

TITLE: Evaluation of Coliforms and *Escherichia coli*, Alagoas State Coast

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ABSTRACT: Beaches, bays and estuaries provide ecological and recreational value to the community, but with increasing urbanization, population, pollution, climate change, problems in catchment, processing and treatment of effluents, whether from human or industrial waste are parameters that guarantee the recurrent use of these waters. These sets of factors lead directly to the bath water, which in turn is defined as the set of parameters referring to the quality of the waters destined for recreation. Alagoas State, located in tropical northeastern Brazil. Its beaches are considered the most beautiful beaches in the country. For having paradisiacal beaches, this state attracts several native people and tourists who use of their beaches as recreation. On the other hand, there is a high level of pollution in the areas near the metropolitan region, where wastewater treatment does not happen in order to serve a large part of the cities. In this work, we evaluated the performance of the commercial product Aquateste coli® (Laborclin), in the evaluation of the beaching beaches on the North and South coast of the state of Alagoas. This product is composed of cromogenic/fluorogenic substrate: ortho-nitrophenyl- β -D-galactopyranoside (ONPG) and 4-methylumbelliferyl- β -D-glucuronide (MUG). In this study, the quantification of coliforms and *E. coli* by fermentation of multiple tubes was used as parameter (MPN/100 mL). In total, 60 points were evaluated, ranging from the North coast to the Maceió Metropolitan Region and the South coast. These points were monitored weekly (52 weeks) during 2017 year. These parameters show the inefficiency of treatment of effluents, domestic, industrial and the great presence of clandestine effluents that flow into the rivers mouths or in many cases directly in the body of the beaches. Points of tourist interest, such as the mouth of the São Francisco River, presents serious problems related to bathing throughout the analyzed period, since its waters presented as improper with a high level of contamination presenting MPN / 100 mL values ranging from 4.6 to 96.0 for coliforms and *E. coli*. Other important beaches due to the large number of bathers and tourists need attention such as Pajuçara and Ponta Verde that presented in more than 80,7% as improper for the bath.

Keywords: enzymatic substrate, coliforms, *Escherichia coli*, Alagoas beaches.