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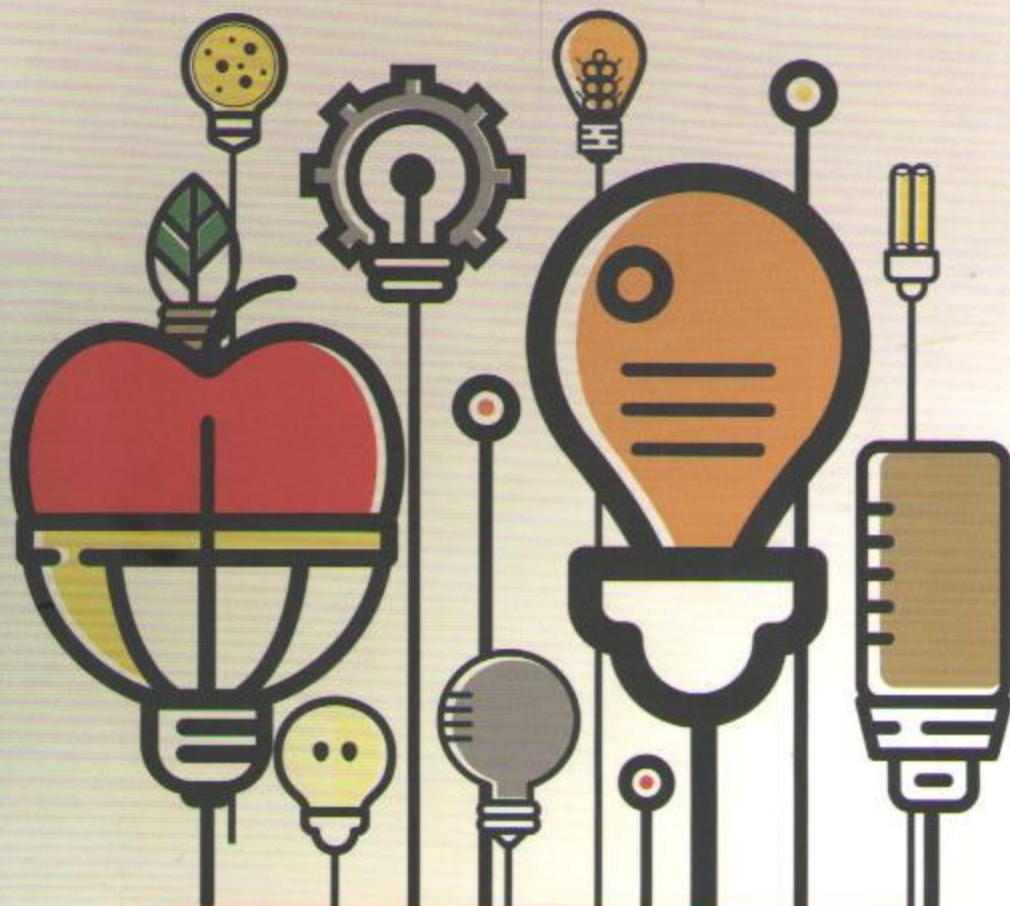
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## INVESTIGATION OF BIOFILM FORMING ABILITY IN *PSEUDOMONAS* SPP. FROM MILK

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The genus *Pseudomonas* includes gram-negative bacilli and due to its relatively large genome and flexible metabolic capabilities, this organism exploits numerous environmental niches. They are often isolated from food, soil, manure and animal skin. It is an opportunistic pathogen that can cause acute or chronic infections of various mammalian hosts and their organs due to the ability to form a wide spectrum of virulence factors. *Pseudomonas* species grow well on common bacterial media and often produce pigments, such as *P. aeruginosa*-thermostable blue-green pigment (*pyocyanin*) and *P. fluorescens*-greenish-yellow pigment fluorescin. From the view point of milk hygiene, the importance of this psychotrophic organism is, even it is destroyed by the pasteurization process, ability to synthesize thermostable metabolic products and enzymes that cause spoilage of milk products. As an infectious agent, it can cause mastitis in a clinically expressed or subclinic form in cows. Usually, they occur sporadically, but they can cause serious problems in the herd. Since, the ability to form biofilm presents a significant virulence factor for the establishment of persistent mammary gland infections, and a biofilm protects the bacterial community from antimicrobial drugs reducing the success of antimicrobial therapy, presenting a constant source of contamination, we decided to examine the biofilm forming ability in *Pseudomonas* spp. from milk. A total of 59 isolates from bulk tank milk (<400.000 SCC/ml) were examined and identified by examining the phenotypic characteristics. Proteolytic and lipolytic activity was observed on Milk agar and Tributyrin agar. The Crystal Violet (CV) method was used to test the ability of the isolates to form biofilm. All 59 isolates, oxidase and catalase positive produced  $\beta$  hemolysis on blood agar, a pigment on Trypton soy agar (TSA) and had a distinctive smell. All of 59 isolates showed proteolytic and lipolytic activity. Out of 59 isolates 57 were identified as *Pseudomonas fluorescens*, and 2 isolates *Pseudomonas aeruginosa* produced green pigment-*pyocyanin*.

The CV test extinctions showed that 22% isolates were strong producers, 68% were intermediate, 7% were extremely strong biofilm producers, and 4% of isolates did not produce biofilm. Although, there is no obligatory examination of

milk samples for the presence of *Pseudomonas* species, it is possible to find this organism in raw milk as a result of contamination. Monitoring the biofilm forming ability of *Pseudomonas* species may provide new ideas or strategy for the prevention or more efficient treatment of bovine mastitis and battle in eliminating this source of contamination.

**Keywords:** biofilm, milk, *Pseudomonas* spp.

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