

**TITLE:** *Escherichia coli* POTENTIALLY RESISTANT TO ANTIMICROBIALS ISOLATED FROM SANITARY SEWAGE

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**ABSTRACT:**

The use of water and the subsequent release of effluents in water bodies may be an important source of dissemination of antimicrobial resistant microorganisms. The presence of these microorganisms in the environment is a potential public health problem because they can transmit several factors of resistance to other possible pathogens of different genus. The present work aimed to investigate the profile of antimicrobial susceptibility among *Escherichia coli* isolates from different effluents in State of Minas Gerais (MG), Brazil. Microorganisms were selected from sewage material collected by Moore swab in twenty municipalities of MG on the occasion of the 1st stage of environmental monitoring of cholera in 2016. This monitoring is carried out annually in three stages, coordinated by the Environmental Monitoring of the State of Minas Gerais and analyzes carried out by the Laboratory of Water of the Microbiology Service of Products of the Fundação Ezequiel Dias (LACEN-MG). The isolated microorganisms were identified by means of biochemical tests, selected and later evaluated for antimicrobial susceptibility through the semi-automated system VITEK II® (bioMérieux). Were evaluated 17 antimicrobials belonging to 5 classes ( $\beta$  lactams, Aminoglycosides, Quinolones, Polypeptides and Glycylcyclines). Among the 20 isolates analyzed, 9 (45%) presented resistance to at least 1 antimicrobial, and 8 (89%) presented resistance to some antimicrobial of the  $\beta$ -lactam class. Resistance of 1 isolate to the aminoglycoside class was verified. One of the isolates presented resistance to 7 antimicrobials belonging to the classes of  $\beta$ -Lactams and Quinolones and also presented positive results for ESBL (extended spectrum  $\beta$ -lactamase). Positive results for ESBL in the system VITEK® that should be interpreted as resistance to all penicillins, cephalosporins and aztreonam (monobactam); the other isolates presented negative results for ESBL. The occurrence of resistant microorganisms in the effluents is worrisome. Urgent measures are necessary to address this problem, because in many places there is no adequate treatment of effluents, generating a potential impact on public health.

**Keywords:** antimicrobial susceptibility, *Escherichia coli*, environmental contamination.

**Development Agency:**