

## ***Bacteroides fragilis* and *Trichomonas vaginalis* interaction: competition to survive?**

<sup>1</sup>Mynssen, L.F.W (IC); <sup>2,4</sup>Rodrigues, P. S (PQ); <sup>1,3</sup>Lorete, A.R.M (PQ); <sup>3</sup>Domingues, R.M.C.P. (PQ);  
<sup>4</sup>Seabra, S.H. (PQ); <sup>1</sup>Vieira, J.M.D.B (PQ).

<sup>1</sup>Setor de Microbiologia do Laboratório de Tecnologia em Culturas – LTCC, Fundação Centro Universitário Estadual da Zona Oeste - UEZO, Rio de Janeiro, RJ; <sup>2</sup>Laboratório de Biotecnologia Celular e Tecidual - LBCT, Centro de Biociências e Biotecnologia - CBB, Universidade Estadual Norte Fluminense - UENF, Rio de Janeiro, RJ; <sup>3</sup>Laboratório de Biologia de Anaeróbios, DMM, IMPPG, Universidade Federal do Rio de Janeiro - UFRJ, Rio de Janeiro, RJ; <sup>4</sup>Laboratório de Tecnologia em Cultura de Células – LTCC, UEZO, Rio de Janeiro, RJ.

[<jessicabittencourt@uezo.rj.gov.br>](mailto:jessicabittencourt@uezo.rj.gov.br)

### **Abstract:**

*Bacteroides* genus is among the main groups of bacteria that predominate in the human microbiota. It is formed of rod-shaped, anaerobic, gram-negative, bile resistant bacterial species, present in the intestinal colon and other sites, such as vaginal mucosa. Although *B. fragilis* species represents only 1% of human microbiota, it has been target of many studies, since it has a high incidence on clinical samples. In the last years, the interest in studying vaginal microbiota has increased due gynecological infections. Furthermore, about 50% of vaginal and cervical secretions have anaerobic bacteria, which can act alone or in association with facultative anaerobes in infectious process on these sites. Trichomoniasis is a sexually transmitted infection caused by *Trichomonas vaginalis*. This infection is related to several complications, mainly in woman, such as vaginitis, suppurated secretion, vulvar itching and abdominal pain. *T. vaginalis* is a facultative anaerobic organism, capable of realizing phagocytosis, a process normally performed by phagocytic professional cells. The interaction of this parasite and pathogenic bacteria, such as *Neisseria gonorrhoeae*, *Mycoplasma hominis* and *E. coli*, in urinary tract has already been described. Thus, the aim of this study was to analyze the interaction between *B. fragilis* and *T. vaginalis* in order to observe the effects of this event. For this purpose, were realized scanning and transmission electron microscopy (SEM and TEM, respectively), beyond parasite viability assays after different periods of interaction: 2, 6 and 12 hours. SEM images showed that after 6 hours *T. vaginalis* seems to internalize *B. fragilis*, corroborated by TEM images, but suffers morphology alteration after 12 hours of contact with the bacteria, which apparently associates to form biofilm. Analyzing parasite viability results (0 to 12 hours curve), varying values of bacteria amount in the parasite/bacteria relation, it was possible to observe the *T. vaginalis* cells viability diminishment, being inversely proportional to increased values of bacterial cells. Therefore, the results indicated not only that phagocytosis did not protected the parasite against *B. fragilis*, but also the bacteria formed biofilm to protected itself from *T. vaginalis*. Other experiments are in progress to better understand this parasite/bacteria interaction, since both microorganisms are important pathogens of the urinary tract and seem to compete to keep their survival there.

**Keywords:** *Bacteroides fragilis*, *Trichomonas vaginalis*, interaction bacteria/parasite, phagocytosis.

**Grants:** FAPERJ.