


Chapter 20

Physico–Chemical Quality Control of Network Water From Different Drinking Water Supply Points in the Province of Salé

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ABSTRACT

Drinking water is one of the most important elements on which our everyday life depends, because its importance lies in its multiple uses in different domains. The town of SALE is supplied by the REDAL water towers, which are supplied by the ONEP, which processes the waters of the Bourgreg complex coming from the Sidi Mohamed Ben Abdellah Dam. This work consists in carrying out quality checks of drinking water of the province of SALE, We have carried out sampling, and then physico-chemical analysis in the laboratory, of the distribution points of the castles. According to the standard of the quality of the water intended for the food said that for a water to be potable it must be potable on the bacteriological and physico-chemical side in this report the emphasis is placed solely on the physico-chemical analyses. From this study allowed us to deduce that the physico-chemical quality of the waters

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of the province of SALE follows the Moroccan standard of potability.

1. INTRODUCTION

Water is one of the most important substances on earth. Every living being needs water for its survival. Without water, plants, animals, everything would perish. So, water is a natural resource at the basis of life and an essential commodity for the majority of human economic activities (Rachiq et al., 2021) (Mabrouki, et al 2021). However, it is subject to various pollutions due to the negative effects of human activities which can alter its quality and make it undrinkable and therefore a potential source of diseases. According to a report by the World Health Organization, five million infants and children die each year from diarrheal diseases due to contaminated food or drinking water, requiring appropriate and adequate treatment water before consumption (Rachiq, et al., 2022) (Mabrouki, et al 2021).

In Morocco, groundwater constitutes a strategic resource. It represents approximately 20% of the country's water resources potential. Of the 130 aquifers, 32 are deep aquifers and 98 are superficial. At the current state of knowledge, the exploitable potential of groundwater resources is approximately 3.9 billion m³, with a minimum of 22 million m³/year recorded in the Sakia El Hamra and Oued Eddahab basins and a maximum of 1.11 billion m³/year in the Sebou basin (Rachiq, Samghouli, et al., 2022).

The potential water resources relative to the population in 2020 is estimated at 620 m³/inhabitant/year. This ratio, commonly accepted to compare countries with each other, classifies Morocco among the countries with water stress, being less than 1,000 m³/inhabitant/year (Mabrouki, Moufti, et al., 2020) (Fahdi, Azdem, et al., 2024). The needs of social and economic development require resorting to water development to meet the needs of populations. These needs are themselves continually growing, often competing, which makes the water management process very complex and difficult to implement. Indeed, drinking water must meet a certain number of characteristics making it suitable for human consumption (Bencheikh et al., 2021) (Azdem, Mabrouki, Moufti, et al., 2024). The standards from this point of view are extremely different depending on the uses and the situation (Bencheikh et al., 2020) (Benchrifa, Mabrouki, et al., 2023).

2. MATERIALS AND METHODS

2.1. The Study Area and Sampling Sites

The city of Salé, located on the Atlantic coast at the mouth of the Bouregreg River, is part of the Rabat-Salé-Kénitra region and covers approximately 95.48 km². It is bordered by the Atlantic Ocean to the west, Khemisset to the east, Kenitra to the north, and Rabat to the south (Mabrouki, Benchrifa, et al., 2022) (Fatni et al., 2025). The area experiences a Mediterranean climate with oceanic influence, marked by mild winters ($\approx 8^{\circ}\text{C}$) and moderate summers ($\approx 30^{\circ}\text{C}$), with annual rainfall ranging from 500–600 mm. The rainy season extends from October to March (Azdem et al., 2025) (Benchrifa & Mabrouki, 2022).

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