

Communication

[Comunicação]

***Cryptosporidium* spp. in traction horses in Santa Maria, RS, Brazil**

[*Cryptosporidium* spp. em equinos de tração de Santa Maria, RS]

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The protozoa *Cryptosporidium* spp. are nowadays considered as the primary agents of intestinal diseases in humans and animals (Johnson et al., 1997). They have a worldwide distribution and can be found infecting more than 170 different animal species (O'Donoghue, 1995). They belong to the phylum Apicomplexa, parasite the gastrointestinal microvilli epithelium and or the bronchial tree (Fayer et al., 2000). There are currently 14 species of *Cryptosporidium* well characterized (Xiao et al., 2004). In horses, the main specie is found to be *C. parvum*. The agent is an intracellular parasite, however, it is extra cytoplasmatic (Boch et al., 1982; Current, 1985; O'Donogue, 1985) and when it infects the microvilli it is able to determinate their damage, affecting the absorption of nutrients and the performance of the animals.

In horses, the infection by *Cryptosporidium* spp. was initially described in five foals of the Arabian breed under immunosuppression. Subsequently, the *Cryptosporidium* was reported in immunocompetent horses in different parts of the world. The prevalence in horses can vary depending on the category, age, location, and other factors. The rates of infection range from 1% to 47%. In a study with British horses, the annually prevalence of *Cryptosporidium* spp. ranged from 1.9% to 24.7% in different years examined. In foals, the main observed clinical sign is diarrhea. In adult animals, the infection is usually asymptomatic. Thus, it is believed that

young animals are more likely to get infected than older animals (Santin and Trout, 2007).

The course of infection by *Cryptosporidium* spp. is usually self-limiting in immunocompetent individuals (Keusch et al., 1995). However, in immunocompromised animals, *Cryptosporidium* is recognized as a pathogenic microorganism determining watery diarrhea, poor absorption, and weight loss (Current, 1985). Bjerneby et al. (1991) reported the death of five foals with severe immunodeficiency due to infection by *Cryptosporidium* spp. that showed severity of infection. Kirkpatrick and Skand (1985) reported that animals infected with these parasites rarely exhibited signs associated with diarrhea, lethargy, and anorexia. Olson et al. (1995) stated that reduction in the rate of growth, worsening the conversion of food, or weight loss may occur in infected horses. Due to restriction of data on the prevalence of this protozoan, there was interest in looking for information about the occurrence of them, also, to investigate whether horses infected with *Cryptosporidium* spp. have a role as source of transmission to humans. Fifty-two no defined breed horses were used, being 31 males and 21 females averaging from one to 20-year-old. They were classified as foals (up to two years), youngsters (two to eight years), and adults (eight to 20 years). These horses, all used in animal traction, lived freely in the community and were in direct contact with domestic waste streams from the Alto da Boa Vista neighborhood, located in the outskirts of the municipality of Santa Maria, Brazil. The animals did not present clinical signs. The collections of feces were made in the period from April to October 2007, directly from the rectal ampoule of the horses, identified and preserved in

refrigerator at 5°C until its processing in the laboratory of parasitic diseases, over a period up to four days. The samples were processed using the technique of Faust et al. (1938), by centrifugal concentration-fluctuation with zinc sulphate (specific gravity = 1,180kg/m³).

For the statistical analysis, a SAS software V8 was used. The occurrence of the parasite according to age and gender was analyzed by the voluntary test of chi-square, and with significance level of 5%.

All horses were clinically healthy, with the consistency of stool considered normal. From a total of 52 horses, 20 presented oocysts of *Cryptosporidium* spp. in their feces, representing an occurrence of 38.5% (20/52) of positivity. There was no statistical difference in the incidence of infection between foals (25%; 2/8) and young animals (75%; 12/16) and between foals and adult animals (21.5%; 6/28). However, differences were found between young and adult animals, being the higher occurrence among young horses. There was no statistic difference between males and females occurrence. The occurrence of *Cryptosporidium* spp. was assessed as being high in comparison with the results obtained by Johnson et al. (1997), which highlighted the lack of oocysts of the protozoan. Majewska et al. (2004) reported the prevalence of infection in horses with *Cryptosporidium* spp. in Wielkopolska, west of Poland, being 3.5% in a total of 318 animals. The rate of infection of *Cryptosporidium* spp. oocysts was higher in this study compared to Beelitz et al. (1996), who found 0.33% of positive animals, but proved to

be lower in relation to that reported by authors from Canada and other locations in the U.S. as Louisiana, Colorado, and Texas, in which positivity ranged from 17 to 100% (Majewska et al., 1999).

The diarrhea in foals is not always associated only with the excretion of *Cryptosporidium* oocysts in faeces. Some studies have shown the infection with other infectious agents such as *Clostridium perfringens*, *Salmonella* spp., Rotavirus, or *Yersinia enterocolitica*, determining that condition (Mair et al., 1990; Netherwood et al., 1996). In studies in which *Cryptosporidium* spp. was identified as a causative agent of cryptosporidiosis in horses, the variation in prevalence was between 2.3% and 9.4% (Bjorneby et al., 1991).

The presence of these oocysts of *Cryptosporidium* spp. disposes a risk to public health because of its zoonotic potential power, especially in relation to coachmen.

It was concluded that a high occurrence of asymptomatic horses and excreting oocysts of *Cryptosporidium* spp. implies the persistence of contamination of the environment and possible risk of infection to residents, especially coachmen. This study underlines the importance of cryptosporidiosis and the development of researches involving epidemiology, prevention, and control of this protozosis.

Keywords: equine, *Cryptosporidium* spp, community life, coachman

RESUMO

Investigou-se a ocorrência de Cryptosporidium spp. em equinos de tração, domiciliados na cidade de Santa Maria, RS. Foram coletadas amostras de fezes diretamente da ampola retal de 52 animais, machos e fêmeas, sem raça definida, na faixa etária do nascimento aos 20 anos de idade. Todos os animais estudados não apresentavam sinal clínico da parasitose. Dentre as amostras analisadas, 38,5% (20/52) foram positivas para oocistos de Cryptosporidium spp. A ocorrência do parasito foi maior em animais jovens (75%; 12/16). Conclui-se que há elevado número de animais assintomáticos eliminando oocistos, que contribuem com a contaminação ambiental e, sobretudo, submetem os carroceiros aos riscos da zoonose.

Palavras-chave: equino, Cryptosporidium spp., carroceiro, vida comunitária, carroceiro

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