

Abstract

Endocrine disruptors represent a group of chemical compounds that are able to negatively influence the hormonal system of vertebrates. Environmental Protection Agency (U.S.EPA) defines these compounds as exogenous substance or mixture that interferes with the synthesis, secretion, transport, binding, activity, or degradation of natural hormones. This can be observed at the level of the individual organism, its progeny, populations and subpopulations. All these changes have negative effects on homeostasis, reproduction, development or change the behavior of the affected animals.

This work focuses on 7 endocrine disruptors - natural estron, 17β estradiol, estriol, and synthetic 17α -ethynylestradiol, irgasan (triclosan), 4-nonylphenol, bisphenol A in the influent and effluent of wastewater plants in the Czech Republic. The thesis contains an optimization of endocrine disruptors determination in wastewater, a preliminary screening to determinate concentration levels, 24 hours composite samples and monitoring of one selected wastewater plant during a day.

The analytical procedure is based on filtration, solid-phase extraction (SPE), gel permeation chromatography (GPC), derivatization and gas chromatography coupled with mass spectrometry (GC/MS).

Keywords: endocrine disruptors, wastewaters, Czech Republic, solid phase extraction, gel permeation chromatography, derivatization, gas chromatography - mass spectrometry