

## **Occurrence of multiclass endocrine disrupting compounds in a drinking water supply system and associated risks**

### **ABSTRACT**

Contamination by endocrine disrupting compounds (EDCs) concerns the security and sustainability of a drinking water supply system and human exposure via water consumption. This study analyzed the selected EDCs in source (river water, n = 10) and supply (tap water, n = 155) points and the associated risks. A total of 14 multiclass EDCs was detected in the drinking water supply system in Malaysia. Triclosan (an antimicrobial agent) and 4-octylphenol (a plasticizer) were only detected in the tap water (up to 9.74 and 0.44 ng/L, respectively). Meanwhile, chloramphenicol and 4-nonylphenol in the system were below the method detection limits. Bisphenol A was observed to be highest in tap water at 66.40 ng/L (detection: 100%; median concentration: 0.28 ng/L). There was a significant difference in triclosan contamination between the river and tap water ( $p < 0.001$ ). Overall, the life groups were estimated at no possible risk of EDCs (risk quotient  $< 1$ ). Nonetheless, the results concern the transport and impact of EDCs on the drinking water supply system regarding treatment sustainability and water security. Further exploration of smart monitoring and management using Big Data and Internet of Things and the need to invent rapid, robust, sensitive, and efficient sensors is warranted.

**Keyword:** Environmental chemistry; Environmental impact