TITLE: PHENOTYPIC AND GENOTYPIC CHARACTERIZATION OF ANTIMICROBIAL RESISTANTANCE OF *STAPHYLOCOCCUS* ISOLATED FROM DRINKING WATER FOUNTAINS IN PUBLIC PARKS IN SÃO PAULO CITY, BRAZIL.

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ABSTRACT:

Staphylococcal (Staph) bacteria have the capacity for rapid dissemination in infections, virulence ability, biofilm formation and antibiotic multiresistance. *Staphylococcus aureus (S. aureus) and Staphylococcus epidermidis (S. epidermidis)* are the most frequently reported in hospital infections. Present in the human microbiota, they are common in bacteremias, sepses, pneumonia, endocarditis, osteomyelitis, dermatitis and the ability of biofilm formation to acquire microbial resistance characteristics. The presence these opportunistic bacteria presenting antibiotic resistance in the environment, especially in dispositive of drinking water distribution is little explored. It is a reason of concern since the great public access in the urban parks, which is a risk for human health. The objective of this study was to evaluate the microbial resistance of *S. aureus* (n = 23) and *S. epidermidis* (n = 37) isolated from drinking water fountains for human consumption in at four municipal parks of São Paulo city. The microbial susceptibility profile by the diffusion disc method was performed according to *Clinical and Laboratory Standards Institute* (2017), Eleven antimicrobials and vancomycin were tested. The molecular characterization was carried out by the conventional PCR, through the detection of the *mecA* gene, which confers methicillin resistance to the isolates of staphylococci; and the *icaAB* gene, implicate in Staph biofilm formation. Out of 60 isolates tested, 80% (48/60) phenotypically expressed at least one of the antimicrobials tested, microbial multiresistance was expressed by 21.6% (13/60) of *S. aureus* isolates and 58.3% (35 / 60) of *S. epidermidis*. The *mecA* gene was detected in 28.3% (17/60) of the isolates, with 60.8 (14/23) *S. aureus* isolates and 8.1% (3/37); *S. epidermidis* isolates and the icaAB carried gene in 5.4% (2/37) of the isolates. Evidence of the contamination of water intended for human consumption by pathogens resistance to antimicrobials in the environment is exceptional constitutes a potential risk to human health. There is a need to continue studies that contribute to the surveillance of the environmental circulation of these opportunists, as well as the evaluation of health impacts related to the presence of these pathogens in public environments.

Keywords: Staphylococcal bacteria, drinking water, public health, microbial resistance.

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