

TITLE: Characterization of biofilm forming ability of *Staphylococcus pseudintermedius* isolated from dogs

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ABSTRACT

Staphylococcus pseudintermedius is a bacteria species that, despite being commensal of dogs, can also act as an opportunistic pathogen, causing a wide range of infections such as pyoderma, otitis, surgical site infections, urinary tract infections and others. One of its most worrying virulence factors is the biofilm forming ability, which is related with recurrent and difficult to treat infections. Nowadays, little is known about biofilm formation, and its genetics background in *S. pseudintermedius*. It is shown that the formation of the polysaccharide intercellular adhesion (PIA), encoded by the *ica* operon (ADCB), seems to be the main mechanism of biofilm production in *S. pseudintermedius*, as well as in other species within the genus. The objective of this study was to investigate biofilm formation ability of *S. pseudintermedius*, and search for the presence of *ica* operon genes (*icaA* and *icaD*) within the species. 84 samples of *S. pseudintermedius*, from topical infections (pyoderma and otitis) and asymptomatic carriers, previously isolated and identified in the years of 2016 and 2017 were submitted to a 96 well microtiter plate assay to confirm the ability to form biofilm, and then submitted to PCR to investigate the presence of *ica* operon genes (*icaA* and *icaD*). All samples were capable to produce biofilm, with 84,5% (71/84) classified as strong biofilm producers; 11.9% (10/84) were moderate biofilm producers; and only 3.5% (3/84) were weak biofilm producers. Of the 84 samples of *S. pseudintermedius*, 74 (88%) were identified as *icaA* positive, while 10 (12%) were *icaA* negative. For the *icaD* gene, 60 (71,4%) were identified as positive, and 24 (28,5%) as *icaD* negative. Like other *Staphylococcal* species, *S. pseudintermedius* has a high capacity to form biofilm, and it appears to be *ica*-dependent, due to the high presence of *ica* operon genes, as it is in other species of the genus.

Keywords: *Staphylococcus pseudintermedius*, biofilm, operon *ica*, dogs

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