



***E.coli* inactivation by high frequency ultrasound**

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A very important stage in water and wastewater treatment processes is disinfection, which protects the public from pathogenic biocolloids (microorganisms). Several quite different disinfection technologies have been proposed and tested throughout the years, each possessing unique advantages and drawbacks. Microbial inactivation by ultrasound provides a unique combination of simultaneously acting mechanisms including mechanical effects capable of disrupting cell membranes, chemical effects (including generation of active free radicals), and heat effects (i.e. generation of local hot spots). The aim of this work is to examine the efficiency of ultrasound irradiation on the inactivation of model bacteria. The strain of *E.coli* CN13 was selected for this purpose, because *E. coli* is a bacterium, which is usually found in raw and secondary treated municipal wastewater. Numerous *E.coli* CN13 inactivation experiments were conducted with different initial concentrations using an ultrasound frequency of 582 kHz. The experimental data were analyzed by various previously developed kinetic models. The results showed that bacteria inactivation was depended on the initial concentration and the rate of inactivation decreases with decreasing initial bacterial concentration.