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Assessment of cytotoxic and endocrine potential of selected xenobiotics commonly present in food products

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More and more increased intensity of anthropo-pressure processes can be observed, among other things, in the release of great quantities of synthetic substances into the environment, including the Endocrine Disrupting Compounds (EDC). A vast number of chemical substances are considered to belong to the this group, including substances which occur naturally in the environment, such as mycotoxins and phytoestrogens, and substances which have been artificially released to the environment as a result of human activities (synthetic hormones, growth promoters, phthalates, bisphenols, metals, pharmaceutical residues, organo-chlorine compounds including PCBs). Taking into account the plurality and chemical diversity of the aforementioned compounds, it should come as no surprise that these substances are almost ubiquitous in various elements of the environment and in the food chain, in which they are subjected to bio-magnification. These chemicals are mainly suspected to contribute to the induction of neoplastic diseases such as the breast and prostate cancer, metabolic diseases, including obesity, genetic modifications and impairment of reproductive functions. They are also suspected to have mutagenic and cytotoxic effects and that they disrupt regulatory pathways of some organs. That is the reason why all attempts to broaden the knowledge of relations and mechanisms triggering the development of relevant diseases are justified. The aim of the conducted research was to evaluate cytotoxicity and endocrine potential of selected EDCs which cause serious food contamination (bisphenol A, 4-nonynphenol, 4-t-octylphenol, diethylstilbestrol, bisphenol A diglycidyl ether and its derivatives and phthalates) with MTT and YES/YAS assays.

Biography

Katarzyna Owczarek has completed her MSc studies in 2014 from Chemical Faculty Gdansk University of Technology. She started PhD studies on Department of Analytical Chemistry in Gdansk University of Technology in 2014. She has published 3 papers in reputed journals and 1 monograph.

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