



"Gheorghe Asachi" Technical University of Iasi, Romania



HYGIENIC QUALITY ASSESSMENT OF WELL AND SPRING WATER: A CASE STUDY OF THE REGION OF AL-HOCEIMA (MOROCCO NORTHERN)

Fatiha Mchiouer^{1*}, Hossain El Ouarghi¹, Yassine Elyoussfi¹, Mustapha Abourrich^{1,2}

*¹Water and Environmental Management Unit, National School of Applied Sciences,
Abdelmalek Essaadi University, 32 003 Al Hoceima, Morocco*

²Office of Hygiene and Epidemiology, Health Establishment Network Service, Al-Hoceima Delegation

Abstract

The purpose of this research is to evaluate the hygienic quality of spring and well water used mainly for drinking and domestic activities for some districts in the municipality of Al-Hoceima city. In the rainy season of November to April 2018-2019, a total of fifty-two groundwater samples were collected under appropriate conditions and analyzed according to Moroccan standards, for coliform bacteria (BC), E. coli (E.Coli), and intestinal Enterococcus (IE). The sample locations were identified from the physiochemical details and the nature of nearby pollution. The physical parameters of temperature, pH, dissolved oxygen O₂, oxygen saturation, electrical conductivity (EC), total dissolved solids (TDS) and salinity were measured on site. The results revealed that quality of water from all springs and wells, in the area of study, did not meet the World Health Organization guideline as well as Morocco standard for drinking water of zero (0) coliform forming unit (CFU) per 100 ml for CB, E.Coli and IE, respectively. Furthermore, fecal contamination of groundwater is indicated, the high bacteria count in samples could be attributed to their closeness septic effluent, the infiltration of wastewater into groundwater, and to the inadequate treatment of sewage. It is recommended that the water should be treated properly before consumption.

Key words: bacteriological quality, fecal contamination, groundwater, municipality Al-Hoceima

Received: March, 2021; *Revised final:* September, 2021; *Accepted:* October, 2021

*Author to whom all correspondence should be addressed: e-mail: fatiha.mchiouer@yahoo.fr, Phone: +212669599646, Fax: +212539840752