

Title: BIOFILM-FORMING ABILITY OF *Enterococcus* spp. COLLECTED FROM HEALTH CENTERS EFFLUENTS.

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Abstract:

Enterococcus spp. are recognized as a major cause of nosocomial infections and are also potential biofilm formers. This virulence factor enables the bacteria to colonize biotic and abiotic surfaces such as medical devices, pacemakers, catheters, heart valves and others. However, the biofilm-forming ability provides protection against microbial and phagocytic agents allowing the microorganism to escape from host defenses and to persist in a variety of surfaces. It is recognized that hospital wastewater exhibits a high microbial load and that *Enterococcus* spp. present high adaptability to diverse environments. Therefore, this study aimed to evaluate the biofilm-forming ability of *Enterococcus* spp. collected from wastewater of health care units of Paraná. The isolates employed in this study are stored at -20°C in the microbiology laboratory of UENP. The isolates were reactivated in Tryptic Soy Broth (TSB) at 37°C/ 24 hours and after the cultures were centrifuged, the cell concentration was adjusted in saline solution according with the turbidity of 0.5 tube by McFarland scale. *Enterococcus* spp. suspensions were placed (200 uL) in triplicate in polystyrene microplate wells and incubated at 37°C for 48 hours, without shaking. TSB broth was used as negative control. The adhered cells were fixed and stained with crystal violet 1% solution for 15 minutes and subsequently the wells were washed three times and dried. Next, acetic acid solution at 33% was added to each well and the plates were read in a spectrophotometer at 540 nm. The isolates were classified regarding to their potential for biofilm formation, according to criteria previous described in the literature. We analyzed 88 *Enterococcus* spp. isolates and found that 91% present adherence to polystyrene surface. We also found that 48% of the isolates are weakly biofilm producers, 37% presents moderate biofilm production and only 6% are strongly producers. Our results showed that the majority of *Enterococcus* spp. isolates collected from health center wastewater is capable to forming biofilms with variable intensity.

Keywords: biofilm, *Enterococcus* spp, wastewater of health center

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