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DETECTION OF SALMONELLA SPECIES FROM ARGES RIVER

Veronica Panait, Florentina Iarim, Cristina Mirea

Apa Nova Company, 7 Intrarea Crinului Street, Bucharest, Ilfov County,
veronica.panait@veolia.com, Romania

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Introduction

The surface water suffer a lot a modification because human activities. Monitoring these water sources represents an important thing. The study present the identification of *Salmonella* species from Arges river. Salmonellosis is an infection caused by the bacteria called Salmonella, which has been known to cause illness for more than 100 years. Salmonella may be found in water sources such as private wells that have been contaminated with the feces of infected human or animals. Waste can enter the water through different ways, including sewage overflows, polluted storm water runoff and agricultural runoff. The monitoring was performed in 2018, started with January, the analyzes was performed monthly. In order to see the influence of physico-chemical factors, the variation of pH, the turbidity of water, as well as weather conditions (temperature) were followed.

Materials and methods

The analysis method is the same with ISO 19250:2013- „Water Quality- Detection of *Salmonella spp.*” The confirmation test was performed using Api 20 E. Additional tests consisted of serological confirmation and qualitative enzymatic tests, performed using kits Singhlepath Salmonella. The materials, the methodical determinations and the results are presented. The results are expressed in accordance with the results of the biochemical tests and serological confirmation, indicate whether presumptive or confirmed Salmonella.

The apparatus used are calibrated according Romanian legislation. The culture media provider is BioMeriux. The serological tests are supplied from Magesa.

Results and conclusions

Salmonella sp. analyses were performed monthly on 1000 ml sample in this year. The sample was concentrate by filtration process using 0.45 µm cellulose membranes. It was obtained presumptive positive colonies each month. In only two from five analyzes the biochemical test showed a good identification of the *Salmonella*, the other have revealed the presence of 99.5 % *Proteus mirabilis* from Rapport-Vassiliadis broth at XLD plates (xylose lysine deoxycholate agar) - in January, 99.4% *Photobacterium damsela* from MKTTn broth (Muller-Kauffmann tetrathionate-novobiocin broth) at Rambach plates in February and 99.8% *Raoultella ornithinolytica* from Rapport-Vassiliadis broth at Rambach plates in April. The presence of *Salmonella* is influenced only the water turbidity.

The experimental results are present in the table and figures below:

Table 1. Experimental results

Month	January	February	March	April	May
Turbidity[NTU]	48.2	116.2	432.7	129.3	166.4
pH[H ⁺]	8.04	8.07	7.98	7.98	8.02
Temperature[°C]	2.95	3.68	5.05	14.68	19.61
Salmonellasp. [P/A]	Absent	Absent	Present	Absent	Present



Figure 1. Api 20 E Test with positive Salmonella



Figure 2. Interpretation of the result with Apiweb