Dietary ‘B’ assessment: Comparison of the BCF and BMF for Chemicals using Common Carp (*Cyprinus carpio*)

Naoki Hashizume
Chemicals Evaluation and Research Institute (CERI)

Existing regulatory criteria for bioaccumulation assessment of chemicals are mainly based on a bioconcentration factors (BCF) not a biomagnification factors (BMF). We performed dietary exposure tests for nine poorly water-soluble chemicals and developed a linear regression between the 5 % lipid normalized BCF (BCFL) and the lipid-corrected BMF (BMFL). The BMFL of substances with BCFL = 5,000 was 0.31 (95 % CI 0.11–0.87), whereas the BCFL of substances with BMFL = 1 was 13,000 (95 % CI 5,600–30,000). Five substances can be considered very bioaccumulative (vB) according to the BCF end point (BCF > 5,000), but only two substances were recognized to biomagnify according to the BMF end point (BMF ≥ 1). Although our results are highly suggestive of a relationship between BCF and BMF, additional BMF and trophic magnification factor data for chemicals are required to support this relationship, and new techniques (e.g., fugacity approach) may help in resolving the apparent contradiction in hazard categorization.