

1. INTRODUCTION

Giardia duodenalis is a important cause of waterborne diarrhea in animals and humans, but there are many host remain asymptomatic. The intestinal flora stimulates the maturation and development of the immune system. The disruption of microbial composition has been supposed to be involved in a range of diseases.

Nowadays, the abuse of antiparasitic drugs contribute to development of resistant pathogens. There are reports of resistant strains of *Giardia lamblia* too. There is a need for alternative biotherapeutic strategies, such as probiotics.



2. OBJECTIVES

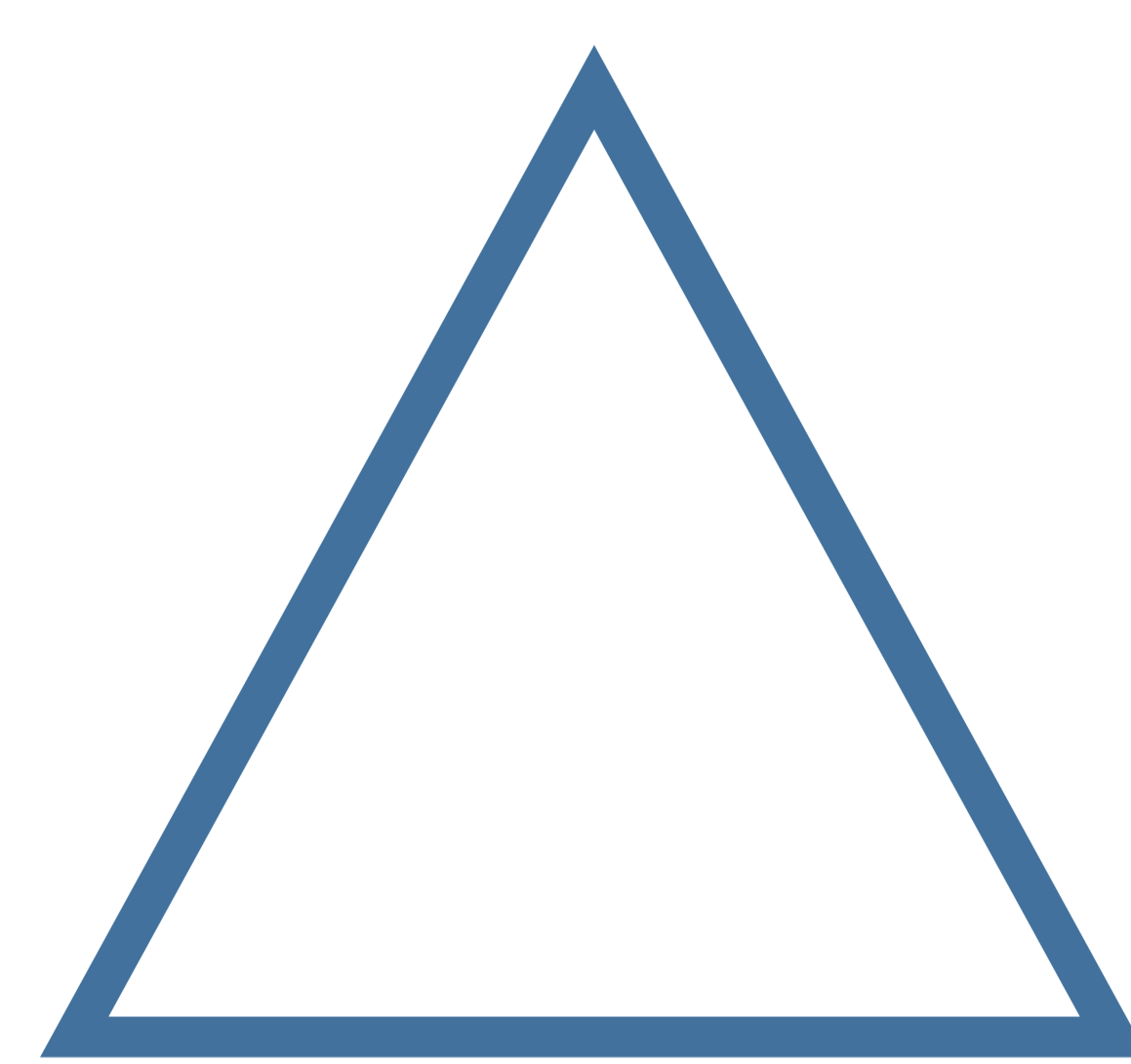
The aim of this review was to gather information about the role of intestinal microbiota in canine giardiasis and the possibility to use probiotics as alternative therapeutic for canine giardiasis.

INTESITNAL MICROBIOME

- Microbiota are essential for development of a mature immune system and maintaining immunological homeostasis in the intestinal tract.
- The composition varies greatly between animals, which may change over time because: changes in the nutritional and physiological conditions.
- There are some bacterial genera that are important producers of short-chain fatty: *Catenibacterium*, *Pseudobutyvibrio*.



Picture 1 : Trophozoite of *Giardia duodenalis*. From: *Parasitosintestinales.com*



INMUNE SYSTEM

- The presence of the intestinal flora stimulates the activities of neutrophils and macrophages, such as in superoxide anion production.
- Development of Peyer's patches.
- Expansion of IgA producing cells.

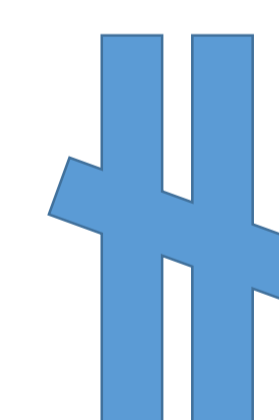
PARASITES

- Secrete molecules that change gut microbiota compositions.
- Loss of parasite colonization has a impact on immune response: progression of autimmune diseases.

GIARDIA

Symptomatic canines

Asymptomatic canines



INTESTINAL MICROBIOME

- Stress
- Environment
- Strains
- Infections concomitants
- Treatment other infections

3. THERAPY WITH PROBIOTICS

- Benefical effects on the prevention and treatment of specific pathological conditions.
- Reduce mucosal adherence, reduce acute symtomology.
- Production antimicrobial substances, stimulate immune system.
- Reduce number of cysts in feces and durantion of infections

4. CONCLUSIONS

- The interactions between intestinal microbiota, immune system and pathogens is like a complex ecosystem, where all components play a relevant role.
- Changes in the microbiome have a important effect on the development of clinical giardiasis, but we have considerate others factors.
- Supportive therapy with probiotics enhance antiprotozoal therapy.