseases.

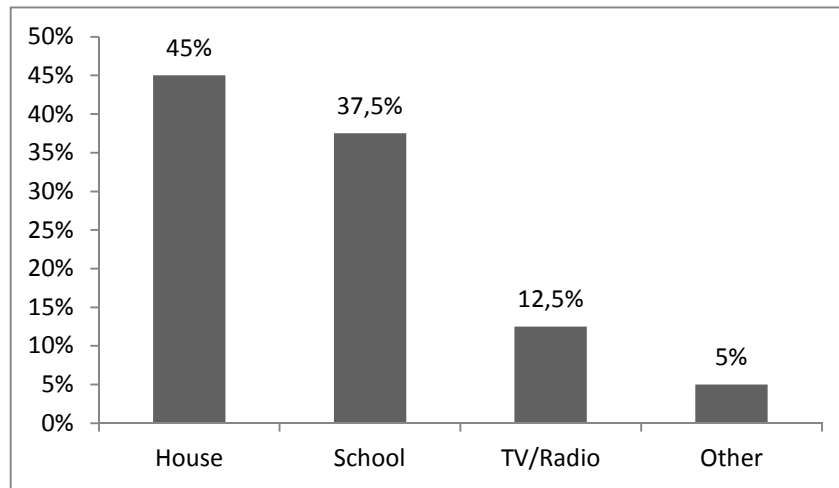


Figure 03. Percentage representation of where the students received instructions on the prevention of parasitic diseases. Santana do Ipanema, state of Alagoas, 2009.

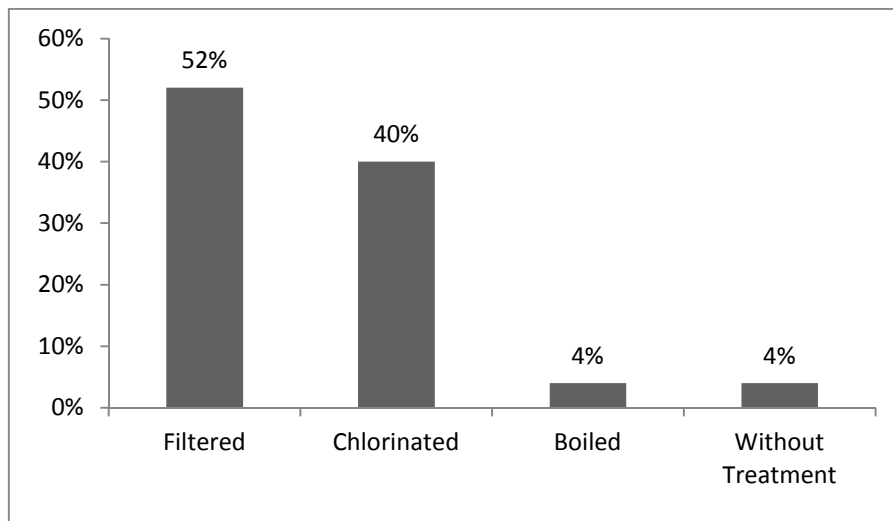


Figure 04. Percentage representation of the form of water treatment realized in the students' houses in a municipal school in Santana do Ipanema, state of Alagoas, 2009.

It was observed that 26% of the students surveyed do not wash their hands before meals and 13% do not do hygiene after using the bathroom. The inadequate personal hygiene practices increase the chances of infection by various parasites, especially the ones which stay in the intestine; they make use of fecal residues present in dirty hands or beneath the nails in order to spread among hosts (MOLINA *et al.*, 2011; JESEN *et al.*, 2009; MILLER *et al.*, 2003).

In addition to asking the students about the habits of washing hands or not, it was also questioned whether they washed fruits and vegetables before eating them, and 93% of those said yes. Although it is a pretty good quantity in terms of health, the students were asked how they cleaned the vegetables, most of whom reported that they just sanitized them with water.

It is known that using just water to clean fruits and vegetables is not an effective method in eliminating pathogens, it is necessary the use of any substance as a sanitizing, such as detergent, bleach or vinegar (DECOL *et al.*, 2008; SOARES E CANTOS, 2005; GUIMARÃES *et al.*, 2003). In addition, other information from survey revealed that 57% of the students have the habit of walking barefoot. This practice increases the possibility of contamination by geohelminths (worms transmitted by contact with contaminated soil by larvae of helminths), especially Hookworm disease popularly known as Amarelão. This nomenclature is determined

by the state of severe anemia caused by the worm which infects individuals, belonging to *Ancylostomidae* (NEVES, 2009; NEVES *et al.*, 2006; COURA, 2005).

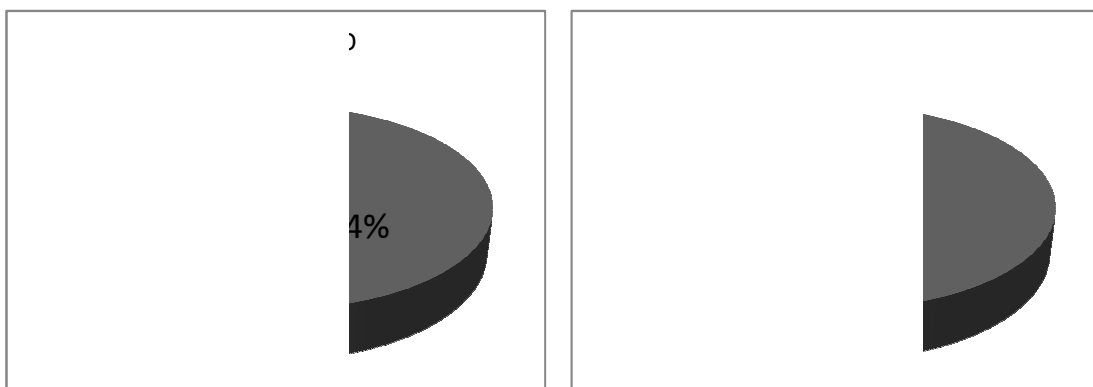


Figure 05. Representation of the percentage of students who (A) wash or not hands before meals, (B) wash or not hands after going to the bathroom, the city of Santana do Ipanema, state of Alagoas, 2009.

According to the results observed, it was realized an intervention proposal that consisted of developing with the students, teachers, coordinators and the principal of the school, a plan that aimed to enlighten students and the faculty about the general characteristics of parasitic diseases, the mechanisms of contamination and, above all, preventive practices. In addition to this proposal being presented in lectures to the students, there were lectures, workshops and production of booklets that provided information on biological, epidemiological knowledge. Given this, it is unquestionable that the educational practices lead individuals to construct knowledge for the prevention of parasitic and other diseases, achieving goals and showing an educational guidance for public awareness (FERREIRA E ANDRADE, 2005).

4. CONCLUSIONS

Based on this information it was revealed that the students from the school surveyed showed lack of knowledge about parasitic diseases, especially related to prevention of the most common parasites in the region. Moreover, it was observed that the school has contributed minimally in health training of those students.

Taking it into account, it was noticed the importance of teaching practices and pedagogical actions as necessary tools for the obtainment of prophylactic knowledge on parasitic diseases, and other pathologies. Thus, it is possible to achieve the objective established as a proposal for health education in public awareness of disease prevention.

Another questionable aspect is the fact that the community considers that the control of parasitic diseases depends, in Brazil, on measures taken by the public health sector. In the present context, it is important to involve the community, school and family in all stages and strategies to promote public health in the control of parasitic diseases.

Education can contribute in a decisive way in the awareness of schoolchildren about methods of prevention and care for the parasitic diseases, through pedagogical training that includes health education as a tool to build a practical and effective curriculum in the process of education of the student to take measures of prevention of parasites and other diseases.

-
1. COURA, J. R. *Dinâmica das Doenças Infecciosas e Parasitárias*. Rio de Janeiro, Editora Guanabara Koogan, 2005.
 2. DAMASCENO, F. S.; SANTOS, M. B.; BARRETO, A. S.; OLIVEIRA M. de; COSTA, L. M. L. Relação entre ocorrência de enteroparasitas em alunos de uma escola municipal em Santana do Ipanema (Alagoas, Brasil) e a história social, econômica e de sanitário desses educandos. *Cadernos de Pesquisa e Extensão – Revista da UNEAL*. 1: 15-23 (2009).

3. DECOL, L. T. Validação do processo de higienização da alface (*Lactuca sativa* L.) servida em uma unidade de alimentação e nutrição. XVII Congresso de Iniciação Científica e X Encontro de Pós-Graduação, 2008.
4. FERREIRA, G. R.; ANDRADE, C. F. S. Alguns aspectos socioeconômicos relacionados a parasitoses intestinais e avaliação de uma intervenção educativa em escolas de Estiva Gerbi, SP. *Revista da Sociedade Brasileira de Medicina Tropical* 38(5):402-405 (2005).
5. GUIMARÃES, A. M. et al. Frequência de enteroparasitas em amostras de alface (*Lactuca sativa*) comercializadas em Lavras, Minas Gerais. *Revista da Sociedade Brasileira de Medicina Tropical*. São Paulo, 36(5):621-623, 2003.
6. IBGE – Instituto Brasileiro de Geografia e Estatística. Cidades. Disponível em: <<http://www.ibge.gov.br/cidadesat/htm>> Acesso em: 02 ago. 2009.
7. JESEN, L. A.; MARLIN, J. W.; DYCK, D. D.; LAUBACH, H. E. Prevalence of multi-gastrointestinal infections with helminth, protozoan and *Campylobacter* spp. in Guatemalan children. *Journal Infection Developing Countries*. 3(3):229-234 (2009).
8. MARCONDES, R. S. Um estudo sobre educação em saúde nas escolas das Filipinas. *Revista de Saúde Pública*. São Paulo. 5:103-109 (1971).
9. MILLER, S. A.; ROSARIO, C. L.; ROJAS, E.; SCORZA, J. V. Intestinal parasitic infection and associated symptoms in children attending Day care centres in Trujillo, Venezuela. *Tropical Medicine and International Health*. 8(4):342-347 (2003).
10. MOLINA, N. et al. Intestinal parasites and genotypes of *Giardia intestinalis* in school children from Berisso, Argentina. *Journal Infection Developing Countries*. 5(7):527-534 (2011).
11. NEVES D. P.; DE MELO A. L.; LINARDI P. M. *Parasitologia Humana*. São Paulo-SP, 11ª ed. Editora Atheneu, 2005.
12. NEVES, D. P. *Parasitologia Dinâmica*. São Paulo-SP, 3ª Ed. Editora Atheneu, 2009.
13. PRADO M. S.; BARRETO M. L.; STRINA A.; FARIA J. A. S.; NOBRE A. A.; JESUS S. R. Prevalência e intensidade da infecção por parasitas intestinais em crianças na idade escolar na cidade de Salvador (Bahia, Brasil). *Revista da Sociedade Brasileira de Medicina Tropical* 35(6):573-579 (2001).
14. REY L. *Parasitologia*. Rio de Janeiro: Editora Guanabara Koogan. 2001.
15. ROCHA, H. H. P. Educação escolar e higienização da infância. Cadernos Cedes. Campinas, v. 23, n. 59, p. 39-56, abril 2003. Disponível em <<http://www.cedes.unicamp.br>>.
16. SANTOS, M. G. dos; MOREIRA, M. M.; MALAQUIAS, M. L. G.; SCHALL, V. T. Educação em saúde em escolas públicas de 1º grau da periferia de Belo Horizonte, MG, Brasil. II – Conhecimentos, opiniões e prevalências de helmintíases entre alunos e professores. *Revista da Sociedade Brasileira de Medicina Tropical* 34(1):99-101 (1993).
17. SOARES, B.; CANTOS, G. A. Qualidade parasitológica e condições higiênico-sanitárias de hortaliças comercializadas na cidade de Florianópolis, Santa Catarina, Brasil. São Paulo, *Revista Brasileira de Epidemiologia*. 8(4): 377-84 (2005).