Evaluation of seawater quality of Vlora bay, Albania

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Abstract— Introduction: Swimming in waters with high levels of fecal contamination increases the chance of developing illness (fever, nausea or stomach cramps) from pathogens entering the body through the mouth, nose, ears, or cuts in the skin. For this reason estimation of microbiological water quality is very important for public health. The aim of this study is to determine the hygienic quality of coastal waters in Vlora seacoast. Settings and Design: Is performed, a bacteriological and a chemical study from March to September for two consecutive years on Vlora bay. Water samples were taken from 7 stations evenly distributed on this coast line. Methods and Material: Total coliform, fecal coliform and fecal streptococci were estimated using MPN method, while environmental parameters like temperature, pH, ammonia, phosphate, nitrite and nitrate where estimated using standard methods. The Most Probable Number (MPN) method is a statistical, multi-step assay consisting of presumptive, confirmed and completed phases. In the assay, serial dilutions of a sample are inoculated into broth media. *Results*: One of the environmental factors that have a strong impact on organisms is temperature. During the investigation period the temperature varied from 11.6°C in March to 23.7°C in summer time. Our data show that during 2016, in general, bacterial indicators were decreased compared to 2015 and August was the month with the highest concentration of fecal bacteria in most of the sampling stations. This month register the highest values of total coliform bacteria for the two years in most of the sampling stations. This could be due to the high number of people visiting the beaches in the coast line during summer time. High concentration of fecal bacteria was associated with high concentration of nitrite and ammonia. Conclusions: The present study indicates that seawater along the Vlora seacoast is under high anthropogenic impact. We observed an improvement in the quality of seawater of Vlora bay. Nevertheless, there is still much work to do in order the water of this area become safe for bathing.

Keywords—fecal coliform, fecal streptococci, environmental parameters, bacterial indicators, chemical indicators.