

## EU BANS IMPORTED SEAFOOD PRODUCTS CONTAMINATED WITH CRYSTAL VIOLET FROM BANGLADESH

On July, 9th 2010 European Union established a new criteria for crystal violet residue in shrimp and fish that doesn't allow more than 0.5 part per billion (ppb)<sup>1</sup>. The new regulation has blocked over 50 percent of Bangladesh shrimp export to EU which used the old maximum residue limit of crystal violet at the level of 2.0 ppb. Apart from Bangladesh, EU has also set the same criteria for China.

Crystal violet (CV), sometimes referred to as gentian violet, is a compound of the triphenyl methane dyes group which are effective in the treatment of fungal and protozoa infections. It easily absorbed into aquatic animal tissue from water exposure and it is metabolized by animals to the reduced leuco forms; leucocrystal violet (LCV). The leuco form has a longer half life time in aquatic tissue than its parent compound. Current data suggests that CV may be carcinogenic and also promote *in vivo* mutageneses in humans. In many countries CV is not approved for use in aquaculture.

Originally, crystal violet and leucocrystal violet did not have maximum residue limits (MRL) nor minimum required performance limits

(MRPL) as defined in Commission Decision 2002/657/EC. Pre-export guarantee for consignments could specify the decision limit (CC-alpha) or Limit of Quantification (LOQ) of the confirmatory method. If the analyte exceeded the decision limit, the consignments was not allowed to be place on the market in EU. However, EU member states informed European Commission that these certifications results in case of absence of CV from Bangladesh were difficult to interpret and that these certifications didn't clearly indicate whether the results complied with Decision 2002/657/EC<sup>2</sup>. To solve this problem EU has established the new criteria which does not allow shrimp and fish to contain more than 0.5 ppb CV.



<sup>1</sup>. [New EU testing rule hits shrimp exporters hard](#)

EU published the amending Decision 2008/630/EC and 2002/994/EC concerning the monitoring of crustaceans and products of animal origin imported from Bangladesh, China and other third countries. Food products must be tested for the presence of chloramphenicol, metabolite of nitrofurans, tetracycline, malachite green and crystal violet to preserve human health<sup>3,4</sup>.

Methodology for the determination of CV and LCV has been limited. Due to lack of a chromophore group of the metabolized form, it is difficult to analyze these compounds. Oxidization of LCV back into CV is the way to overcome the problem. The convertibility reaction is taken before measuring the results as total CV by using HPLC/UV or fluorescence detector or LC-MS/MS. Nevertheless, HPLC/UV and fluorescence detector can not achieve the new MRL for CV as specified by the EU. To confirm the results at ppb level, LC-MS/MS is the best technique to be utilized according to Commission Decision 2002/657 EC. This technique produces the required sensitivity and selectivity.



Within the SGS network of laboratories we are capable of testing for crystal violet in seafood products by using LC-MS/MS methodology in order to meet the EU regulation. If you need more information, please don't hesitate to contact us.

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<sup>2</sup>[Import of aquaculture products from Bangladesh into the EU](#)

<sup>3</sup>[COMMISSION DECISION of 12 July 2010 amending Decision 2008/630/EC on emergency measures applicable to crustaceans imported from Bangladesh and intended for human consumption](#)

<sup>4</sup>[COMMISSION DECISION of 30 July 2008 amending Decision 2002/994/EC concerning certain protective measures with regard to products of animal origin imported from China](#)

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