Pharmacokinetics of Difloxacin in Healthy and Aeromonas-Infected Gibel Carp *Carassius auratus gibelio*

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**Abstract**

Aeromonas has seriously affected the farming of gibel carp *Carassius auratus gibelio*, causing a significant and progressive increase in the use of difloxacin. In the present study, a single dose of 20 mg difloxacin per kg body weight was orally administered to healthy and aeromonas-induced juvenile gibel carp and the pharmacokinetics is described by a two-compartment open model with first-order rate absorption. Compared to the healthy control fish, the absorption, distribution, and elimination rates of difloxacin were greatly reduced and the plasma protein binding level was significantly increased in diseased fish. In addition, as a surrogate marker of antibacterial efficacy, the ratio of maximum plasma concentration (*C*ₘₐₓ) to minimum inhibitory concentration (MIC) of difloxacin was calculated; the *C*ₘₐₓ/MIC ratios ranged 3.77-18.14 in healthy fish and 1.60-7.70 in diseased fish, indicating that difloxacin at 20 mg/kg body weight cannot ensure successful treatment in aeromonas-infected fish.

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