

## Environmental Chemistry 2020 -Assessment of the quality of the most polluted surface water in the city of Fez using the SEQ-SIG and ANOVA approach- Fatima zahra- University Fez-Morocco

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### Abstract

In recent years, the quality of surface water in the city of Fez has deteriorated day by day due to the development of various anthropogenic activities, reckless modernization, the discharge of unregulated wastewater and solid waste. This poses a real threat to the environment and the health of the consumer population.

The objective of this study is to carry out a spatio-temporal monitoring of the parameters evaluating the water quality of the Tghat and Zhoun wadis in the city of Fès after having identified the most polluted [1], at the rate of one sample per month. during 2017 by the SEQ-SIG approach and by the statistical analysis of variance (ANOVA).

The study of the overall quality of the surface waters of the two sites S1 and S2 identified the most polluted in the city of Fès by the SEQ-SIG approach, allowed us to define ten alterations grouping the physicochemical parameters and the fecal coliforms and an alteration specific to their metallic charge. She records that these waters are loaded with organic pollutants and metallic trace elements with an endocrine effect and reveals that they are of poor quality.

Analysis of the ANOVA variance of the results of the spatiotemporal evaluation of the water quality of Tghat and Zhoun wadis confirms the results obtained by the SEQ-SIG technique based on the definition of alterations and the calculation of weighting indices, and denotes that the site factor has less influence on each of the parameters analyzed than the month factor, as well as the fecal coliform parameter does not vary significantly with the month.

Surface water contamination is the contamination of oceanic frameworks that are over the ground, for example, streams, lakes and waterways. These waters become contaminated when water spillover conveys poisons into the water. The toxins moved by overflow are things like salts and synthetics from city and roadway streets and supplements and composts from homesteads and yards.

At the point when contamination is brought about by supplements and manures, this is called supplement contamination, and it prompts an overproduction of green growth and other sea-going plants. This excess of plants and green growth causes issues, since they spread the water

surface and keep daylight from arriving at the plants submerged. This at that point prompts less oxygen creation, which makes hurt oxygen-breathing life forms in the water, similar to algae.

Surface water may likewise be contaminated with pathogens and waterborne maladies, which is normally the consequence of sewage breaks and spillover from creature production lines. These infections and microscopic organisms that contaminate the water may cause perilous human medical issues, for example, giardia, typhoid and hepatitis.

Strangely, one approach to screen for this sort of contamination is checking the water for fecal coliform microscopic organisms, which originates from the misuse of individuals and different creatures. In the event that the water is sullied with this sort of microbes (which itself isn't destructive to human wellbeing), it shows that different kinds of microscopic organisms that are exceptionally perilous to people may likewise present, since they frequently originate from similar sources.

Poisonous synthetic concoctions may likewise prompt surface water contamination. These originate from pesticides, manufactured synthetic compounds, for example, oil based goods and other vehicle liquids, and mercury, lead and arsenic from mining site seepage. These synthetic substances are perilous for the earth just as for the soundness of the life forms that possess them.

Waterborne pathogens, as malady causing microscopic organisms and infections from human and creature squander, are a significant reason for ailment from defiled drinking water. Illnesses spread by risky water incorporate cholera, giardia, and typhoid. Indeed, even in affluent countries, coincidental or unlawful discharges from sewage treatment offices, just as spillover from ranches and urban territories, contribute unsafe pathogens to conduits. A large number of individuals over the United States are nauseated each year by Legionnaires' ailment (an extreme type of pneumonia contracted from water sources like cooling towers and funneled water), with cases springing up from California's Disneyland to Manhattan's Upper East Side.

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Radioactive waste is any contamination that emanates radiation past what is normally discharged by the earth. It's created by uranium mining, atomic force plants, and the

creation and testing of military weapons, just as by colleges and emergency clinics that utilization radioactive materials for examination and medication. Radioactive waste can persevere in the earth for a large number of years, making removal a significant test. Consider the decommissioned Hanford atomic weapons creation site in Washington, where the cleanup of 56 million gallons of radioactive waste is relied upon to cost more than \$100 billion and last through 2060. Coincidentally discharged or inappropriately discarded contaminants compromise groundwater, surface water, and marine assets.

Keywords: Pollution; wadi Tghat and Zhoun; quality; SEQ-SIG approach; ANOVA