



Other issues to be urgently addressed.

Title of Research:

19_R05-01

Establishment of medaka kinetic model for aged microplastic and adsorbed chemical

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Summary of Research:

Plastic has an extensive use in our daily life due to its low cost, lightweight and hard to decompose. Due to their high production and a quite slow degradation, plastic pollution has been expanded worldwide in aquatic environments. Pollution of plastic from large items to small particle (i.e. microscopic plastic MP, < 5mm) were emerged. Thus, effect of MP and its vector effect with toxicants are of concern. Many researchers have been performed in these topics. However, most of study were performed using pristine MP. Thus, risk analysis of aged MP is required.

In this study, two kinds of aged PE plastics were prepared by exposure of ultraviolet for 180 and 460 hours. Weak changes on chemical characters were detected. No aging effect on sorption and adsorption of anthracene to MP was observed. Bioaccumulation factor, and elimination and absorption constants were not changed in medaka fish co-exposed with anthracene and aged MP. From results of one compartment analysis and simulation, vector effect of MP on accumulation of anthracene on medaka fish may suggest. Further study on another type of aged MP is required.

Timeline:

March 1, 2019 - February 29, 2020

Topics:

Poster presentation at JCIA LRI Annual Workshop 2019 "Establishment of medaka kinetic model for aged microplastic and adsorbed chemical" (Tokyo, August 30th, 2019)