Danijela Ašperger et al., J Chromatogr Sep Tech 2017, 8:5(Suppl)
DOI: 10.4172/2157-7064-C1-032

Chromatographic monitoring of febantel after biodegradation and advanced oxidation processes

Danijela Ašperger[1], Josipa Papac[1], Mirta Čizmić[1], Sandra Babić[1], Tibela Landeka Dragičević[1], Davor Ljubas[1], Lidija Ćurković[1] and **Sanja Radman[2]**
[1]University of Zagreb, Croatia
[2]Pliva d.o.o., Croatia

Classical methods of wastewater treatment fail to remove small molecules of contaminants such as pharmaceuticals. For many years pharmaceuticals have been used for medical therapeutic purposes and therefore have been uncontrollably released in the environment, through excretion, inappropriate disposal or because of inadequate waste water treatment. Recently, they have been recognized as potentially harmful pollutants, so accordingly the term emerging contaminants has been formed. One of commonly used pharmaceuticals is the anthelmintics whose representative is febantel. Febantel is used in human medicine and in veterinary practice very often. In spite of its frequent usage, about febantel behavior during and after wastewater treatment, there are still no sufficient data to predict its behavior and possible impact on the environment. The goal of this paper was monitoring the degradation products of febantel after biodegradation with activated sludge and compares them with the degradation products obtained after advanced oxidation processes (AOPs), so that, it can be used in system for waste water treatment. The effectiveness of febantel degradation and identification of degradation products formed during the processes was monitored by analytical and bioanalytical methods. Degradation products have been detected and identified by high and ultra-high performance liquid chromatography coupled to mass spectrometers. Assessment of toxicity of degradation process was done by measuring the bioluminescence inhibition of *Vibrio fischeri* bioassay. Finally, the results indicated that degradation products obtained during biodegradation are different from degradation products obtained by AOPs. Also degradation products after AOPs proved to be more toxic.

Biography

Danijela Ašperger has her expertise in Analytical Chemistry, Environmental Chemistry and, Toxicology. In 2013, she was appointed as an Associate Professor at Faculty of Chemical Engineering and Technology, University of Zagreb. She is currently working as a participant on the project "Fate of pharmaceuticals in the environment and during advanced wastewater treatment" funded by Croatian Science Foundation. She teaches instrumental analytical chemistry, characterization of materials, nondestructive methods of chemical analysis in art and archeology, and quality management.

diva@fkit.hr

Notes: