



University of Zabol
Management of graduate education
Faculty of Veterinry
Group: Pathobiology
The Thesis Submitted for the Degree of M. Sc
(bacteriology)

**Title: Phenotype and genotypic analysis of icaA, icaD, icaB, icaC, icaR genes in
biofilm-producing coagulase-negative staphylococci isolated from the nose of sheep in
Sistan region.**

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Abstract

Introduction: Staphylococci coagulase is the most abundant flora of the symbiotic, non-pathogenic microbiome residing in the skin and has been observed in the mucous membranes of many animals. In special circumstances, they can cause disease, especially in immunocompromised patients. *Staphylococcus epidermidis* is one of the most common types of coagulase-negative staphylococci contaminating environments and laboratory tests. Biofilm plays an important role in staphylococcal infections.

The purpose of this study is to investigate the genotypic and phenotypic genes of *icaA*, *icaB*, *icaC*, *icaD*, *icaR* in biofilm-producing coagulase-negative staphylococcus isolated from the nose of sheep in Sistan region.

Materials and methods: in this study, 100 isolates obtained from the nose of sheep by swabbing, using standard methods to check the ability of isolates to form biofilms, the microtiter plate (TCP) method was used. In this study, the boiling method was used to extract the genomic material. Also, PCR method was used to determine the presence of studied genes.

Findings: Out of 100 coagulase-negative isolates, 57 *Staphylococcus epidermidis* isolates and 43 *Staphylococcus saprophyticus* isolates were isolated. That the isolates without biofilm and with weak biofilm were 58% and 43%, respectively, and no strong or moderate biofilm was observed. The frequencies of *icaA* gene and *icaD* gene were observed to be 35% and 19.3%, respectively.

Keywords: coagulase-negative staphylococcus, biofilm, polymerase chain reaction.