TITLE: INVESTIGATION OF THE PRESENCE OF POSSIBLE BACTERIAL AMYLOIDS PRESENT IN THE BIOFILME OF FORMATION OF *Bacteroides fragilis*

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The microbiota is acquired at birth when the colonization of the individual occurs by bacteria that, for the most part, are beneficial to the development of the newborn. The intestinal microbiota, for example, is composed of a range of species of microorganisms and collectively plays different roles in the host. Metabolic studies have revealed that bacterial metabolites produced in the gut, such as neurotransmitter substances, LPS and amyloid proteins can influence the central nervous system through immune response, direct signaling by the vagus nerve or directly traversing the blood-brain barrier. The term "brain-intestine-microbiota axis" was coined to describe events in which imbalances in this microbiota as well as the presence of inflammatory neurotoxins in the intestinal lumen play a role in neurodegenerative diseases. In the literature much has been described about the bacterial amyloids present in the biofilms of Enterobacteriaceae, especially in *Escherichia coli*. Other bacteria such as *Bacteroides* sp. may also produce this type of protein, but little is known about the amyloids produced by this genus in our intestinal microbiota. Initial bioinformatic analysis in the PASTA 2.0 software of translated ORFs from *B. fragilis* genome, indicate the presence of proteins with amyloid properties. The objective of this work is to determine the presence of potential bacterial amyloids in the biofilm of *B. fragilis* strains isolated from both the healthy microbiota and bacteremias. Biofilm formation studies with the addition of proteinase K and sodium metaperiodate were carried out to investigate the composition of this structure. Both compounds inhibited biofilm formation. Production of amyloid proteins was assessed on BHI plates supplemented with 20% sucrose containing the Congo red dye. The presence of amyloid was observed from the appearance of dark/blackish colonies, which was positively correlated with strong biofilm formation. Our results indicate that *B. fragilis* presents amyloid in its biofilm, and the identity of such proteins is currently under investigation. With these results we hope that the bacterium studied in the present study eventually presents amyloid in the biofilm formation when related to the pathology.

Keywords: *Bacteroides fragilis*, bacterial amyloids, intestinal microbiota
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