

P9.13 | Residue depletion study, withdrawal period calculation and bioaccumulation of sulfamethazine in tilapia (*Oreochromis niloticus*) treated with medicated feed

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Introduction: Sulfonamides (SAs) have been employed in fish farming for the treatment of bacterial diseases. However, residues of SAs are a concern because of their potential risk to human health. Thus, the residue depletion of sulfamethazine (SMZ) was evaluated in Nile tilapia treated with medicated feed, and the withdrawal period and the maximum level of bioaccumulation (MLB) in the muscle were calculated.

Materials and Methods: Determination of SMZ in feed and fillet was carried out using the QuEChERS (Quick, Easy, Cheap, Effective, Rugged and Safe) approach for sample preparation, and high performance liquid chromatography with diode array detector (HPLC-DAD) and ultra-high performance liquid chromatography-quadrupole time-of-flight mass spectrometry (UPLC-QToF-MS) for quantitation, respectively. Groups of 18 fish/tank (30 ± 5 g body weight), were placed in 250 L tanks ($n = 6$) capacity. Fish from 5 tanks were fed with feed containing SMZ (24.3 mg g^{-1}) and 1 tank with feed free of SMZ (control group), during 11 consecutive days. After treatment, fish continued to be fed with a commercial fish ration free of SMZ. Two fish from each tank were sacrificed per time point (6, 12, 24, 48, 72, 144, 168 and 360 h). The analytical methods were in conformity with the Commission Decision 2002/657/EC and, consequently, suitable for the intended purposes.

Results and Conclusions: The SMZ daily dose was 422 mg kg^{-1} body weight, and was shown to be quickly excreted by tilapia. The withdrawal period to reach the MRL of $100 \mu\text{g kg}^{-1}$, according to Commission Regulation (EU) 37/2010 was 260°C-day . The MLB in the tilapia muscle was 1.6 mg kg^{-1} . Considering a daily consumption of 500 g of fish fillets, containing the MLB, by a 70 kg person, it would represent a daily intake of 0.011 mg kg^{-1} body weight, which is 4.5 times lower than the ADI established by Codex Alimentarius ($0\text{--}0.05 \text{ mg kg}^{-1}$ body weight). Nevertheless, for consumer protection reasons, the MRL established for SAs is, approximately, 16 times smaller than the obtained MLB value, which would preclude the consumption and selling of SMZ treated tilapia fillet. Thus, the risk of unsafe consumption of tilapia fillets by humans, as a consequence of SMZ residues derived from fish treated with medicated feed can be considered small. These results have been recently published as a full article (1).

Reference: 1. Nunes KSD *et al.* (2018) *Chemosphere*; 197: 89–95.

P9.14 | Abstract withdrawn

[Correction added on 15 June 2018, after print publication: the content of the poster abstract P9.14 has been withdrawn.]