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Contamination of Tributyltin on Selected Marine Invertebrates Collected from Selected Fishery Harbors in Sri Lanka**Bandara K.R.V.¹, Chinthaka S.D.M.², Manage P.M.^{1*}**¹*Center for Water quality and Algae Research, Department of Zoology, University of Sri Jayewardenepura, Nugegoda, Sri Lanka.*²*Department of Chemistry, University of Sri Jayewardenepura, Nugegoda, Sri Lanka*
pathmalal@sjp.ac.lk*Abstract**

Tributyltin (TBT) included in the organotin group is considered some of the most toxic chemicals introduced into aquatic environments by anthropogenic activities. Because of its broad range of biocidal activities, they are used for different agricultural and industrial purposes. However, TBT deleterious effects on aquatic biota are well reported and included endocrine disruption, immunotoxicity, neurotoxicity, genotoxicity and metabolic dysfunction. Aquatic invertebrates are key members of zooplankton and have vital roles in food chains. Therefore, the endocrine-disrupting effects of TBT on invertebrates can be transferred to other organisms including human being. This study aims to find the contamination status of TBT in invertebrate samples collected from selected fishery harbors where boat activities are high. *Perna viridis*, *P. perna*, *Crassostrea madrasensis* and *Thais* sp. in nearly same size were collected from Galle, Kirinda, Mirissa and Trincomalee fishery harbors where the highest water dissolved TBT concentrations were recorded in preliminary screening. Composite sample of each species (10 g) were subjected to TBT extraction using Solid Phase Micro Extraction (SPME) fiber and Potassium Borohydride was used as a deriving agent of TBT chloride into TBT hydride. Quantifications were done in Gas Chromatography Mass Spectrometry (GC-MS) using HP5 column and followed the splitless mode. The results showed that the highest TBT concentration was recorded in *P. viridis* ($53 \pm 1.7 \text{ ngL}^{-1}$) following *P. perna*, *C. madrasensis* and *Thais* sp. were $41 \pm 2.5 \text{ ngL}^{-1}$, $43 \pm 2.4 \text{ ngL}^{-1}$ and $28 \pm 1.4 \text{ ngL}^{-1}$ respectively. The concentrations of TBT in these marine invertebrate samples exceeded the concentration which cause severe adverse effects (1 ngL^{-1}). Hence, fishes and marine mammals can be contaminated by ingesting TBT contaminated invertebrates. Therefore, the consumption of contaminated seafood could be risks to human health.

Keywords: Tributyltin (TBT), Marine invertebrates, Imposéx, Solid Phase Micro Extraction (SPME), Gas Chromatography Mass Spectrometry (GC-MS)