

**LACTOFERRIN EFFECT ON BIOFILM FORMATION OF  
*Klebsiella pneumoniae* ISOLATED FROM MASTITIS  
CASES OF DAIRY COWS**

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**ABSTRACT**

Mastitis is the inflammation of the mammary gland and is extremely problematic in the dairy industry. *Klebsiella pneumoniae* is one of the main infectious agents responsible for causing mastitis. Though not as common as *E. coli*, *Klebsiella*'s economic impact may be more devastating. The response of *Klebsiella* mastitis to treatment is poor. Many cows die or end up being culled because of chronic high cell counts. We speculate that one of the reasons behind the prevalence of *K. pneumoniae* infections is its ability to form biofilms. The objectives of this study were to determine *in vitro* biofilm formation and the presence of extracellular matrix associated with biofilm production, we also observed the effect lactoferrin in the biofilm production. Twelve strains of *Klebsiella pneumoniae* isolated from chronic mastitic cows, were tested by microtiter plate (MP) and Phase Contrast Microscopy (PCM). The MP methods were used to observed the effect of lactoferrin (LF) in the biofilm production. *Klebsiella pneumoniae* ATCC13833, was used as a control in bacterial identification and biofilm formation. The LF were used in three different concentration 0.1 mg/ml (LF0.1), 0.5 mg/ml (LF0.5) dan 0.85 mg/ml (LF0.85). There are 12 strain displayed a biofilm-phenotype when tested by MP including the ATCC and one strain not forming biofilm. The strains were further classified as weak (41.67 %) and strong (50%) biofilm formers. LF0.1 is enhanced the forming of biofilm *in vitro* as for LF0.5 and LF0.85 diminished biofilm formation of *K. pneumoniae in vitro*.

Keyword : *K. pneumoniae*, Biofilm formation, Lactoferrin