

TISSUE-SPECIFIC ACCUMULATION OF TRIPHENYLTIN COMPOUNDS IN SELECTED MARINE DEMERSAL FISHES OF HONG KONG

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Applications of organotin-based antifouling paints in hulls of sea-going vessels have introduced large amount of these compounds, in particular tributyltin (TBT) and triphenyltin (TPT), into the ocean since the 1960s. These endocrine disrupting compounds have threatened a wide range of marine organisms, including fishes and marine mammals. In spite of the global prohibition of the use of organotins in antifouling paints by the International Maritime Organization in September 2008, there are no restrictions on their production and usage in Mainland China and Hong Kong and thus high concentrations of organotins, especially TPT, are still detected in marine fishes and molluscs from Hong Kong and South China. Previous studies have demonstrated that TPT can be bioaccumulated in marine organisms through diet or direct uptake from seawater; however, there is scant information regarding the tissue-specific accumulation of TPT with respect to its concentration in the whole organism, and how this accumulation profile would vary across organisms at different trophic levels. Therefore, this study aimed to obtain the tissue-specific accumulation profile of TPT in selected demersal fish species occupying different trophic positions in the marine benthic food web. Concentrations of TPT and its degradation products in ten tissues (including bone, brain, dorsal muscle, gills, gonad, heart, liver, skin, stomach and whole body) of two species of piscivorous fish sampled in western waters of Hong Kong were quantified using gaschromatography mass-spectrometry. Our preliminary results showed that stomach and dorsal muscle had the highest concentrations of TPT compared to other tissues, whereas TPT concentrations in bone, skin and gills were relatively low. Multiple regression analyses will be conducted to investigate the relationships between TPT concentrations of the target tissues and the whole fish, and to identify the tissue(s) that has/have the most significant effect on TPT concentration of the whole fish. This would aid in predicting TPT concentration in the whole fish and investigating the biomagnification of TPT in the marine ecosystem.