DOI: 10.22055/ivj.2019.160880.2100

Determination of optimal clinical dosage of orally administered florfenicol in rainbow trout with the experimental Streptococcosis/ Lactococcosis, and assessment of drug residues in their liver and muscles

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Received: 11.12.2018 Accepted: 22.06.2019

Abstract

The occurrence of resistance to antibiotics in bacterial pathogens due to their unnecessary consumption, as well as, the importance of use antibiotics in the outbreaks with heavy economic failures cause that finding optimal clinical dosage would be striking. The present study was intended to the determination of optimal clinical dosage of orally administered florfenicol in rainbow trout with the experimental Streptococcosis/ Lactococcosis, and assessment of drug residues in their muscles. First, the median lethal dose (LD50) of *Streptococcus iniae* and *Lactococcus garvieae* for fish was determined via daily casualty record and calculating the probit regression. These doses were applied to determine ED50 in control and orally treated groups with dosages including 5, 10, 20, and 40 mg/kg-1 BW in 10 consecutive days. The liver and muscles of the survived fish were sampled three times after the therapeutic session, since sample and standards preparing, the chemical analysis was performed by high-performance liquid chromatography. Amounts of orally administered florfenicol for *L. garvieae* and *S. iniae* were 14.52 and 15.49 mg/kg BW during 10 consecutive days, respectively. Maximum limit residual (MRL) of sampling tenth day in the liver and muscle were 0.461±0.064 and 0.622±0.103 µg/g that were significantly lower than authorized amount of the European agency for the evaluation of medicinal products. The optimal clinical dosage of florfenicol in rainbow trout with the experimental disease was equal to mean of the median effective dose of the drug was known 15 mg/kg BW that it takes at least 10-day recovery time after administration of this dosage for safe consuming of these fishes.

Key words: Median lethal dose, Median effective dose, Streptococcosis, Lactococcosis, Florfenicol residues

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