

BIOFILM GENES PRESENCE, BIOFILM ANALYSIS AND ANTIMICROBIAL PEPTIDES ACTIVITY AGAINST STAPHYLOCOCCUS AUREUS OF ANIMAL ORIGIN

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Staphylococcus aureus is a common pathogen responsible for several diseases in animals and for recurrent mastitis in milk producing animals, probably related to its capability to form biofilm. Antimicrobial therapy failures are often related to these bacterial communities.

To the aim of searching alternative antimicrobial therapy against biofilm we focused on antimicrobial system of marine invertebrates. Their fitness in the marine environment, suggests that their innate immune system is very strong. The presence of antimicrobial and anti-biofilm activity in the 5kDa peptide fraction of the effector cells of *Paracentrotus lividus* has been reported on reference strains of *Staphylococcus spp.* The same analysis were performed on isolates of *S. aureus* isolated from animals and dairy products.

In the staphylococcal isolates PCRs for *mec A* and toxin production genes and for genes involved in biofilm formation (*ica*) locus, (*bap*) gene, and *Sas C* genes were performed. The ability of staphylococcal isolates to form biofilm and the antimicrobial activity was determined by using safranin staining method.

The comparison among different isolates of *S.aureus* in their ability to form biofilm *in vitro* showed no specific correlations so far with the presence or the absence of the above genes. The antimicrobial activity of the *Paracentrotus lividus* extracts was evident in the field isolates also, but further studies are in progress with more isolates and the extracts of another marine organism *Holothuria tubulosa*.

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