

# SAFEGUARDS

SGS CONSUMER TESTING SERVICES

FOOD

NO. 036/10 FEBRUARY 2010

## (FLUORO)QUINOLONES IN EDIBLE AQUATIC ANIMALS

Antibiotic resistance is one of the biggest threats to public health in the world. The major cause of the increase in resistant bacteria still remains the widespread use of antibiotics. If the misuse or the overuse of antibiotics continues, we will lose control over serious infectious diseases. In the US, it is widely believed that these treatments are the reason for increases in drug-resistant infections in human beings. This belief has allies in Congress and in the Obama administration. Legislation to suppress the non-therapeutic use of antibiotics is expected to move forward in 2010.

Whilst this is a concern for all antibiotics it is a specific concern for (fluoro)quinolones. When Salmonella treatment is required, (fluoro)quinolones are used to help adults. They are also prescribed to treat Campylobacter infections. To reduce the risk for resistance not only the use of antibiotics for human treatment needs to be decreased but also the use of antibiotics in animal and fish farming. Broad spectrum antibiotics such as (fluoro)quinolones are widely used and there is no international consensus on when they are used; meaning that in some countries they can be used in animal and fish farming whilst in others their use is for humans only.

Normally the antibiotic residues in edible animals are analysed in conformity with a maximum residue limit (MRL) of 10 µg/kg, established by many countries in order to prevent the pathogenic resistance in human beings. To ensure food safety, an effective method of analysis to accurately determine lower MRLs is therefore proposed.

The aim of this study was to develop a simple, rapid, and sensitive method for determination of residual (Fluoro)quinolones including amphoteric drugs<sup>1</sup> and acid drugs<sup>2</sup> in edible shrimp tissue by Liquid chromatography-tandem mass spectrometry (LC-MS/MS).

With the developed analytical method, LOQ-values below MRL were obtained. Moreover, the accuracy and precision were within the permitted range of the AOAC and Horwitz equation criteria, respectively. This method can be considered as a multicomponent method for determination of (fluoro)quinolones at low levels.

For more information you can contact SGS Thailand

<sup>1</sup>Amphoteric drugs: Ciprofloxacin, Danofloxacin, Difloxacin, Enoxacin, Enrofloxacin, Levofloxacin, Lomefloxacin, Norfloxacin, Ofloxacin, Orbifloxacin, Sarafloxacin, and Sparfloxacin)

<sup>2</sup>Acidic drugs: Flumequine, Oxolinic acid, Nalidixic acid

### FOR ENQUIRIES:

Global Competences Support Centre: [gcsc@sgs.com](mailto:gcsc@sgs.com)  
TH – Chin Chaothaworn +66 2 683 0541, or [chin.chaothaworn@sgs.com](mailto:chin.chaothaworn@sgs.com)

Asia – Hong Kong. Tel: +852 2334 4481 Fax: +852 2144 7001 [mktg.hk@sgs.com](mailto:mktg.hk@sgs.com)  
Australasia – Perth. Tel: +61 (0) 3 9790 3418 Fax: +61 (0) 3 9701 0988 [au.cts@sgs.com](mailto:au.cts@sgs.com)  
Europe – London – UK. Tel: +44(0) 20 8991 3410 Fax: +44 (0) 20 8991 3417 [gb.cts.sales@sgs.com](mailto:gb.cts.sales@sgs.com)  
Africa & Middle East – Turkey. Tel: +90 212 368 40 00 Fax: +90 212 296 47 82 [sgs.turkey@sgs.com](mailto:sgs.turkey@sgs.com)  
Americas – USA. Tel: +1 973 575 5252 Fax: +1 973 575 1193 [uscts.inquiries@sgs.com](mailto:uscts.inquiries@sgs.com)

[www.sgs.com/cts](http://www.sgs.com/cts) Global Competences Support Centre: [gcsc@sgs.com](mailto:gcsc@sgs.com)  
If you wish to unsubscribe to this technical bulletin, go here: [Unsubscribe](#)

© 2010 SGS SA. All rights reserved. This is a publication of SGS, except for 3<sup>rd</sup> parties' contents submitted or licensed for use by SGS. SGS neither endorses nor disapproves said 3<sup>rd</sup> parties contents. This publication is intended to provide technical information and shall not be considered an exhaustive treatment of any subject treated. It is strictly educational and does not replace any legal requirements or applicable regulations. It is not intended to constitute consulting or professional advice. The information contained herein is provided "as is" and SGS does not warrant that it will be error-free or will meet any particular criteria of performance or quality. Do not quote or refer any information herein without SGS's prior written consent.

WHEN YOU NEED TO BE SURE

SGS