

TITLE: Biofilm formation on abiotic surface by *Corynebacterium pseudotuberculosis*

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The expression of adhesins, and biofilm production, mediate the establishment of both infectious processes and persistency of microorganisms in the environment, both on surfaces and utensils. Little is known about the mechanisms involved in the persistence of *Corynebacterium pseudotuberculosis*. *C. pseudotuberculosis* is a coryneform Gram-positive bacillus, involved in caseous lymphadenitis in farm animals, and has a worldwide economic importance. Though the microorganism has a great importance to disease in animals, *C. pseudotuberculosis* has a zoonotic potential, infecting humans through ingestion of contaminated food, aerosol inhalation or percutaneous penetration. *C. pseudotuberculosis* is an organism capable to produce diphtheria toxin (DT), and production of toxin is related to Oedematous Skin Disease in bubaline. Studies on biofilm formation by *C. pseudotuberculosis* are scarce, and little is known about the mechanisms of the human extracellular matrix proteins (ECM – Fibrinogen (Fbg), Fibronectin (Fn) and Collagen type I (Col)) on biofilm formation by toxigenic and non-toxigenic *C. pseudotuberculosis* animal strains. Microorganisms were cultivated in TSB (Trypticase Soy Broth), and 200 µL were transferred to 96 flat bottomed polystyrene plates, previously sensitized or not with 50µg mL⁻¹ Fbg, Fn or Col I. In addition, the hydrophobicity of the strains was analyzed by *n*-hexadecane adhesion assay. The majority of *C. pseudotuberculosis* strains (88%) were hydrophobic to *n*-hexadecane. All strains were capable to form biofilm in polystyrene plates (moderate to strong). The human ECM proteins increased the biofilm formation for all *C. pseudotuberculosis* strains, including *tox*⁺ strains (strong biofilm formation). Thus, pathogenic *C. pseudotuberculosis* were predominantly hydrophobic, capable to form biofilm in polystyrene surface, and the affinity of *C. pseudotuberculosis* to human Fbg, Fn and Col may contribute zoonotic human infections.

Keywords: *Corynebacterium pseudotuberculosis*, Biofilm, Fibrinogen, Fibronectin, Collagen

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