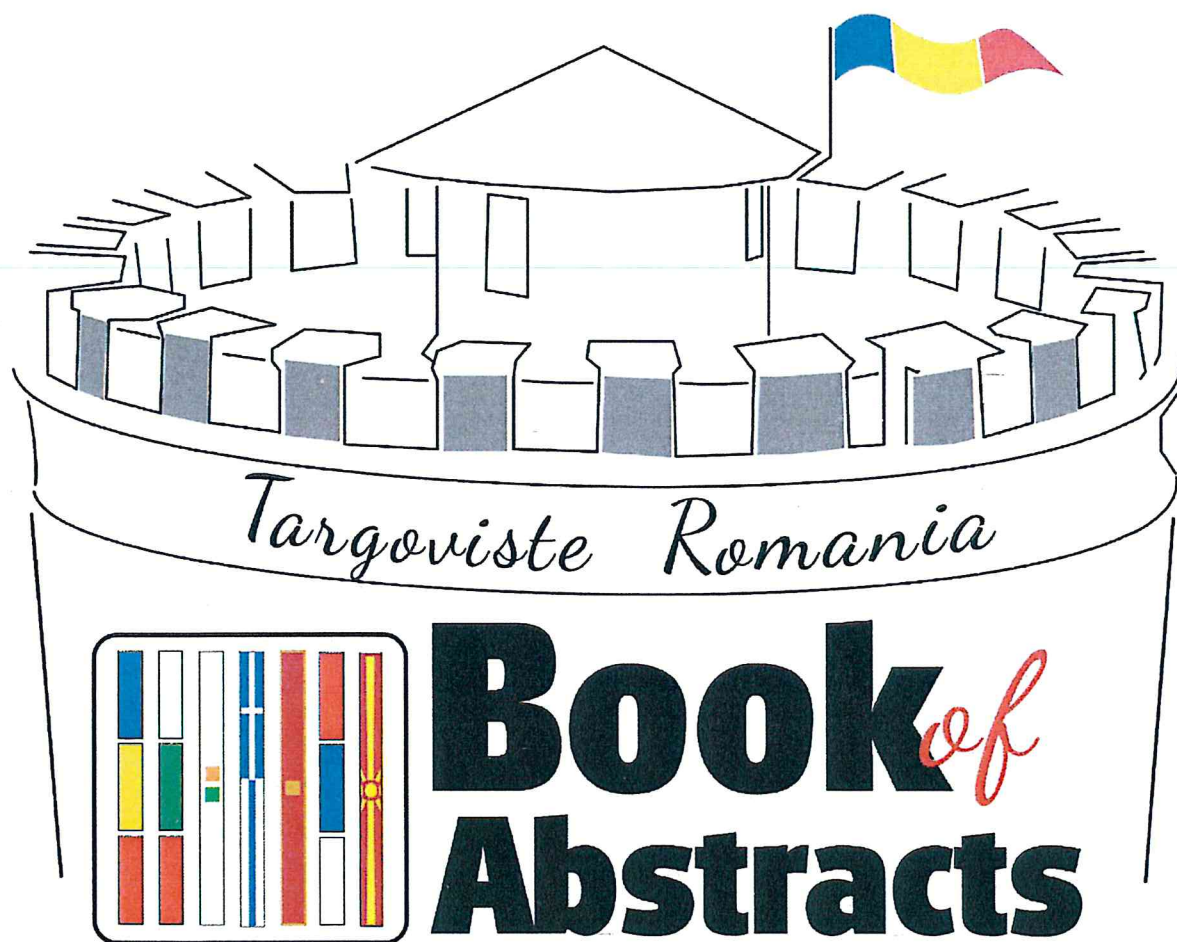
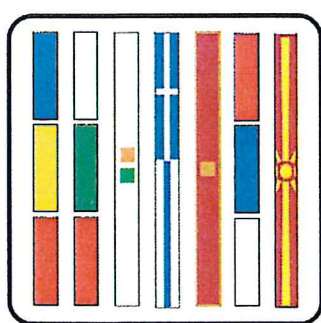


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MODULATION OF THE EFFECTS OF SURFACTANTS ON THE AQUATIC MICROBIAL COMMUNITIES

DANIEL MITRU¹, ALINA ROXANA BANCIU¹, LUCIAN IONESCU¹,
DANIELA IONICA¹, MIHAI NITA LAZAR¹

Abstract. Surfactants have been used in various fields such as personal care products, lubricants, petroleum and pharmacology industries [1]. They have an important impact on the environment because they can affect the efficiency of the wastewater treatment plants by disturbing the activity of the sludge, involved in the biologic treatment step [2]. As a direct consequence, more untreated or partially treated pollutants will reach the aquatic systems, as Waste Water Plants (WWTP's) effluents. The maximum allowed concentration of surfactants in the effluent is 0.5 mg/L, according to the Romanian laws. In this study, different strains of bacteria: *Staphylococcus aureus*, *Escherichia coli* and *Pseudomonas aeruginosa* were used to break down the chain of the anionic surfactant such as methyl dodecyl benzene sulfonate. The results showed that only *Staphylococcus aureus* induced a significant biodegradation of the anionic surfactant, up to 20% degradation in 30 minutes. The other two bacterial strains induced a minor degradation of the anionic surfactant, less than 5% in 30 min. All of these bacteria are most commonly found in the aquatic environment. Even if *S. aureus* is a Gram positive bacteria, having an extra outer membrane which could generate more potential targets for surfactants, there were observed the same rate of growth as the control (bacteria incubated without anionic surfactant).

Keywords: anionic surfactants; *S. aureus*; *E. coli*; *P. aeruginosa*.

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¹ National Research and Development Institute for Industrial Ecology ECOIND, Department of Pollution Control – Biology, 060652, Bucharest, Romania. E-mail: daniel_mitru@incdecoind.ro.