

P39. PFASs: THE BIOACCUMULATIVE AND TOXIC LAST INDUSTRIAL PERSISTENT ORGANIC POLLUTANT

Nesrin İÇLİ

Kastamonu University Fazıl Boyner Faculty of Health Sciences, Kastamonu, Turkey

During the last few decade, persistent organic pollutants (POPs) have been widely used in industrial products. Perfluoroalkylated and polyfluoroalkylated substances (PFASs) are a diverse class of POPs and being widely dispersed anthropogenic chemicals. PFASs include perfluorinated sulfonates such as perfluorooctane sulfonic acid (PFOS) and perfluorohexane sulfonic acid (PFHxS), perfluorooctanoic acid (PFOA) and perfluorononanoic acid (PFNA). PFASs are worldwide environmental contaminants with widespread presence in both the environment and the humans. PFOS and its congeners are best known large family of PFASs.

PFOS and related substances are excellent surface-active compounds that having extremely low surface tensions. Therefore, PFOS and its congeners have been used widely in industrial processes for more than 50 years. It is present in a range of consumer products such as electronic appliances, fire-fighting foams, water proof for textile and leather, fire/stain/water/grease repellents for carpets, clothing or in non-stick surfaces for cooking materials, floor waxes, food packaging, industrial surfactants, Pesticides (Sulfluramid); aviation fluids air plains, etc.

PFOS and derivatives are chemically inert and thermal stabil compounds. Due to, they are not being easily degraded by physical, chemical or biological mechanisms in the environment. Thus, they are persistent in the environment and bioacumulative compounds. Its half-life in humans is about 5 years. Therefore, at an international level, PFOS was added to the Annex B of the Stockholm Convention on POPs in 2009 (UNEP 2010). PFOS are non lipofilic, differently from the classic POPs. This nature of PFOS can lead to increased affinity for proteins. Because of this affinity, they accumulate mainly in organs such as liver, kidney, brain and spleen. Additionally, PFOS shows several toxic properties, such as endocrine disrupting, carcinogenic activity, hepatotoxicity, developmental toxicity, immunotoxicity and neurotoxicity. This review will discuss current and recently published research investigating the toxic effects of PFASs in laboratory animals and humans.

* nesrinicl@yahoo.co.uk