

Dear colleague,

We are happy to announce that OSPAR/ICES and MEDPOL will organize a joint training workshop on lysosomal membrane stability (neutral red retention assay) in mussel. Lysosomal stability is a central parameter in integrated monitoring schemes developed for both fish and shellfish. It is a general, but sensitive, response to environmental stress which has widespread acceptance in marine and other environmental fields. In addition to its application in ICES/OSPAR programmes, it is likely that lysosomal stability measurements will be required as part of the assessment of Good Environmental Status under the Marine Strategy Framework Directive (particularly Descriptor 8, that contaminant concentrations should not give rise to pollution effects). The harmonization and validation of this technique is a prerequisite for application within monitoring programmes.

Participants:

The ICES/OSPAR component of the workshop is intended for scientists with experience of the application of the neutral red retention assay for lysosomal membrane stability in marine samples and in the assessment of data, and in the development of QA schemes to ensure that the resulting report to ICES/OSPAR is of high quality.

Organization

The workshop is coordinated by Aldo Viarengo (Italy) for MEDPOL and by Concepción Martínez-Gómez (Spain) for ICES/OSPAR and will be held in Alessandria (Italy) from 13th to 17th of September 2010. Prof A. Viarengo, Prof. M. N. Moore, and Dr. C. Bolognesi will participate both to theoretical and laboratory activities. Concepción Martínez will assist in the laboratory activities for LMS and will participate in development of an illustrated (graphical) guide document on the interpretation of the neutral red retention assay for lysosomal membrane stability in mussels.

Location

The workshop will be held at Università del Piemonte Orientale "Amedeo Avogadro", Alessandria, Italy.

Registration

Please sign for participation before the 1st of August 2010 by sending an email to concepcion.martinez@mu.ieo.es

There is a fee of 200 euros for non-MEDPOL participants to cover the cost for course organisation and use of laboratory materials. Travel, accommodation and meals are at participant's cost.

The fee should be transferred to the bank account of ICES:

Nordea Denmark

IBAN: DK0520008420030593

BIC/SWIFT: NDEADKKK

with "ICES/OSPAR/MEDPOL / name of participant" in the transfer reference.

Objectives

The objectives of the joint MEDPOL/ICES/OSPAR workshop are to:

- (i) Provide training in the measurement of lysosomal membrane stability in marine samples (MEDPOL).
- (ii) Provide training in other biological effects measurement techniques for marine samples relevant to OSPAR and to MSFD, including of lipofuscin accumulation, micronuclei enumeration (MEDPOL).
- (iii) Develop guidance on the interpretation of the neutral red retention assay for lysosomal membrane stability in marine samples, giving particular attention to the variation in sample characteristics experienced through the ICES/OSPAR area. To develop written and graphical material to elaborate and clarify the interpretation of

results and the standard analytical method for lysosomal membrane stability by the neutral red retention assay (ICES/OSPAR).

- (iv) Develop proposals for effective and repeatable external quality assurance programmes for the measurement of lysosomal membrane stability (ICES/OSPAR).

Activities

The ICES/OSPAR element of the workshop will be organized around the following activities, building on the activities of SGIMC (and WKIMON):

Presentation and discussion of the background information

- a. existing experience of the use of the neutral red retention assay for lysosomal membrane stability in marine samples will be presented, reviewed, and collated.
- b. the information will be reviewed in the light of experience during the MEDPOL training elements of the Workshop.

Output from the Workshop

- c. enhanced methodological guidance for the neutral red retention assay for lysosomal membrane stability in marine samples,
- d. proposals for effective and repeatable external quality assurance programmes for the measurement of lysosomal membrane stability

Documents provided prior to the workshop

The following existing documents are relevant to the workshop and will be collated and distributed prior to the Workshop

- a. Background documents in the OSPAR Strategy for Hazardous Substances
- b. OSPAR Background Documents concerning lysosomal membrane stability, relevant biological effects.
- c. ICES TIMES and MEDPOL document on the measurement of lysosomal membrane stability in marine samples using the neutral red

retention assay. Reports of relevant meetings of ICES/OSPAR WKIMON and SGIMC groups, and of ICES WGBEC.

d. Assessment criteria for biological effects currently adopted by OSPAR.

Further information

See the attached brochure. If you are interested to participate, please send an email to concepcion.martinez@mu.ieo.es

Looking forward to your response.

Yours sincerely,

Concha Martinez-Gomez

13th – 17th September 2010

Biomonitoring systems employing sentinel organisms

Tutors: N. M. Moore, C. Bolognesi, A. Viarengo, A. Dagnino, S. Sforzini

Main topics: The use of caged molluscs for biomonitoring aquatic environments using biomarkers and a 2-tier approach.

This course will outline the reasons for the U.N. (the MED POL Program) to introduce the use of caged molluscs for the assessments of the biological effects of pollutants. The system optimizes the condition of use of caged molluscs to obtain both biological data concerning the effects of pollutants and the uptake of toxic chemicals which accumulated in the tissue of these organisms, causing a stress syndrome. A two-tier approach suitable to reduce management expenses of this biomonitoring system will be described. The QA scheme will be described to ensure that the resulting report to MED POL (or ICES/OSPAR) is of high quality. With the choice of the appropriate sentinel organisms, this system can be used for monitoring both river and coastal marine areas (MED POL Phase IV).

The theory part will last 1 day.

The practical will last 4 days and will involve the use of cytochemical and biomarkers of stress. Cytochemical tests include lysosome membrane stability (2 days). The practical will also make use of genotoxicity biomarker: micronuclei frequencies activity (2 days).

The biomarkers will be employed on organisms after the sex determination.

At the end of the practical, the results (added with a set of results concerning biomarker data at molecular/cellular tissue and organisms level) will be integrated using the Mussel Expert System developed at DiSAV which allows an objective analysis of pooled data and a five-level classification of the stress syndrome caused by toxic compounds.

This course will be taught in English.

Università del Piemonte Orientale
"Amedeo Avogadro"
Facoltà di Scienze M.F.N.
DiSAV Dipartimento di Scienze dell'Ambiente e della Vita

MED POL High Level Program in Environmental Monitoring and Risk Assessment



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