

TITLE: ASSESSMENT OF POTENTIAL PROBIOTIC *LACTOBACILLUS PLANTARUM* PA3 DERIVED FROM THE COCOA FERMENTATION IN AN ANIMAL MODEL OF UROGENITAL INFECTION.

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ABSTRACT

Bacterial vaginosis is the most common form of genital infection, characterized by the presence of anaerobes as *G. vaginalis* and by reducing the population of living Lactobacilli. Although women with BV respond to initial treatment with metronidazole, this recurrence frame is associated with the reappearance of BV associated bacteria, leading the search for novel therapies that are more efficient. One of these emerging therapies have been the genitals probiotics. Thus, the aim of this study was to evaluate the potential of probiotic *Lactobacillus plantarum* LP62 as a restorer of the genital tract in an animal model of urogenital infection. For evaluating lactobacilli and its by-products in the Curative and Preventive therapies against BV, mice were infected, treated, and euthanized after completion time of different interventions. For this evaluation, total and differential leukocyte counting in the blood was performed, and the dosage of the inflammation markers IL-1 β , IL-6 and TNF- α was performed. Moreover, tissue gene expression of the same cytokines was determined and the quantification of bacterial load of *G. vaginalis* and *L. plantarum* was performed. Our data revealed that comparing the inflammatory profile of the groups, the type of response is more associated with the inoculum than with the type of therapy and that the treatment groups using the strain *L. plantarum* unleashed the most pronounced anti-inflammatory response. This study also demonstrated that the quantification of *G. vaginalis* was higher in Preventive groups and quantification of *Lactobacillus* was higher in Curative groups, indicating that the Curative groups were more effective in combating BV. Curative group 1 developed the best anti-inflammatory profile compared to the Saline group due to the reduction of neutrophils and monocytes in the bloodstream and by reducing the gene expression of IL-6 and TNF- α in the tissue. The results of this study demonstrate that the *L. plantarum* LP62 and its by-products showed promising features of a possible probiotic product for topical application for women with bacterial vaginosis.

KEYWORDS: Probiotic, inflammation, *G. vaginalis*, *L. plantarum*, BALB/c.

DEVELOPMENT AGENCIES: CAPES.