TITLE: Resistance profile to antimicrobial isolated from *Escherichia coli* in urban wet environment in Belém City, Northern, Brazil.

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ABSTRACT: Water is a life-maintenance natural resource, essential for human beings and other living beings overall. However, its quality has been affected by the urbanization process and different anthropic activities, especially farming. Other aggravating problem many Brazilian cities face is the lack of sanitation, which constitutes a risk to human health and the environment, due to the pathogens concentration in the effluents, including those resistant to drugs, mainly antibiotics, widely prescribed to combat bacterial infections of different origins. Therefore, the objective in this work was to check the occurrences of resistance profile of *E. coli* isolated from aquatic environments in contact to β-lactamic antibiotics, aside from identifying phenotypically the isolated extended spectrum beta-lactamase-producing (ESBL). Water samples deriving from different watercourses (rivers, lake and beaches), were collected from April 2017 to October 2018 and analyzed. The microbiological analysis was carried out using the Chromogenic substrate – ONPG-MUG. After isolating *E.coli,* phenotypical tests were performed for biochemical identification and susceptibility profile to antimicrobial. Finally, it was checked the production of ESBL through Disc Approximation Test. The results showed the presence *Escherichia coli* resistant to antimicrobial tested in all wet environments studied (river, lake and beach). The antibiotic in which the *E. coli* isolated showed higher resistance profile was the Ampicillin (21%). It should be stressed that amongst the strains with resistance profile, 32% comes from Água Preta Lake (Utinga), 28% from Farol Beach, 28% from Murubira Beach and 12% from Guamá River. Among the 70 isolated *E. coli* 25 (36%) demonstrated resistance to at least one of the β-lactamic tested. It should be noticed that the highest percent of resistant strains of *E. coli* were found in the Água

Preta Lake, an important lake in the Water Supply System in Belém City, Pará State, Brazil. It was not observed production of isolated with ESBL profile. The collected data have demonstrated the needs to increase the monitoring of isolated *E. coli* occurrence, resistant to antimicrobial in urban wet environments, in order to guarantee the safety to drinking water distributed to the population, as well as for leisure use.

Key words: Water. *Escherichia coli*. Resistance. Antimicrobial.