TITLE: CHARACTERIZATION OF BIOFILM FORMATION CAPACITY OF *Bordetella pertussis* STRAINS ISOLATED AT DISTRITO FEDERAL

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ABSTRACT:*Bordetella pertussis* (BP) is a Gram-negative bacteria that infects the respiratory tract causing the highly contagious disease whooping cough or pertussis. Whooping cough affects mainly young children and was one of the most common causes of infants' mortality before vaccine development in 1940. In Brazil, since 1990, there has been a significant reduction in the incidence of whooping cough. However, in 2011, there was a sudden increase in the number of cases. In the Federal District, 19 cases were confirmed in 2010, 301 in 2014 and 106 in 2015. Before 2010, the number of confirmed cases in the DF did not reach 50. The majority of confirmed cases were from unimmunized babies or children in the process of immunization, though incidence increased in vaccinated adolescents and adults, showing the ability of BP of circulate in immunized population.BP persistence in immunized population may be attribute to adaptation of circulating isolates and reduced efficiency of vaccine formulations. Several studies demonstrated the importance of biofilm formation for BP colonization in vitro and nasopharynx of mice, what make some researches supposed that biofilm play a role in BP resistance to host clearance. In order to know if biofilm is involved in BP strains ability to remain circulating in immunized population, we are accessing the biofilm forming capacity of clinical isolates of BP isolated in DF from 2011 to 2014. Twenty-eight isolates of BP were growth in **Bordet** Gengou Agar with 15% Sheep Blood for 48 hours. Grown colonies were transferred to Stainer–Scholte (SS) broth and inoculated in 24 wells plate at an OD600 of 0.1. After 48 hours of incubation, the wells were washed with PBS three times to remove non – adherent cells. The adherent cells were fixed with methanol and stained with Crystal Violet. The stained biofilm were then solubilized with glacial acetic acid. Then, 200 µL of solubilized CV was transferred to a polystyrene 96 well plate and biofilm biomass was quantified by measuring the OD_{570} for each well. All isolates tested have the ability to form biofilm, being that 71,4% of the isolates produce

strong biofilm , 17,9% have moderate production and 10,7 exhibit weak biofilm. The results shows this clinical isolates of *B.pertussis* have capacity to form biofilm, what may constitute a strategy for host colonization. Further assays will be made to characterize the biofilm produced and access the ability of this isolates to adherent to human cells.

Keywords:B.pertussis, biofilm ,adherence , clinical isolates ,whooping cough

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