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Abstract title:

INTERLABORATORY ROUND-ROBINS FOR THE LUMINESCENT BACTERIA TOXICITY ASSAY. REPEATABILITY AND REPRODUCIBILITY STUDIES

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Abstract text:

The aquatic toxicity assay using luminescent bacteria has been used in ecotoxicological monitoring for almost 25 years. This assay has been introduced in several regulations as one of the parameters used to determine the quality of wastewater effluents, and to calculate a pollution tax.

Over the past 12 years, we have been conducting inter-laboratory comparison exercises to evaluate the behaviour of this assay before different types of chemical contaminants. We have been studying systematically the results of these interlaboratory comparison studies, in order to investigate the reproducibility and repeatability of this assay, an important question when its results might be used to dictate sentence in cases of presumed negligence or lack of compliance.

The work presented here consists on a statistical analysis of results of an individual inter-laboratory exercise for the luminescent bacteria toxicity bioassay. The presentation contains a discussion on the statistical methods available to the presentation and refinement of the evaluation of the precision of any assay (including intra- and inter-laboratory variability), with special emphasis on the rejection of outliers and standardised parameters, such as repeatability and reproducibility.

Topic: 1A. Advances in environmental sampling and analytical methods

Keywords: toxicity assays, aquatic toxicology, environmental risk assessment, luminescent bacteria assay

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