



## **The bioaccumulation patterns of mercury and essential fatty acids in food chain of reservoirs in Guizhou province, China**

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Mercury and essential fatty acids (EFAs) can be co-occurrence of dietary sources for fishes, and both were conveyed along aquatic food chain. Mercury concentration and fatty acids composition in fishes varied in different aquatic food chain. In order to explore the bioaccumulation patterns of mercury and essential fatty acids in cultured food chain and natural food chain, organism samples were collected in two eutrophic reservoirs of Wujiangdu river (WJD) with cultured-fish and Hongfeng Reservoir (HF) with wild fish in Guizhou province, China. We measured MeHg and EFAs concentrations and the stable isotope ( $\delta^{13}\text{C}$  and  $\delta^{15}\text{N}$ ) in microplankton (64~112 $\mu\text{m}$ ), mesozooplankton (112~500 $\mu\text{m}$ ), benthos and fishes of WJD and HF reservoirs. In WJD,  $\lg[\text{MeHg}]$  and  $\lg[\text{EFAs}]$  in food chain both positively related with  $\delta^{15}\text{N}$  ( $p < 0.05$ ), which suggested that the MeHg and EFAs accumulated with the trophic level, and the correlation between  $\lg[\text{MeHg}]$  and  $\lg[\text{EFAs}]$  ( $p < 0.05$ ) implied the interaction of MeHg and EFAs compounds. However, only  $\lg[\text{MeHg}]$  in food chain showed positive correlation with  $\delta^{15}\text{N}$  ( $p < 0.05$ ) in HF, suggesting the accumulation of MeHg with the trophic level, while the EFAs did not follow the pattern. No significant relation were found between EFAs and MeHg, predicting that the bioaccumulation of MeHg in food chain was not effected by EFAs compounds. The distinctions in bioaccumulation patterns of MeHg and EFAs in two reservoirs may be contributed by the feeding strategy and species of organisms in food chain, which resulted in differential assimilation and retention of mercury and EFAs compounds.